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Navigation Page



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Home

Welcome to the E-Handbook on Sustainable Development Goals Indicators' page

The 2030 Agenda for Sustainable Development “encourages member states to conduct regular and inclusive reviews of progress at the national and sub-national levels which are country-led and country-driven”.

This handbook is targeted towards national statisticians to enable them to monitor progress made in implementation of the Sustainable Development Goals based on **data produced by national statistical systems**.

It addresses the **growing need for information targeted towards national statisticians** to collect, calculate, and monitor the SDGs using data produced by the national statistical systems. We hope this will be a comprehensive yet straightforward reference that focuses on key aspects—such as concepts, definition, sources, calculations—that are essential to measuring indicators. It also provide additional links and references to more detailed information, so that national statisticians are able to delve into detailed references when needed.

Given the continuous work on refinement of indicators this e-handbook will be kept as a **living document** for updating as and when required in this wiki.

This handbook has prepared by United Nations Statistics Division (UNSD) in collaboration with the custodian agencies for each indicators. For goals/indicators that do not have chapters here yet, they are currently being prepared and they will be uploaded here as soon as they become available.

If you have any questions about the handbook please contact Shaswat Sapkota (sapkotas@un.org).

[Search the e-handbook:](#)

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Goal 1

End poverty in all its forms everywhere

E-Handbook on the Sustainable Development Goals Indicators



United Nations

[e-Handbook Home Page](#)



In this goal:

United Nations Statistics Division (UNSD) worked in consultation with each indicators' custodian agency(ies) to prepare these chapters. For indicators that do not have chapters here yet, they are currently being prepared and they will be uploaded here as soon as they become available.

If you have any questions on the e-Handbook, do not hesitate to contact Shaswat Sapkota (sapkotas@un.org).

Indicator 1.1.1

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Indicator Name, Target and Goal

Indicator 1.1.1: Proportion of population below the international poverty line, by sex, age, employment status and geographical location (urban/rural)

Target 1.1: By 2030, eradicate extreme poverty for all people everywhere, currently measured as people living on less than \$1.25 a day^[1].

Goal 1: End poverty in all its forms everywhere

[1] The International Poverty Line was updated to \$1.90 per day in October 2015.

Definition and Rationale

Definition:

The indicator is defined as the proportion of the population living in households below the international poverty line where the average daily consumption (or income) per person is less than \$1.9 a day measured at 2011 international prices adjusted for purchasing power parity (PPP) .

Concepts:

The *international poverty line* is a threshold used to measure extreme poverty based on consumption or income levels. A person is considered extremely poor if his or her consumption or income level falls below the minimum level necessary to meet basic needs. For this indicator, the line is set at \$1.90 (2011 PPP). It replaces the \$1.25 a day poverty line measured in 2005 prices since October 2015.

The *purchasing power parity* (PPP) conversion factor is the number of units of a country's currency required to buy the same amounts of goods and services in the domestic market as one United States dollar would buy in the United States. It is based on the System of National Accounts' concept of actual individual consumption.

The proportion of the population living below the poverty line is also known as the *poverty headcount index* (or *incidence of poverty* or

poverty rate).

Households in poverty are those households whose disposable income or consumption expenditure is below the poverty line taking into account the number of household members and composition (e.g., number of adults and children).

Rationale and Interpretation:

The \$1.90 a day poverty line or the critical threshold value, below which an individual is determined to be extremely poor, allows for comparing and aggregating progress across countries in reducing the number of people living under extreme poverty and for monitoring trends at the global level. In addition, poverty measures based on an international poverty line attempt to hold the real value of the poverty line constant over time allowing for accurate assessments of progress toward meeting the goal of eradicating extreme poverty and hunger.

Data Sources and Collection Method

The indicator is produced globally using micro-level data on household income or consumption expenditures from nationally representative household surveys, which is reported to the World Bank's development research group and/or the ILO (for working poverty). Only nationally representative surveys that contain sufficient information to produce a comprehensive consumption or income aggregate (including consumption or income from own production) and allow for the construction of a correctly weighted distribution of per capita consumption or income are used.

Examples of surveys include household income and expenditure surveys (HIES), living standards measurement surveys (LSMS) with employment modules, or labour force surveys (LFS) that collect information on household income. Such surveys also offer the benefit of allowing the employment status and income (or consumption expenditure) variables to be derived from the same sampled households ideally for the same long observation period.

Method of Computation and Other Methodological Considerations

Computation Method:

The formula for calculating this indicator is as follows:

$$P_0 = \frac{1}{N} \sum_{i=1}^N I(y_i \leq z) = \frac{N_p}{N}$$

where P_0 represents the headcount index, $I()$ is an indicator function that takes on the value 1 if the bracketed expression is true, and 0 otherwise. If individual consumption or income (y_i) is less than the international poverty line (z), then $I()$ is equal to 1 and the individual is counted as poor. N_p is the total number of the poor and N is the total population.

The current extreme poverty line is set at \$1.90 a day in 2011 PPP terms. The international poverty line maintains the same standard for extreme poverty - the poverty line typical of the poorest countries in the world - but updates it using the latest information on the cost of living.

The percentage of population living below the international poverty line is calculated using either consumption or income data, gathered from nationally representative household surveys. Consumption is preferred to income for measuring poverty, because income is more difficult to measure accurately and can vary over time even if the standard of living does not. However, in practice the two methods yield similar results.

Consumption, including consumption from own production (or income when consumption is unavailable), is calculated for the entire household and then divided by the number of persons living in the household to derive a per capita measure. Households are then ranked by either consumption (or income) per person and compared to the poverty line to determine the numbers of people living above and below the poverty line.

The sample distributions of poor people are weighted by household size and sample expansion factors so that they are representative of the population of each country. This generates an estimate of the number of people living in households with levels of per capita consumption or income below the poverty line. The total number below the poverty line is divided by the total population to estimate the proportion of the population that is extremely poor. This number is multiplied by 100 to derive a percentage.

Comments and limitations:

In making international comparisons of poverty estimates, there are conceptual and practical problems to address. Potential problems include the following:

- Internationally comparable lines are useful for producing global aggregates of poverty. However, such a universal line is generally not suitable for the analysis of poverty within a country. For that purpose, a country-specific poverty line needs to be

constructed that reflects the country's economic and social circumstances, and adjusted for different locations such as rural and urban areas.

- The reliability of poverty estimates using the international poverty line is significantly influenced by the underlying PPP data, national consumer price indices and their production timelines. Therefore, comparison across countries may not be accurate in terms of needs deprivation.
- Differences in the relative importance of consumption of non-market goods may affect poverty rate estimates. The local market value of all consumption in kind (including own production) should be included in total consumption expenditure. Similarly, imputed profit from the production of non-market goods should be included in income.
- This indicator measures poverty based on household per capita income/consumption, ignoring intra-household inequality in the distribution of resources, and does not take into account other dimensions of poverty such as vulnerability, people's feeling about relative deprivation and lack of voice and power of the poor.

Proxy, alternative and additional indicators: N/A

Data Disaggregation

The preferred household surveys should contain variables that can identify both the poverty status of households and give information on the economic activity of the household's members, which would allow further disaggregation of this indicator by sex, age, employment status and geographic location (urban/rural).

Disaggregation by Employment

The working poor are employed persons living in households that are classified as poor, that is, that have income (or consumption) per capita levels below the poverty line used for measurement.

The proportion of the working poor is calculated by dividing the number of employed persons living in households below the international poverty line (disaggregated by sex, age and geographical location) by the total number of employed persons (disaggregated by sex, age and geographical location).

References

Official SDG Metadata URL

World Bank - <https://unstats.un.org/sdgs/metadata/files/Metadata-01-01-01a.pdf>

ILO - <https://unstats.un.org/sdgs/metadata/files/Metadata-01-01-01b.pdf>

Internationally agreed methodology and guideline URL

World Bank. *Povcalnet Online Poverty Analysis Tool*. Washington, DC. Internet Site <http://iresearch.worldbank.org/PovcalNet/povOnDemand.aspx>

World Bank (2015). *A Measured Approach to Ending Poverty and Boosting Shared Prosperity: Concepts, Data, and the Twin Goals*. Washington DC. <https://openknowledge.worldbank.org/bitstream/handle/10986/20384/9781464803611.pdf>

Other references:

<http://documents.worldbank.org/curated/en/2015/10/25114899/global-count-extremepoor-2012-data-issues-methodology-initial-results>

International Labor Organization (2013). *Decent Work Indicators: Guidelines for Producers and Users of Statistical and Legal Framework Indicators*. Available from: http://www.ilo.org/wcmsp5/groups/public/—dgreports/—stat/documents/publication/wcms_223121.pdf

International Labor Organization. *Key Indicators of the Labour Market (KILM), 9th edition*. Internet Site www.ilo.org/ilostat/kilm

Country examples

N/A

International Organization(s) for Global Monitoring

This document was prepared based on inputs from World Bank.

For focal point information for this indicator, please visit <https://unstats.un.org/sdgs/dataContacts/>

Indicator 1.3.1

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Indicator Name, Target and Goal

Indicator 1.3.1: Proportion of population covered by social protection floors/systems, by sex, distinguishing children, unemployed persons, older persons, persons with disabilities, pregnant women, newborns, work-injury victims and the poor and the vulnerable

Target 1.3: Implement nationally appropriate social protection systems and measures for all, including floors, and by 2030 achieve substantial coverage of the poor and the vulnerable

Goal 1: End poverty in all its forms everywhere

Definition and Rationale

Definition:

The indicator measures the proportion of persons who are effectively covered by a social protection system. It includes the main components of social protection: child and maternity benefits, support for people without a job, benefits for persons with disabilities, victims of work injuries and older persons.

Concepts:

Social protection systems include contributory and non-contributory schemes for children, pregnant women and women with new-borns, unemployed, older persons, victims of work injuries and persons with disabilities.

Effective coverage includes both the number of people who are either actively contributing to a social insurance scheme or receiving benefits (contributory or non-contributory).

Rationale and Interpretation:

Social protection, or social security, is defined as the set of policies and programmes designed to reduce and prevent poverty and vulnerability throughout the life cycle. Social protection includes child and family benefits, maternity protection, unemployment support, employment injury benefits, sickness benefits, disability and old-age pensions. Social protection systems address all these policy areas by a mix of contributory schemes (social insurance) and non-contributory tax-financed benefits, including social assistance.

Social protection systems help individuals and families, especially the poor and vulnerable, cope with crises and shocks, find jobs, improve productivity, invest in the health and education of their children, and protect the aging population. Social protection systems include contributory and non-contributory schemes for children, pregnant women with newborns, people in working age, older persons, victims of work injuries and persons with disabilities.

Access to at least a basic level of social protection throughout the life cycle is a human right. Nationally defined social protection floors are created to guarantee decent living conditions to everyone. The proportion of the population covered by social protection floors or systems provides an indication of the extent to which a country has provided this social protection, and thus, how secure are the population's living conditions.

Data Sources and Collection Method

The primary source of data for the calculation of this indicator is from administrative datasets maintained by the national ministries of labour, social development, welfare, finance, social security institutions and others. The institutions may seek guidance from the Social Security Inquiry online manual, which lays out the definitions and concepts that should be used to monitor each component of the indicator^[1]. Additional information and country practices can be obtained from the World Social Protection Report 2017/2019^[2]

[1] Questions on Social Security Inquiry, definitions and concepts can be addressed to: socprodata@ilo.org
[2] <http://www.ilo.org/global/research/global-reports/world-social-security-report/2017-19/lang--en/index.htm>

Method of Computation and Other Methodological Considerations

Computation Method:

Proportion of population covered by social protection systems is calculated separately for each group in order to distinguish effective coverage for children, unemployed persons, older persons and persons with disabilities, women with newborns, workers protected in case of work injury, and the poor and the vulnerable. For each subgroup, coverage is expressed as a share of the respective reference population. See *Data Disaggregation* for further information.

Proportion of population covered by social protection systems (by subgroup) is calculated using the following formula:

$$\text{Coverage} = \frac{\text{Number of beneficiaries in the total population (or group)}}{\text{Total population (or group)}}$$

For example, proportion of older persons receiving a pension: ratio of persons above statutory pensionable age receiving an old-age pension to the number of persons above statutory pensionable age.

The aggregate indicator is calculated as the ratio of the sum of persons protected by contributory schemes, recipients of contributory and non-contributory benefits to total population.

Comments and limitations:

Most of the data in the ILO World Social Protection Database are compiled through the ILO Social Security Inquiry (SSI), a questionnaire on administrative records regularly submitted to governments, complemented by existing international data. The 2016 edition of the SSI is an update of the earlier questionnaire, adapted to better reflect the newly adopted SDGs. The SSI questionnaires and manual are available online.[1]

The ILO World Social Protection Database complements the data received from the SSI, as far as possible on a consistent basis, with a number of other international and regional data sources, notably the International Social Security Association's (ISSA) and other international organizations. The ILO World Social Protection Database also draws on national official reports and other sources, which are usually largely based on administrative data; and on survey data from a range of sources including national household income and expenditure surveys, labour force surveys and demographic and health surveys, to the extent that these include variables on social protection. When social protection coverage statistics are derived from administrative records, and especially when they are derived from various separate records put together, care should be taken to avoid double-counting of persons receiving more than one social protection benefit, or covered by more than one social protection scheme. In order to avoid double-counting when identifying the beneficiaries through the administrative records data, it is important to distinguish the recipients of basic and supplementary benefit in each scheme.

The countries usually are able to provide a complete set of information on persons protected and actual beneficiaries at little additional cost, as the information is collected by the national institutions for the regular functioning of the scheme/programme. Difficulties may occur due to fragmentation of sources, and when capturing information about smaller or less visible schemes, especially those not anchored in legislation. Administrative records' coverage is not always totally comprehensive, in that it may exclude some geographic areas, or portions of the population, or economic activities.

For social protection coverage statistics derived from household surveys, two important issues must be noted (1) periodicity: in a large number of countries household surveys are not conducted on a regular basis, which makes them less sufficient for monitoring purposes; and (2) the extent to which information on specific transfers and programs is captured in surveys can vary a lot across countries. Often, household surveys do not capture the universe of social protection programs in the country, but only the largest national programs. Many household surveys have limited information on social protection programs. Some surveys collect information only on participation without including the transfer amounts; and others include program information mixed with private transfers, making it difficult to isolate individual social protection programs. The reliability of the information is also greatly dependent on the respondents' accuracy.

In addition, if the sample has not been designed to accommodate social protection coverage (especially when it comes to the number of beneficiaries), the survey may not produce reliable statistics in that respect. There is no guarantee that the sample size will be sufficiently large to allow for detailed disaggregation of beneficiaries from social security benefits.

Proxy, alternative and additional indicators: N/A

[1] See <http://www.social-protection.org/gimi/gess/ShowTheme.action?id=10>.

Data Disaggregation

This indicator is to be disaggregated by sex, age (children/adults), unemployed persons, older persons, persons with disabilities, women with newborns, work-injury victims and the poor and the vulnerable

References

Official SDG Metadata URL

ILO: <https://unstats.un.org/sdgs/metadata/files/Metadata-01-03-01a.pdf>

Internationally agreed methodology and guideline URL

International Labour Organization: www.ilo.org/ilostat

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The World Bank: ASPIRE. The Atlas of Social Protection – Indicators of Resilience and Equity. Available at: <http://datatopics.worldbank.org/aspire/>

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International Labour Organization (2012). *Social Protection Floors Recommendation*. (n202). http://www.ilo.org/dyn/normlex/en/f?p=NOR_MLEX PUB:12100:0::NO::P12100_INSTRUMENT_ID,P12100_LANG_CODE:3065524

International Labour Organization (2017/2019). *World Social Protection Report*. <http://www.ilo.org/global/research/global-reports/world-social-security-report/2017-19/lang-en/index.htm>

Country examples

N/A

International Organization(s) for Global Monitoring

This document was prepared based on inputs from International Labour Organization (ILO).

For focal point information for this indicator, please visit <https://unstats.un.org/sdgs/dataContacts/>

Indicator 1.5.1

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Indicator Name, Target and Goal

Indicator 1.5.1: Number of deaths, missing persons and directly affected persons attributed to disasters per 100,000 population

Target 1.5: By 2030, build the resilience of the poor and those in vulnerable situations and reduce their exposure and vulnerability to climate-related extreme events and other economic, social and environmental shocks and disasters

Goal 1: End poverty in all its forms everywhere

Definition and Rationale

Definition:

This indicator measures the number of people who died, went missing or were directly affected by disasters per 100,000 population.

Concepts:

Death: The number of people who died during the disaster, or directly after, as a direct result of the hazardous event.

Missing: The number of people whose whereabouts is unknown since the hazardous event. It includes people who are presumed dead, for whom there is no physical evidence such as a body, and for which an official/legal report has been filed with competent authorities.

Directly affected: The number of people who have suffered injury, illness or other health effects; who were evacuated, displaced, relocated or have suffered direct damage to their livelihoods, economic, physical, social, cultural and environmental assets. Indirectly affected are people who have suffered consequences, other than or in addition to direct effects, over time, due to disruption or changes in economy, critical infrastructure, basic services, commerce or work, or social, health and psychological consequences.

Rationale and Interpretation:

The Sendai Framework for Disaster Risk Reduction 2015-2030 was adopted by UN Member States in March 2015 as a global policy of disaster risk reduction. Among the global targets, “Target A: Substantially reduce global disaster mortality by 2030, aiming to lower average per 100,000 global mortality between 2020-2030 compared with 2005-2015” and “Target B: Substantially reduce the number of affected people globally by 2030, aiming to lower the average global figure per 100,000 between 2020-2030 compared with 2005-2015” will contribute to sustainable development and strengthen economic, social, health and environmental resilience. The economic, environmental and social perspectives would include poverty eradication, urban resilience, and climate change adaptation.

The open-ended intergovernmental expert working group on indicators and terminology relating to disaster risk reduction (OIEWG) established by the General Assembly (resolution 69/284) has developed a set of indicators to measure global progress in the implementation of the Sendai Framework, which was endorsed by the UNGA (OIEWG [report A/71/644](#)). The relevant global indicators for the Sendai Framework will be used to report for this indicator.

Disaster loss data is greatly influenced by large-scale catastrophic events, which represent important outliers. UNISDR recommends countries report the data by event, so that complementary analysis can be undertaken to obtain trends and patterns in which such catastrophic events (that can represent outliers) can be included or excluded.

Data Sources and Collection Method

Data provider at national level is appointed Sendai Framework Focal Points. In most countries disaster data are collected by line ministries and national disaster loss databases are established and managed by special purpose agencies including national disaster management agencies, civil protection agencies, and meteorological agencies. The Sendai Framework Focal Points in each country are responsible of data reporting through the Sendai Framework Monitoring System.

Method of Computation and Other Methodological Considerations

Computation Method:

This indicator, X, is calculated as a simple summation of related indicators (death, missing people, and affected people) from national disaster loss databases divided by the national population data (from national censuses, World Bank or UN Statistical Commission information).

$$X = \frac{(A_2 + A_3 + B_1)}{\text{National Population}} \times 100,000$$

Where:

A₂ Number of deaths attributed to disasters;

A₃ Number of missing persons attributed to disasters; and

B₁ Number of directly affected people attributed to disasters.

* Detailed methodologies can be found in the Technical Guidance (see below the Reference section)

Comments and limitations:

The Sendai Framework Monitoring System has been developed to measure the progress in the implementation of the Sendai Framework by UNGA endorsed indicators. Member States will be able to report through the System from March 2018. The data for SDG indicators will be compiled and reported by UNISDR.

Proxy, alternative and additional indicators:

In most cases international data sources only record events that surpass some threshold of impact and use secondary data sources which usually have non uniform or even inconsistent methodologies, producing heterogeneous datasets.

Data Disaggregation

This indicator can be disaggregated by number of deaths attributed to disasters; number of missing persons attributed to disasters; and number of directly affected people attributed to disasters. Possible desirable disaggregation dimensions include: hazard, geography (administrative unit), sex, age (3 categories), disability and income.

References

Official SDG Metadata URL

<https://unstats.un.org/sdgs/metadata/files/Metadata-01-05-01.pdf>

Internationally agreed methodology and guideline URL

Technical guidance for monitoring and reporting on progress in achieving the global targets of the Sendai Framework for Disaster Risk Reduction (UNISDR 2017)

https://www.preventionweb.net/files/54970_collectionoftechnicalguidancenotes.pdf

Other references

Report of the open-ended intergovernmental expert working group on indicators and terminology relating to disaster risk reduction (OEIWG). *Endorsed by UNGA on 2nd February 2017*. Available at: <https://www.preventionweb.net/publications/view/51748>

Country examples

N/A

International Organization(s) for Global Monitoring

This document was prepared based on inputs from United Nations Office for Disaster Risk Reduction (UNISDR).

For focal point information for this indicator, please visit <https://unstats.un.org/sdgs/dataContacts/>

Indicator 1.5.2

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Indicator Name, Target and Goal

Indicator 1.5.2: Direct economic loss attributed to disasters in relation to global gross domestic product (GDP)

Target 1.5: By 2030, build the resilience of the poor and those in vulnerable situations and reduce their exposure and vulnerability to climate-related extreme events and other economic, social and environmental shocks and disasters

Goal 1: End poverty in all its forms everywhere

Definition and Rationale

Definition:

This indicator measures the ratio of direct economic loss attributed to disasters in relation to GDP.

Concepts:

Economic Loss: Total economic impact that consists of direct economic loss and indirect economic loss.

Direct economic loss: the monetary value of total or partial destruction of physical assets existing in the affected area. Direct economic loss is nearly equivalent to physical damage.

Indirect economic loss: a decline in economic value added as a consequence of direct economic loss and/or human and environmental impacts.

Examples of physical assets that are the basis for calculating direct economic loss include homes, schools, hospitals, commercial and governmental buildings, transport, energy, telecommunications infrastructures and other infrastructure; business assets and industrial plants; production such as crops, livestock and production infrastructure. They may also encompass environmental assets and cultural heritage. Direct economic losses usually happen during the event or within the first few hours after the event and are often assessed soon after the event to estimate recovery cost and claim insurance payments. These are tangible and relatively easy to measure.

Rationale and Interpretation:

The Sendai Framework for Disaster Risk Reduction 2015-2030 was adopted by UN Member States in March 2015 as a global policy of disaster risk reduction. Among the global targets, "Target C: Reduce direct disaster economic loss in relation to global gross domestic product (GDP) by 2030" will contribute to sustainable development and strengthen economic, social, health and environmental resilience. The economic, environmental and social perspectives would include poverty eradication, urban resilience, and climate change adaptation.

The open-ended intergovernmental expert working group on indicators and terminology relating to disaster risk reduction (OIEWG) established by the General Assembly (resolution 69/284) has developed a set of indicators to measure global progress in the implementation of the Sendai Framework, which was endorsed by the UNGA (OIEWG [report A/71/644](#)). The relevant global indicators for the Sendai Framework will be used to report for this indicator.

Disaster loss data is greatly influenced by large-scale catastrophic events, which represent important outliers. UNISDR recommends countries report the data by event, so that complementary analysis can be undertaken to obtain trends and patterns in which such catastrophic events (that can represent outliers in terms of damage) can be included or excluded.

Data Sources and Collection Method

Data provider at national level is appointed Sendai Framework Focal Points. In most countries disaster data are collected by line ministries and national disaster loss databases are established and managed by special purpose agencies including national disaster management agencies, civil protection agencies, and meteorological agencies. The Sendai Framework Focal Points in each country are responsible of data reporting through the Sendai Framework Monitoring System.

Method of Computation and Other Methodological Considerations**Computation Method:**

This indicator, X , is calculated as a simple summation of related indicators from national disaster loss databases divided by the national GDP (from national censuses, World Bank or UN Statistical Commission information).

$$X = \frac{(C_2 + C_3 + C_4 + C_5 + C_6)}{\text{National GDP}}$$

Where:

C_2 Direct agricultural loss attributed to disasters;

C_3 Direct economic loss to all other damaged or destroyed productive assets attributed to disasters;

C_4 Direct economic loss in the housing sector attributed to disasters;

C_5 Direct economic loss resulting from damaged or destroyed critical infrastructure attributed to disasters;

C_6 Direct economic loss to cultural heritage damaged or destroyed attributed to disasters.

* Detailed methodologies can be found in the Technical Guidance (see below the Reference section)

Comments and limitations:

The Sendai Framework Monitoring System has been developed to measure the progress in the implementation of the Sendai Framework by UNGA endorsed indicators. Member States will be able to report through the System from March 2018. The data for SDG indicators will be compiled and reported by UNISDR.

Proxy, alternative and additional indicators:

In most cases international data sources only record events that surpass some threshold of impact and use secondary data sources which usually have non uniform or even inconsistent methodologies, producing heterogeneous datasets.

Data Disaggregation

This indicator can be disaggregated along the following dimensions:

Direct agricultural loss attributed to disasters

Direct economic loss to all other damaged or destroyed productive assets attributed to disasters.

Direct economic loss in the housing sector attributed to disasters.

Direct economic loss resulting from damaged or destroyed critical infrastructure attributed to disasters.

Direct economic loss to cultural heritage damaged or destroyed attributed to disasters

Other desirable disaggregation dimensions include:

Hazard

Geography (Administrative Unit)

References

Official SDG Metadata URL

<https://unstats.un.org/sdgs/metadata/files/Metadata-01-05-02.pdf>

Internationally agreed methodology and guideline URL

Technical guidance for monitoring and reporting on progress in achieving the global targets of the Sendai Framework for Disaster Risk Reduction (UNISDR 2017) https://www.preventionweb.net/files/54970_collectionoftechnicalguidancenotes.pdf

Other references

Report of the open-ended intergovernmental expert working group on indicators and terminology relating to disaster risk reduction (OEIWG). *Endorsed by UNGA on 2nd February 2017*. Available at: <https://www.preventionweb.net/publications/view/51748>

Country examples

N/A

International Organization(s) for Global Monitoring

This document was prepared based on inputs from United Nations Office for Disaster Risk Reduction (UNISDR).

For focal point information for this indicator, please visit <https://unstats.un.org/sdgs/dataContacts/>

Indicator 1.5.3

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Indicator Name, Target and Goal

Indicator 1.5.3: Number of countries that adopt and implement national disaster risk reduction strategies in line with the Sendai Framework for Disaster Risk Reduction 2015-2030

Target 1.5: By 2030, build the resilience of the poor and those in vulnerable situations and reduce their exposure and vulnerability to climate-related extreme events and other economic, social and environmental shocks and disasters

Goal 1: End poverty in all its forms everywhere

Definition and Rationale

Definition:

This indicator measures the number of countries that adopt and implement national disaster risk reduction (DRR) strategies in line with the Sendai Framework for Disaster Risk Reduction 2015-2030, with multiple dimensions of the level of implementation.

Concepts:

Disaster risk reduction strategies: define goals and objectives across different timescales and with concrete targets, indicators and time frames. In line with the Sendai Framework for Disaster Risk Reduction 2015-2030, these should be aimed at preventing the creation of disaster risk, the reduction of existing risk and the strengthening of economic, social, health and environmental resilience.

Rationale and Interpretation:

The Sendai Framework for Disaster Risk Reduction 2015-2030 was adopted by UN Member States in March 2015 as a global policy of disaster risk reduction. Among the global targets, "Target E: Substantially increase the number of countries with national and local disaster risk reduction strategies by 2020" will promote DRR and eventually contribute to sustainable development and strengthen economic, social, health and environmental resilience. The economic, environmental and social perspectives would include poverty eradication, urban resilience, and climate change adaptation. Their economic, environmental and social perspectives would include poverty eradication, urban resilience, and climate change adaptation.

In line with the Sendai Framework, DRR strategies and policies should mainstream and integrate disaster risk reduction within and across all sectors, across different timescales and with targets, indicators and time frames. These DRR strategies should be aimed at preventing the creation of disaster risk, the reduction of existing risk, the strengthening of economic, social, health and environmental resilience, and other key elements stipulated in the Sendai Framework.

The open-ended intergovernmental expert working group on indicators and terminology relating to disaster risk reduction (OIEWG) established by the General Assembly (resolution 69/284) has developed a set of indicators to measure global progress in the implementation of the Sendai Framework, which was endorsed by the UNGA (OIEWG [report A/71/644](#)). The relevant global indicator for the Sendai Framework, E-1, is used to report for this indicator.

Data Sources and Collection Method

Appointed Sendai Framework focal points.

In most countries national disaster loss databases are established and managed by special purpose agencies including national disaster management agencies, civil protection agencies, and meteorological agencies, and disaster data collected by line ministries. The Sendai Framework Focal Points in each country are responsible of data reporting through the online Sendai Framework Monitoring System.

Method of Computation and Other Methodological Considerations

Computation Method:

Detailed methodologies can be found in the Technical Guidance (see the Reference)

Summary

This is a quantitative indicator by increment measurements for achievement that would quantify the improvement in the quality of national DRR strategies over time, rather than binary measurement (yes/no), which was based on the deliberations of the OIEWG as well as the IAEG-SDGs.

Ten Key elements derived from the Sendai Framework are used as sub-indicators (5 levels from 0 to 1: 0, 0.25, 0.50, 0.75, 1.0) to measure the alignment with the Sendai Framework. Member States are to assess the level of implementation for each sub-indicator.

This indicator is calculated through the arithmetic average of these sub-indicators:

National DRR strategies are to

- i. Have different timescales, with targets, indicators and time frames
- ii. Have aims at preventing the creation of risk
- iii. Have aims at reducing existing risk
- iv. Have aims at strengthening economic, social, health and environmental resilience
- v. Address the recommendations of Priority 1, Understanding disaster risk : Based on risk knowledge and assessments to identify risks at the local and national levels of the technical, financial and administrative disaster risk management capacity
- vi. Address the recommendations of Priority 2, Strengthening disaster risk governance to manage disaster risk : Mainstream and integrate DRR within and across all sectors with defining roles and responsibilities
- vii. Address the recommendations of Priority 3, Investing in disaster risk reduction for resilience : Guide to allocation of the necessary resources at all levels of administration for the development and the implementation of DRR strategies in all relevant sectors
- viii. Address the recommendations of Priority 4, Enhancing disaster preparedness for effective response and to "Build Back Better" in recovery, rehabilitation and reconstruction : Strengthen disaster preparedness for response and integrate DRR response preparedness and development measures to make nations and communities resilient to disasters
- ix. Promote policy coherence relevant to disaster risk reduction such as sustainable development, poverty eradication, and climate change, notably with the SDGs and the Paris Agreement
- x. Have mechanisms to follow-up, periodically assess and publicly report on progress.

Comments and limitations:

The Sendai Framework Monitoring System has been developed to measure the progress in the implementation of the Sendai Framework by UNGA endorsed indicators. Member States are to report through the System from March 2018. The data for SDG indicators are compiled and reported by UNISDR.

In contrast to a binary measurement of "legislative and/or regulatory provisions of DRR" in the previous Hyogo Framework for Action Monitor, the Sendai Framework Monitor can incrementally measure the progress by with multiple dimensions of the level of implementation.

Proxy, alternative and additional indicators: N/A

Data Disaggregation

None

References

Official SDG Metadata URL

<https://unstats.un.org/sdgs/metadata/files/Metadata-11-0B-01.pdf>

Internationally agreed methodology and guideline URL

Technical guidance for monitoring and reporting on progress in achieving the global targets of the Sendai Framework for Disaster Risk Reduction (UNISDR 2018) <https://www.preventionweb.net/publications/view/54970>

Other references

Report of the open-ended intergovernmental expert working group on indicators and terminology relating to disaster risk reduction (OEIWG). *Endorsed by UNGA on 2nd February 2017*. Available at: <https://www.preventionweb.net/publications/view/51748>

Country examples

N/A

International Organization(s) for Global Monitoring

This document was prepared based on inputs from United Nations Office for Disaster Risk Reduction (UNISDR).

For focal point information for this indicator, please visit <https://unstats.un.org/sdgs/dataContacts/>

Goal 2

End hunger, achieve food security, and improved nutrition and promote sustainable agriculture

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In this goal:

United Nations Statistics Division (UNSD) worked in consultation with each indicators' custodian agency(ies) to prepare these chapters. For indicators that do not have chapters here yet, they are currently being prepared and they will be uploaded here as soon as they become available.

If you have any questions on the e-Handbook, do not hesitate to contact Shaswat Sapkota (sapkotas@un.org).

Indicator 2.1.1

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Indicator Name, Target and Goal

Indicator 2.1.1: Prevalence of undernourishment

Target 2.1: By 2030, end hunger and ensure access by all people, in particular the poor and people in vulnerable situations, including infants, to safe, nutritious and sufficient food all year round

Goal 2: End hunger, achieve food security and improved nutrition and promote sustainable agriculture

Definition and Rationale

Definition:

The prevalence of undernourishment (PoU) is the proportion of the population whose habitual food consumption is insufficient to provide the dietary energy levels that are required to maintain a normal active and healthy life. It is expressed as a percentage.

Concepts:

Undernourishment is defined as chronic hunger, a condition where a person has inadequate access to food amounts necessary to provide the energy required for conducting a normal, health and active life, given their individual dietary energy requirements over a period of at least one year. The concept encompasses three aspects: availability of food, inequality in access to that food, and minimum dietary energy requirements compatible with long term good health.

The food available for human consumption is the sum of domestically produced and imported food products, minus food exports, food withdrawn from stocks for purposes other than human consumption (feed, seed, industrial use) and food losses. This is then converted into dietary energy terms expressed in kilo-calories and divided by the total population and the number of days in the year to come up with the average daily per capita dietary energy available for human consumption. This dietary energy value is used as a proxy for the habitual dietary energy consumption per capita per day. To smooth annual fluctuations, a three-year average is calculated.

The level of inequality in access to food is measured by two coefficients: (1) the variation of dietary energy consumption due to income differences derived from food consumption and income data collected in household surveys; (2) the variation of dietary energy consumption due to biological factors determining individuals' dietary energy requirements (this coefficient is derived from anthropometric survey data on attained height by sex and age, standards on energy requirements and data on the country sex-age population structure). Inequality in access to food due to differences in socio-economic characteristics may be caused by changes in economic, socio-political and environmental factors such as physical availability of food and prices. Inequality in access to food due to factors determining individuals' dietary energy requirements reflects differences in sex, age, physiological status, body weight and physical activity level.

Within a probability distribution of habitual dietary energy consumption, the minimum level of dietary energy requirements, or cut-off point, is derived using energy standards established by the Food and Agriculture Organization of the United Nations, the World Health Organization and the United Nations University (FAO/WHO/UNU) for different sex and age groups. The minimum level of requirements corresponds to sedentary physical activity and minimum acceptable body-weight for attained heights. Since adults' energy needs almost double the energy needed by a three-year old child, the estimation of the minimum energy requirement per capita in a country must take into account the sex-age structure of the population. Therefore, the daily per capita energy requirements used as cut-off point, for estimating undernourishment in a given year, is calculated at national level, based on dietary energy needs of different age and sex groups, and the proportion of the population represented by each sex-age group.

Rationale and Interpretation:

This indicator measures the level of dietary energy inadequacy, an important aspect of food insecurity in a population and the capacity to sustain development which demands efforts to reduce poverty, including finding solutions to hunger and malnutrition. Alleviating hunger is a prerequisite for sustainable poverty reduction since undernourishment seriously affects, among other things, labour productivity, health and learning capacity and hence earning propensity. Within a country, this indicator allows monitoring trends in the extent of dietary energy inadequacy in a population, generated as a result of the combination of changes in the overall availability of food, in households' ability to access it, and in socio-economic, geographic location and demographic characteristics of the population. It also allows the analysis of differences across countries and global regions in any given moment in time.

The indicator ranges from 0 per cent (no undernourished population) to 100 per cent (the entire population is undernourished). Within a given country, a higher value of this indicator, means that more people suffer from undernourishment (food deprivation). Among countries, a higher value does not necessarily mean a higher number of people undernourished because it depends on the size of the total population. The following undernourishment categories are the most commonly used:

- <5% Very low
- 5% - >14.9% Moderately low
- 15% - >24.9% Moderately high
- 25% - >34.9% High
- 35% and over Very high

Changes in the indicator guide governments and international organizations in formulating policies and implementing actions towards: improving food availability and access by the population, decreasing the negative impact of a rise in income inequalities and coping with trends in food needs.

Data Sources and Collection Method

The three main sources of data at the national level, that are used for monitoring of the PoU at national level, are:

- (1) Official reports on the production, trade and utilization of major food crops and livestock;
- (2) Household survey data on food consumption; and
- (3) Demographic characteristics of the national population.

Data sources for agricultural production are usually national surveys that are conducted by the Ministry of Agricultural/Livestock or the National Statistical Office. The surveys are usually annual, and in the absence of direct measurements, use information on areas/animal numbers and crop yields/carcass weights to calculate crop or livestock product quantities. Agricultural censuses may complement these surveys by providing more updated data on crops and livestock, and thus enable more precise projections/revisions. For production of processed crops the sources are agriculture holdings and/or food and agriculture enterprises. For trade, all crops and livestock products registered by the custom office in the country are taken into consideration. In case of non custom trade data, the observation unit is the trade operator.

The ideal source of data to estimate the inequality in access to food would be a carefully designed and skilfully conducted individual dietary intake survey, in which actual daily food consumption, together with heights and weights for each surveyed individual, are repeatedly measured on a sample that is representative of the target population. However, a well-designed household survey that collects information on food consumption and/or acquisition might be sufficient to inform a reliable estimate for inequality in access to food. Such surveys are generally conducted by the national statistical office of countries. Some examples are Household Income and Expenditure Survey (HIES), Household Budget Surveys (HBS) and Living Standard Measurement Surveys (LSMS).

The data on demographic characteristics such as: (1) population size by sex and age, (2) median height by sex and age, and (3) distribution of physical activity levels, is derived from nationally representative Demographic and Health Surveys (DHS) and Time-Use Surveys. They are also conducted by the national statistical offices.

Method of Computation and Other Methodological Considerations

Computation Method:

The estimates of the prevalence of undernourishment are essentially a measure of food deprivation based on the calculation of four key parameters for each country: the average amount of habitual daily per capita food consumption (the food available for human consumption is used as a proxy), the level of inequality in access to food, the asymmetry in the distribution of habitual per capita consumption and the minimum dietary energy requirements of the population under analysis.

This indicator has been defined within a probability distribution framework as follows:

$$P(U) = P(x < MDER) = \int_{x < MDER} f(x | DEC, CV, Skew) dx$$

where,

- P(U) is the proportion of undernourished in total population;
- DEC is the average of the distribution of habitual daily per capita dietary energy consumption in the population;
- CV is the coefficient of variation of the distribution of habitual daily per capita dietary energy consumption in the population;
- Skewness is the skewness that characterise the asymmetry of the distribution of habitual daily per capita dietary energy consumption in the population; and
- MDER is the minimum dietary energy requirements of the population.

For computational methodologies of DEC, CV, MDER and Skewness using household survey data, see: <http://www.fao.org/3/a-i4046e.p> df and <https://openknowledge.worldbank.org/handle/10986/18091>

Comments and limitations:

Assessing undernourishment by comparing individual dietary energy consumption (collected through individual dietary intake surveys) with sex-age groups' energy requirements is not cost effective, or practical; therefore, just few countries conduct such type of surveys at national level.

The model-based approach developed by FAO offers the best alternative approach to provide with a consistent and reliable measure of the PoU to be used for global monitoring of hunger given the information available.

In the absence of nationally representative individual dietary intake surveys, particularly in low and middle-income countries, food consumption data collected in Household Consumption and Expenditures Surveys (HCES) represent a valid and affordable second source of food. However, a most of individual or household surveys are subject to measurement errors: random and systematic errors. If these later are not accounted for can they affect the estimates of the population' parameters. For instance, dietary energy consumption estimates could be underestimated due to underreporting of consumption by survey respondents. Respondents also sometimes fail to account for food consumed outside of the household.

In context of the global monitoring, providing an estimate for all countries would require access to national survey data on food intake or consumption for all countries. As such information is not available, a proxy value for habitual dietary energy consumption is calculated using information on food available for human consumption in a country obtained from Food Balance Sheets (FBS). FBS are compiled, by FAO, every year for 184 countries. However, these data are also not free from errors, there are estimated or imputed data points especially on the stock levels and FAO concepts may not fit with national concepts. To limit the effect of such errors, the PoU estimates reported for global monitoring refers to a 3-year average.

Survey data are the only source to estimate the CV and Skewness and the data need to be treated to reduce the upward bias in the estimates that is induced by the spurious variability from measurement errors before estimating the CV and the Skewness.

If the same method of computation is used throughout, the comparability across time is relatively high. The only potential cause of heterogeneity is the different quality of background data used for calculating the four parameters.

Proxy, alternative and additional indicators: N/A

Data Disaggregation

Due to reliance on national Food Balance Sheets data to estimate mean caloric consumption levels annually for 184 countries, the global

monitoring of MDG Target 1C and of the WFS target were based on estimates of the PoU at national level only. For the same reason, the FAO global monitoring of the SDG indicator 2.1.1 is also being based on Food Balance Sheets.

In principle, the SDG indicator 2.1.1 can be computed for any specific population group, provided sufficient accurate information exists to characterize the model's parameters (i.e. average habitual dietary energy consumption, the level of inadequacy in access to food and the minimum dietary energy requirement) for that specific group.

The scope for disaggregation thus crucially depends on the availability of surveys designed to be representative at the level of sub national population groups. Given prevailing practice in the design of national household surveys, sufficient reliable information is seldom available for disaggregation beyond the level of macro area of residence (urban-rural) and of the main Provinces/Divisions in a country. To the extent that most of the used surveys are designed to accurately capture the distribution of income, inference can be drawn on the PoU in different income classes of the population. Gender disaggregation is limited by the possibility to identify and group households by gender-related information (such as sex of the head of the household, or male/female ratio).

References

Official SDG Metadata URL

<https://unstats.un.org/sdgs/metadata/files/Metadata-02-01-01.pdf>

Internationally agreed methodology and guideline URL

<http://www.fao.org/3/a-i4046e.pdf>

Other references

FAO SDG Portal and E-Learning:

FAO. *Sustainable Development Goals Indicators*. Available at <http://www.fao.org/sustainable-development-goals/indicators/en/>

FAO. E-learning Centre. Available at <http://www.fao.org/elearning/>

Additional References:

Food and Agricultural Organization of the United Nations. *Food Security Statistics*. Rome. Internet Site. <http://www.fao.org/economic/ess/ess-fs/en/>

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ESS Working Paper. ESS / 14-03. URL: <http://www.fao.org/3/a-i4062e.pdf>

Molledo, A., Troubat, N., Lokshin, M. & Sajaia, Z. 2014. Analyzing Food Security Using Household Survey Data: Streamlined Analysis with ADePT Software. Washington (DC): World Bank. URL: <https://openknowledge.worldbank.org/handle/10986/18091>

Country examples:

Some countries have published estimates of the prevalence of undernourishment at national and subnational levels in food insecurity assessment reports.

URL: <http://www.fao.org/economic/ess/ess-fs/fscapdev/essfscd/en/>

International Organization(s) for Global Monitoring

This document was prepared based on inputs from Food and Agricultural Organization(FAO).

For focal point information for this indicator, please visit <https://unstats.un.org/sdgs/dataContacts/>

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Indicator Name, Target and Goal

Indicator 2.1.2: Prevalence of moderate or severe food insecurity in the population, based on the Food Insecurity Experience Scale (FIES)

Target 2.1: By 2030, end hunger and ensure access by all people, in particular the poor and people in vulnerable situations, including infants, to safe, nutritious and sufficient food all year round

Goal 2: End hunger, achieve food security and improved nutrition and promote sustainable agriculture

Definition and Rationale

Definition:

The indicator is defined as the share of the national population that has experienced food insecurity, based on the Food Insecurity Experience Scale (FIES), at moderate or severe levels during the reference period. *FIES* is a peer reviewed measurement metric developed by the FAO, under the Voices of the Hungry (VOH) project, to compare levels of food insecurity across countries.

Concepts:

Food insecurity is a situation that exists when people lack secure access to sufficient amounts of safe and nutritious food that meets their dietary needs and food preferences for an active and healthy life. Food insecurity may be chronic, seasonal or transitory.

People experiencing *moderate* levels of food insecurity will typically have lower-quality diets and may at times during the year have been forced to also reduce the quantity of food they would normally eat; those experiencing *severe* levels would have gone for entire days without eating due to lack of money or other resources.

Rationale and Interpretation:

Food insecurity is associated with the inability to access safe, nutritious and sufficient food regularly.

High prevalence of food insecurity at moderate levels can be considered a predictor of various forms of diet-related health conditions in the population, associated with micronutrient deficiency and unbalanced diets. Severe levels of food insecurity, on the other hand, imply a high probability of reduced food intake and therefore can lead to more severe forms of undernutrition, including hunger.

Data Sources and Collection Method

Some countries in the world are already using experience-based food insecurity scales that have been validated nationally and applied in national surveys and/or are incorporated into national monitoring systems. Most of these scales are based on the same theoretical framework and construct of food insecurity as the FIES.

Data at the individual or household level can be collected using one of several experience-based food security scale questionnaires. Any of these survey modules collects answers to questions asking to report on the occurrence of a number of typical experiences and conditions associated with food insecurity:

- (1) the Household Food Security Survey Module (HFSSM) developed by the Economic Research Service of the US Department of Agriculture, and used in the US and Canada, <https://www.ers.usda.gov/webdocs/DataFiles/50764/qn2016.pdf?v=42984>
- (2) the Latin American and Caribbean Food Security Scale (or Escala Latinoamericana y Caribeña de Seguridad Alimentaria – ELCSA), used in Guatemala and tested in several other Spanish speaking countries in Latin America, <http://www.fao.org/3/a-i3065s.pdf>, https://coin.fao.org/coin-static/cms/media/9/13155829028740/validacion_elcsa_guatemala.pdf
- (3) the Mexican Food Security Scale (or Escala Mexicana de Seguridad Alimentaria, - EMSA), an adaptation of the ELCSA used in Mexico, <http://www.medigraphic.com/pdfs/veracruzana/muv-2014/muv142c.pdf>
- (4) the Brazilian Food Insecurity Scale (Escala Brasileira de medida de la Insegurança Alimentar – EBIA) used in Brazil, http://www.bvs.de.paho.org/texcom/nutricion/memredsan_3.pdf, <https://biblioteca.ibge.gov.br/visualizacao/livros/liv91984.pdf> or
- (5) the Household Food Insecurity Access Scale (HFIAS), http://www.fao.org/fileadmin/user_upload/eufao-fsi4dm/doc-training/hfias.pdf

The above modules can also be adapted to local needs, as long as the results can be calibrated for use with the FIES.

Method of Computation and Other Methodological Considerations

Computation Method:

The indicator can be calculated by analyzing survey data using the Rasch model (also known as one-parameter logistic model, 1-PL), which postulates that the probability of observing an affirmative answer by respondent i to question j , is a logistic function of the distance, on an underlying scale of severity, between the position of the respondent, a_i , and that of the item, b_j . Parameters a_i and b_j can be estimated using maximum likelihood procedures. Parameters a_i , in particular, are interpreted as a measure of the severity of the food security condition for each respondent and are used to classify them into classes of food insecurity.

$$Prob \{X_{i,j} = Yes\} = \frac{e^{(a_i - b_j)}}{1 + e^{(a_j - b_i)}}$$

Through the estimation of the Rasch model using the conditional maximum likelihood method and the assumption that individuals with the same raw score (sum of affirmative answers to the FIES questions) belong to the same distribution of food insecurity, it is possible to estimate the probability of being moderately or severely food insecure ($p_{mod+sev}$) and the probability of being severely food insecure (p_{sev}) for each respondent, with $0 < p_{sev} < p_{mod+sev} < 1$.

Given a representative sample, the prevalence of food insecurity at moderate or severe levels ($FI_{mod+sev}$), and at severe levels (FI_{sev}) in the population are computed as the weighted sum of the probability of belonging to the moderate or severe food insecurity class, and to the severe food insecurity class, respectively, of all individual or household respondents in a sample:

$$FI_{mod+sev} = \sum_i p_{i_{mod+sev}} \times w_i$$

and

$$FI_{sev} = \sum_i p_{i_{sev}} \times w_i$$

where w_i are post-stratification weights that indicate the proportion of individual or households in the national population represented by each element in the sample.

Comments and limitations:

Compared to other proposed non-official indicators of household food insecurity, such as those based on the Food Consumption Score or on the Coping Strategy Index, or on the recently released “Comprehensive Approach to Report Indicators” (CARI), the “Food Insecurity Experience Scale” (FIES) based approach has the advantage that food insecurity prevalence rates are directly comparable across population groups and countries. Even if they use similar labels (such as “moderate” and “severe” food insecurity) other approaches have yet to demonstrate the formal comparability of the thresholds used for classification, due to lack of the definition of a proper statistical models that links the values of the “indexes” or “scores” used for classification, to the severity of food insecurity. For this reason, care should be taken when comparing the results obtained with the FIES with those obtained with these other indicators, even if, unfortunately, similar labels are used to describe them.

Compared to the other indicators used to assess the state of food security at national level, experience-based food insecurity scales like the FIES stand out for the following reasons:

- Directly ask people about food-related behaviors and experiences associated with food insecurity.
- Ease of administration and timeliness of reporting.
- Soundness of the statistical basis used to enable cross-country comparisons based on information collected on individuals or households.
- Ability to reflect the depth of food insecurity by distinguishing between different severity levels.
- Possibility to disaggregate results by gender when applied at individual level and by sub-national groups when applied in surveys with samples that are representative at sub-national level.
- Provides actionable information that policy makers can use to identify vulnerable population groups and guide policy interventions.

The FIES is not intended to quantify food consumption nor does it provide a quantitative assessment of dietary quality. It is not a measure of malnutrition and cannot be used to detect nutritional deficiencies or obesity.

Proxy, alternative and additional indicators: N/A

Data Disaggregation

The full potential of the FIES to generate statistics that can inform policy is realized when the tool is applied in larger national population surveys that enable more detailed analyses of the food insecurity situation according to income, gender, age, race, ethnicity, migratory status, disability, geographic location, or other policy-relevant characteristics, as is already the case for a number of countries.

In this way, it's possible to obtain prevalence of food insecurity of specific population groups.

References

Official SDG Metadata URL

<https://unstats.un.org/sdgs/metadata/files/Metadata-02-01-02.pdf>

Internationally agreed methodology and guideline URL

<http://www.fao.org/3/a-i4830e.pdf>

Other references

FAO SDG Portal and E-Learning:

FAO. Sustainable Development Goals Indicators. Available at <http://www.fao.org/sustainable-development-goals/indicators/en/>

FAO. E-learning Centre. Available at <http://www.fao.org/elearning/>

Additional References:

Food and Agricultural Organization (FAO). *Voices of the Hungry*. Internet Site. <http://www.fao.org/in-action/Voices-of-the-Hungry/>

Food and Agricultural Organization (2016). *The Food Insecurity Experience Scale: Measuring Food Insecurity Through Peoples' Experiences*. <http://www.fao.org/3/a-i7835e.pdf>

FIES Survey Module, <http://www.fao.org/3/a-bl404e.pdf>

FIES E-learning course <http://www.fao.org/elearning/#/elc/en/course/SDG212>

Country examples

N/A

International Organization(s) for Global Monitoring

This document was prepared based on inputs from Food and Agricultural Organization(FAO).

For focal point information for this indicator, please visit <https://unstats.un.org/sdgs/dataContacts/>

Indicator 2.2.1

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Indicator Name, Target and Goal

Indicator 2.2.1: Prevalence of stunting (height for age <-2 standard deviation from the median of the World Health Organization (WHO) Child Growth Standards) among children under 5 years of age

Target 2.2: By 2030, end all forms of malnutrition, including achieving, by 2025, the internationally agreed targets on stunting and wasting in children under 5 years of age, and address the nutritional needs of adolescent girls, pregnant and lactating women and older persons

Goal 2: End hunger, achieve food security and improved nutrition and promote sustainable agriculture

Definition and Rationale

Definition:

This indicator is defined as the percentage of children aged 0–59 months, whose length or height-for-age values are below minus two standard deviations from the WHO Child Growth Standards median.

Concepts:

Stunting refers to a situation where a child is too short for his or her age due to the result of chronic or recurrent malnutrition. Also known as linear growth retardation, it is a condition that occurs mainly in the first 2 years of life and that is largely irreversible.

WHO Child Growth Standards provide reference median information for this indicator (<http://www.who.int/childgrowth/en/>).

Rationale and Interpretation:

Child growth is an internationally accepted outcome reflecting child nutritional status. Given stunting's association with morbidity and mortality risk, non-communicable diseases in later life, and learning capacity and productivity, it can lead to a negative impact on country's development. Child stunting is one of the nutrition global target indicators endorsed by the World Health Assembly. The targets for stunting are to reduce the number of children stunted by 40% (by 2025) and by 50% (by 2030), from the 2012 baseline.

Data Sources and Collection Method

For most of the countries, nationally representative nutritional (household) surveys collect information on height (or length)- for-age data. For a limited number of countries data from surveillance/early-warning systems that are in place to continuously collect, analyse and interpret health-related data, are used if sufficient population coverage is documented (about 80%). For both data sources, the child's height measurements must be collected following recommended standard measuring techniques (WHO 2008). For accurate child linear growth assessment, the complete date of birth should be available. These data are generally collected by the ministries of health, national offices of statistics or national institutes of nutrition.

Internationally, there are also several other survey programmes that provide anthropometric data, including the Multiple-Indicator Cluster Surveys (MICS) supported by UNICEF, the Demographic and Health Surveys (DHS) funded by United States Agency for International Development (USAID), the Pan-Arab Project for Child Development (PAPCHILD) surveys funded by the Pan-Arab League and UNFPA, the Living Standards Measurement Studies (LSMS) , funded by the World Bank, and National Nutrition Surveys based on Standardized Monitoring and Assessment of Relief and Transition (SMART) methods

Method of Computation and Other Methodological Considerations

Computation Method:

The indicator can be calculated as a simple percentage, as follows:

$$\text{Prevalence of Stunting} = \frac{C_S}{C_T} \times 100$$

Where,

C_S is the number of children under the age of 5 years who are stunted (i.e. length or height-for-age is more than two SD below the WHO Child Growth Standards median); and

C_T is the total number of children under the age of 5 years measured.

The WHO Child Growth Standards can be found at: http://www.who.int/childgrowth/standards/height_for_age/en/

Comments and limitations:

Survey estimates come with levels of uncertainty due to both sampling and non-sampling error (e.g. measurement technical error, recording error etc.). While sampling errors are available for the a large number of country surveys, in the database, none of the two sources of errors have been fully considered for deriving estimates at regional and global levels.

Proxy, alternative and additional indicators: N/A

Data Disaggregation

Prevalence of stunting in children less than 5 years of age should be presented for the total sample and disaggregated by age, sex, type of residence, region, socioeconomic status and mothers' education.

References

Official SDG Metadata URL

<https://unstats.un.org/sdgs/metadata/files/Metadata-02-02-01.pdf>

Internationally agreed methodology and guideline URL

World Health Organization. *The WHO Child Growth Standards*. Available at: <http://www.who.int/childgrowth/en/>

UNICEF: <http://data.unicef.org/nutrition/malnutrition.html>

WHO: <http://www.who.int/nutgrowthdb/estimates2014/en/>

World Bank: <http://datatopics.worldbank.org/child-malnutrition>

Other references

UNICEF Briefing Notes on SDG Indicators:

UNICEF. *Briefing notes on SDG global indicators related to children*. Available at <https://data.unicef.org/resources/sdg-global-indicators-related-to-children/>

Additional References:

United Nations Children's Fund, World Health Organization, The World Bank (2012). *UNICEF-WHO-World Bank Joint Child Malnutrition Estimates*.

<http://www.who.int/nutgrowthdb/estimates/en/> ; <http://data.unicef.org/resources/joint-child-malnutrition-estimates-2017-edition/>

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Yang H and de Onis M. *Algorithms for converting estimates of child malnutrition based on the NCHS reference into estimates based on the WHO Child Growth Standards*. BMC Pediatrics 2008, 8:19. Available at: <http://www.biomedcentral.com/1471-2431/8/19>

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WHO/UNICEF Discussion paper. The extension of the 2025 Maternal, Infant and Young Child nutrition targets to 2030

<http://www.who.int/nutrition/global-target-2025/discussion-paper-extension-targets-2030.pdf>

Country examples

N/A

International Organization(s) for Global Monitoring

This document was prepared based on inputs from United Nations International Children's Emergency Fund (UNICEF) and World Health Organization (WHO).

For focal point information for this indicator, please visit <https://unstats.un.org/sdgs/dataContacts/>

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Indicator Name, Target and Goal

Indicator 2.2.2: Prevalence of malnutrition (weight for height $>+2$ or <-2 standard deviation from the median of the WHO Child Growth Standards) among children under 5 years of age, by type (wasting and overweight)

Target 2.2: By 2030, end all forms of malnutrition, including achieving, by 2025, the internationally agreed targets on stunting and wasting in children under 5 years of age, and address the nutritional needs of adolescent girls, pregnant and lactating women and older persons

Goal 2: End hunger, achieve food security and improved nutrition and promote sustainable agriculture

Definition and Rationale

Definition:

The indicator consists of two parts, wasting and overweight:

1. Wasting is the percentage of children aged 0–59 months, whose weight-for-length or height values are below minus two standard deviations from the WHO *Child Growth Standards* median.
2. Overweight is the percentage of children aged 0–59 months, whose weight-for-length or height values are above two standard deviations from the WHO *Child Growth Standards* median.

Concepts:

For the purposes of this indicator, *wasting* refers to a situation where a child under 5 years of age is too thin for his or her height, due to rapid weight loss or the failure to gain weight. A child who is wasted has an increased risk of death, but treatment is possible.

For the purposes of this indicator, *overweight* refers to a child who is too heavy for his or her height. This form of malnutrition results from expending too few calories for food consumed and increases the risk of noncommunicable diseases later in life.

Rationale and Interpretation:

Wasting is a major health problem and, owing to its associated risks for morbidity, requires urgent attention from policy-makers and programme implementers alike. This indicator has been linked to poverty, low levels of education, and poor access to health services. Addressing wasting is of critical importance because of the heightened risk of disease and death for children who lose too much of their body weight.

Overweight and obese children are likely to stay obese into adulthood and more likely to develop noncommunicable diseases like diabetes and cardiovascular diseases at a younger age. Overweight and obesity, as well as their related diseases, are largely preventable.

Under-five wasting is an internationally accepted outcome reflecting extreme child undernourishment and was also a part of the Millennium Development Goals (MDGs). On the other end of the spectrum, obesity in children is another rising epidemic which occurs due to over-nourishment and consumption of unbalanced and unhealthy foods and is also linked to physical inactivity. Being overweight also impacts cognitive function and impedes individuals' ability to lead productive lives.

Childhood wasting and overweight are both part of the nutrition global target indicators endorsed by the World Health Assembly. The targets for wasting are to reduce the percentage of children wasted to $<5\%$ by 2025 and to $<3\%$ (very low level) by 2030; the targets for overweight are to have no increase in the percentage of children overweight from the 2012 baseline in 2025, and to reduce the percentage of children overweight to $<3\%$ (very low level).

Data Sources and Collection Method

For most of the countries, nationally representative nutritional (household) surveys collect information on height (or length) and weight data. For a limited number of countries, data from surveillance/early-warning systems that are in place to continuously collect, analyse and interpret health-related data, are used if sufficient population coverage is documented (about 80%). For both data sources, the child's height and weight measurements must be collected following recommended standard measuring techniques (WHO 2008). This data are generally collected by the ministries of health, national offices of statistics or national institutes of nutrition.

Internationally, there are also several other survey programmes that provide anthropometric data, including the Multiple-Indicator Cluster Surveys (MICS) supported by UNICEF, the Demographic and Health Surveys (DHS) funded by United States Agency for International Development (USAID), the Pan-Arab Project for Child Development (PAPCHILD) surveys funded by the Pan-Arab League and UNFPA, the Living Standards Measurement Studies (LSMS), funded by the World Bank, and National Nutrition Surveys based on Standardized Monitoring and Assessment of Relief and Transition (SMART) methods.

Method of Computation and Other Methodological Considerations

Computation Method:

The indicator can be calculated as a simple percentage for the various types of malnutrition, as follows:

$$(1) \text{ Prevalence of Wasting} = 100 \times \frac{C_{\text{wasting}}}{C_{\text{Total}}}$$

$$(2) \text{ Prevalence of Overweight} = 100 \times \frac{C_{\text{overweight}}}{C_{\text{Total}}}$$

where C_{wasting} is the number of children under the age of 5 years who are wasted (i.e. weight-for-length/height is below minus two SD from the WHO Child Growth Standards median); $C_{\text{overweight}}$ is the number of children under the age of 5 years who are overweight (i.e. weight-for-length/height is above plus two SD from the WHO Child Growth Standards median); and

C_{Total} is the total number of children under the age of 5 years measured for both weight and height.

The WHO child growth standards that provide reference median information for this indicator can be found at: http://www.who.int/childgrowth/standards/weight_for_age/en/

Comments and limitations:

Survey estimates come with levels of uncertainty due to both sampling error and non-sampling error (e.g. measurement technical error, recording error etc.). While sampling errors are available for the a large number of country surveys in the database, none of the two sources of errors have been fully considered for deriving estimates at regional and global levels. Surveys are carried out in a specific period of the year, usually over a few months. However, the wasting indicator can be affected by seasonality, factors related to food availability (e.g. pre-harvest periods), disease (e.g. rainy season and diarrhoea, malaria, etc.), and natural disasters and conflicts. Hence, country-year estimates may not necessarily be comparable over time.

Proxy, alternative and additional indicators: N/A

Data Disaggregation

Prevalence of both wasting and overweight in children less than 5 years of age should be presented for the total sample and disaggregated by age, sex, area of residence, region, socioeconomic status and mothers' education.

References**Official SDG Metadata URL**

Wasting: <https://unstats.un.org/sdgs/metadata/files/Metadata-02-02-02b.pdf>

Overweight: <https://unstats.un.org/sdgs/metadata/files/Metadata-02-02-02a.pdf>

Internationally agreed methodology and guideline URL

World Health Organization. *The WHO Child Growth Standards*. Available at: <http://www.who.int/childgrowth/en/>

UNICEF: <http://data.unicef.org/nutrition/malnutrition.html>

WHO: <http://www.who.int/nutgrowthdb/estimates2014/en/>

World Bank: <http://datatopics.worldbank.org/child-malnutrition>

Other references

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Additional References:

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de Onis M, Blössner M, Borghi E, et al. (2004). *Methodology for estimating regional and global trends of childhood malnutrition*. International Journal of Epidemiology. 33(6):1260-70. http://www.who.int/nutgrowthdb/publications/methodology_estimating_trends/en/

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World Health Organization (2008). *Training Course on Child Growth Assessment*. Geneva, WHO.

WHO/UNICEF Discussion paper. The extension of the 2025 Maternal, Infant and Young Child nutrition targets to 2030 <http://www.who.int/nutrition/global-target-2025/discussion-paper-extension-targets-2030.pdf>

Country examples

N/A

International Organization(s) for Global Monitoring

This document was prepared based on inputs from United Nations International Childrens' Emergency Fund (UNICEF) and World Health Organization (WHO).

For focal point information for this indicator please visit: <https://unstats.un.org/sdgs/dataContacts/>

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Indicator Name, Target and Goal

Indicator 2.5.1: Number of plant and animal genetic resources for food and agriculture secured in either medium or long-term conservation facilities

Target 2.5: By 2020, maintain the genetic diversity of seeds, cultivated plants and farmed and domesticated animals and their related wild species, including through soundly managed and diversified seed and plant banks at the national, regional and international levels, and promote access to and fair and equitable sharing of benefits arising from the utilization of genetic resources and associated traditional knowledge, as internationally agreed

Goal 2: End hunger, achieve food security and improved nutrition and promote sustainable agriculture

Definition and Rationale

Definition:

This indicator is defined as the number of plant and animal genetic resource for food and agriculture (GRFA) that have been stored in medium or long-term facilities as a means of genetic resource conservation worldwide. Plant and animal genetic resources are counted separately.

Concepts:

<Plant Genetic Resources>

The number of plant genetic resource refers to the number of accessions of plant genes that are in the medium or long-term conservation facilities for storage, where accession refers to a distinct sample of seed or planting material. FAO's Gene Bank Standards for Plant Genetic Resources sets the benchmark for current scientific and technical best practices.

Medium or long-term conservation facilities refer to storage facilities, or gene banks of a base or core collection in the form of seeds in cold rooms, plants in the field and tissues in vitro and/or cryopreserved, where a base collection is defined as a set of unique accessions. The preservation period is designed to be sufficiently enough to fulfil the conservation purposes (not commercial utilization), and it may vary according to the type of storage, species and kind of material stored.

<Animal Genetic Resources>

The number of animal genetic resource refers to the number of local breeds stored within gene banks with amounts necessary for a breed's reconstitution as per FAO's Guidelines on Cryo-conservation of Animal Genetic Resources, where a breed is either a sub-specific group of domestic livestock with definable and identifiable external characteristics that enable it to be separated by visual

appraisal from other similarly defined groups within the same species, or a group for which geographical and/or cultural separation from phenotypically similar groups has led to acceptance of its separate identity.

Medium or long-term conservation facilities refer to storage facilities, or gene banks. They include both the maintenance of live animals (in vivo) and the collection and deep-freezing of semen, ova, embryos or tissues for potential future use in breeding or regenerating animals. The preservation period is designed to be sufficiently enough to fulfil the conservation purposes (not commercial utilization), and it may vary according to the type of storage, species and kind of material stored.

Rationale and Interpretation:

Genetic resources for food and agriculture provide the building blocks of food security and, directly or indirectly, support the livelihoods of every person on earth. As the conservation and accessibility to these resources is of vital importance, this indicator facilitates the monitoring of diversity secured and accessible through genebanks and support the development and updating of strategies for the conservation and sustainable use of genetic resources.

This indicator provides an indirect measurement of the total genetic diversity which that is secured for future use.

Caution needs to be paid in interpreting the indicator. In the case of plant genetic resources, an uncontrolled addition of accessions could be duplicates of samples already conserved and accounted for.

Data Sources and Collection Method

Countries can collect this information from the gene bank (or holding institute) that they use (domestic or international) for the storage of their plant and animal genetic resources.

Officially appointed national focal points and national coordinators, under the monitoring framework endorsed by the FAO Commission on Genetic Resources for Food and Agriculture, are responsible for reporting national data to:

- (1) The World Information and Early Warning System (WIEWS) for plant genetic resources; and
- (2) The Domestic Animal Diversity Information System (DAD-IS) for animal genetic resources.

For the plant component of the indicator, accession level information is reported for a [set of thirteen descriptors](#), four of these descriptors are mandatory. Mandatory descriptors are: (i) the name or WIEWS code of the genebank holding the material, (ii) the unique identifier of the material within the genebank, (iii) its taxonomic classification (genus, species and subtaxon), and (iv) the type of storage.

Method of Computation and Other Methodological Considerations

Computation Method:

The two components of this indicator, i.e. (1) plant genetic resources and (2) animal genetic resources, are to be calculated separately. Each component is calculated by summing the number of unique plant genetic materials, or breeds of animal genetic materials that are stored in medium or long-term conservation facilities.

Comments and limitations:

<Plant Genetic Resources>

There are two major factors that could lead to an overestimation of this indicator, and precautions need to be taken to minimize such errors. First factor is the counting of duplicate accessions, and the second is the counting of materials whose loss of viability has not been detected in time to be regenerated.

The indicator would be highly overestimated if countries report accessions in both their base and active collections, as genetic diversity in active collections is expected to be adequately represented in the base collections. Therefore, accessions in base collections should be primarily reported. Accessions in active collections could be exceptionally reported, only if they are (i) not yet, but expected to become part of the national base collections, (ii) unique, and (iii) conserved under medium/long-term conservation facilities. Furthermore the proper documentation of the collections through the use of internationally applied standard and an effective database management system (e.g. GRIN Global) is an important prerequisite for an efficient handling of the genebank collections and to avoid or detect duplicate reporting.

Similarly, viability testing and rejuvenation of stored seed samples are part of the norms and procedures that every genebank conserving collections for the medium or long term is expected to perform routinely.

A base collection is defined as a set of unique accessions to be preserved for a medium to long-term period. An active collection is defined as a set of distinct accessions that is used for regeneration, multiplication, distribution, characterization and evaluation. Active collections are maintained in short to medium-term storage and usually duplicated in a base collection.

Another potential issue that needs to be monitored, both while reporting and interpreting the results, is the grouping or splitting of accessions. In both cases, the variation in the accounted number does not reflect a variation in the genetic diversity conserved and secured. Therefore, it is crucial that reporting countries and stakeholders together with the accession level information requested explain

also the reason for the decrease or increase in the number of accessions when this does not reflect a real loss or gain in the genetic diversity conserved and secured.

<Animal Genetic Resources>

To collect animal genetic resources data on a regular basis, the Domestic Animal Diversity Information System (DAD-IS) has been amended. The new DAD-IS version was launched in November 2017 and allows now to report on a yearly base on the type and amount of genetic material stored (e.g. semen, embryos, oocytes, number of donors...) for each breed.

Proxy, alternative and additional indicators: N/A

Data Disaggregation

The country reporting on an annual basis allows for both geographic and temporal data disaggregation.

For the plant component of the indicator, data can be disaggregated according to the mandatory descriptors described above. Additional levels of data disaggregation can be provided by optional accession-level descriptors, including the date of acquisition, the type of material conserved, the latitude and longitude of the collecting site.

As countries report on their national cryoconservation programmes for animal genetic resources, the indicator can be disaggregated by cryo-programme and year, further it can be distinguished between mammalian and avian species or by single species.

Data for the levels of disaggregation mentioned above can be found in WIEWS and DAD-IS for plants and animals respectively.

References

Official SDG Metadata URL

<https://unstats.un.org/sdgs/metadata/files/Metadata-02-05-01.pdf>

Internationally agreed methodology and guideline URL

Plant genetic resources: http://www.fao.org/fileadmin/user_upload/wiews/docs/SDG_251_data_requirement_sheet_table_EN.docx

Animal genetic resources: <http://www.fao.org/docrep/016/i3017e/i3017e00.htm>

Other references

FAO SDG Portal and E-Learning:

FAO. *Sustainable Development Goals Indicators*. Available at <http://www.fao.org/sustainable-development-goals/indicators/en/>

FAO. E-learning Centre. Available at <http://www.fao.org/elearning/>

Additional References:

Plant genetic resources

FAO. *National Focal Points for the monitoring of the Second Global Plan of Action for Plant Genetic Resources for Food and Agriculture and the preparation of country reports for The Third Report on the State of the World's Plant Genetic Resources for Food and Agriculture*. Available at: <http://www.fao.org/agriculture/crops/thematic-sitemap/theme/seeds-pgr/gpa/national-focal-points/en/>

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GRIN Global. Available at: <https://www.grin-global.org/>

Animal genetic resources

FAO. *Preparation of the First Report on the State of the World's Animal Genetic Resources Guidelines for the Development of Country Reports. Annex 2. Working definitions for use in developing country reports and providing supporting data*. Internet site: <http://www.fao.org/docrep/004/y1100m/y1100m03.htm>

FAO (2012). *Guidelines on Cryo-conservation of Animal Genetic Resources*. Rome. Available at: <http://www.fao.org/docrep/016/i3017e/i3017e00.htm>

FAO. *National Coordinator for Management of Animal Genetic Resource*. Internet site: <http://dad.fao.org/cgi-bin/EfabisWeb.cgi?sid=-1,ccontacts>

FAO (2016). *Status of Animal Genetic Resources*. CGRFA/WG-AnGR-9/16/Inf.3. Available at: <http://www.fao.org/3/a-mq950e.pdf>

FAO (2013). *Guidelines on In vivo Conservation of Animal Genetic Resources*. Rome. Available at: <http://www.fao.org/docrep/018/i3327e/i3327e.pdf>

FAO (2015). *The Second Report on the State of the World's Animal Genetic Resources for Food and Agriculture*. Rome. Available at: <http://www.fao.org/3/a-i4787e.pdf>

Country examples

N/A

International Organization(s) for Global Monitoring

This document was prepared based on inputs from Food and Agricultural Organization (FAO).

For focal point information for this indicator, please visit <https://unstats.un.org/sdgs/dataContacts/>

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Indicator Name, Target and Goal

Indicator 2.5.2: Proportion of local breeds classified as being at risk, not-at-risk or at unknown level of risk of extinction

Target 2.5: By 2020, maintain the genetic diversity of seeds, cultivated plants and farmed and domesticated animals and their related wild species, including through soundly managed and diversified seed and plant banks at the national, regional and international levels, and promote access to and fair and equitable sharing of benefits arising from the utilization of genetic resources and associated traditional knowledge, as internationally agreed

Goal 2: End hunger, achieve food security and improved nutrition and promote sustainable agriculture

Definition and Rationale

Definition:

The indicator presents the percentage of local livestock breeds classified as being at risk, not at risk or at unknown level of risk of extinctions at a certain moment in time.

Concepts:

Breed refers to either a subspecific group of domestic livestock with definable and identifiable external characteristics that enable it to be separated by visual appraisal from other similarly defined groups within the same species, or a group for which geographical and/or cultural separation from phenotypically separate groups has led to acceptance of its separate identity and/or a group for which geographical and/or cultural separation from phenotypically similar groups has led to acceptance of its separate identity. For the purposes of the guidelines, a breed is a subspecific group of domestic livestock with a common history whose members are treated in a common manner with respect to genetic management.

At-risk breed refers to breeds with demographic characteristics (primarily population census size) suggesting that it will fail to exist in the future unless a conservation programme is implemented. Breed risk status is a complex issue, first because numerous factors are

involved, but also because all the information needed to estimate the parameters necessary for predicting risk status is rarely available.

Following criteria determine the level of risk for a local breed:

- (1) Extinct: a breed is categorized as extinct when there are no breeding males or breeding females remaining. Nevertheless, genetic material might have been cryo-conserved which would allow recreation of the breed.
- (2) Critical: a breed is categorized as critical if the total number of breeding females is less than or equal to 100 or the total number of breeding males is less than or equal to five; or the overall population size is less than or equal to 120 and decreasing and the percentage of females being bred to males of the same breed is below 80 percent, and it is not classified as extinct.
- (3) Critical-maintained: are those critical populations for which active conservation programmes are in place or populations are maintained by commercial companies or research institutions.
- (4) Endangered: a breed is categorized as endangered if the total number of breeding females is greater than 100 and less than or equal to 1000 or the total number of breeding males is less than or equal to 20 and greater than five; or the overall population size is greater than 80 and less than 100 and increasing and the percentage of females being bred to males of the same breed is above 80 percent; or the overall population size is greater than 1 000 and less than or equal to 1 200 and decreasing and the percentage of females being bred to males of the same breed is below 80 percent, and it is not assigned to any of above categories.
- (5) Endangered-maintained: are those endangered populations for which active conservation programmes are in place or populations are maintained by commercial companies or research institutions.
- (6) Vulnerable. A breed is categorized as vulnerable if:
 - the total number of breeding females is between 1 000 and 2 000 (3 000 and 6 000 for species with low reproductive capacity); or
 - the overall population size is greater than 800 (2 400) and less than or equal to 1 600 (4 800) and increasing and the percentage of females being bred to males of the same breed is greater than 80 percent; or
 - the overall population size is greater than 1 200 (3 600) and less than or equal to 2 400 (7 200) but stable or decreasing; or
 - the total number of breeding males is between 20 and 35 (i.e. the F is between 0.5 and 1 percent).

Unreported population trends are assumed to be stable.

(7) Not at risk. A breed is categorized as not at risk if the population status is known and the breed does not fall in the critical or endangered categories (including the respective subcategories) or the vulnerable category. In addition, a breed can be considered not at risk even if the precise population size is not known, as long as existing knowledge is sufficient

to provide certainty that the population size exceeds the respective thresholds for the vulnerable category. To allow more such breeds to be correctly assigned to the not at risk category (i.e. rather than classified as unknown), countries are encouraged to insert estimated population sizes into DAD-IS if data from a formal census are not available. Nevertheless,

for such breeds the implementation of a survey to obtain a more precise estimate of population size is strongly recommended (FAO, 2011b).

(8) Unknown. This category is self-explanatory and calls for action. A population survey is needed; the breed could be critical, endangered or vulnerable.

(9) At risk: all breeds falling under categories 2 to 6

A detailed definition on risk classification is provided in

FAO. 2013. In vivo conservation of animal genetic resources.

FAO Animal Production and Health Guidelines. No. 14. Rome. Accessible at <http://www.fao.org/docrep/018/i3327e/i3327e.pdf>

Rationale and Interpretation:

Animal genetic resources for food and agriculture are an essential part of the biological basis for world food security, and contribute to the livelihoods of over a billion people. A diverse resource base is critical for human survival and well-being, and a contribution to the eradication of hunger and malnutrition.

In addition, the indicator has a direct link to "biodiversity" as animal or livestock genetic resources represent an integral part of agricultural ecosystems and biodiversity as such.

Data Sources and Collection Method

The data that supports the calculations for this indicator can be collected from national livestock censuses on breed level or data derived from national herdbooks or national surveys. Updating of population size data at least every 10 years is needed for the definition of the risk classes.

Method of Computation and Other Methodological Considerations

Computation Method:

Local breeds are to be classified using information available through agricultural livestock data collection systems. Based on the population size and sex ratios of livestock for each breed, it is to be determined whether they are at risk, not-at-risk or unknown level of risk using the aforementioned criteria.

Once all breeds have been classified, the indicator(s) can be calculated using the following formulas:

$$\frac{(\text{local breeds classified as being at risk})}{(\text{the total of local breeds})},$$

$$\frac{(\text{local breeds classified as being not-at-risk})}{(\text{the total of local breeds})}, \text{ and}$$

$$\frac{(\text{local breeds classified as being unknown level of risk})}{(\text{the total of local breeds})}$$

Comments and limitations:

Breed-related information remains far from complete. For almost 60 percent of all reported breeds, risk status is not known because of missing population data or lack of recent updates. Generally, data collection should be possible in all countries.

The main limitation is the availability of livestock census on breed level. The guidelines on Surveying and Monitoring give an overview on methods to estimate population sizes if no census data are available.

See <http://www.fao.org/docrep/014/ba0055e/ba0055e00.htm>.

Proxy, alternative and additional indicators: N/A

Data Disaggregation

The data can be disaggregated by geography, species, and between mammalian and avian species.

References

Official SDG Metadata URL

<https://unstats.un.org/sdgs/metadata/files/Metadata-02-05-02.pdf>

Internationally agreed methodology and guideline URL

<http://www.fao.org/docrep/014/ba0055e/ba0055e00.htm>

FAO. 2013. In vivo conservation of animal genetic resources. FAO Animal Production and Health Guidelines. No. 14. Rome. Accessible at <http://www.fao.org/docrep/018/i3327e/i3327e.pdf>

Other references

[FAO SDG Portal and E-Learning:](#)

FAO. *Sustainable Development Goals Indicators*. Available at <http://www.fao.org/sustainable-development-goals/indicators/en/>

FAO. E-learning Centre. Available at <http://www.fao.org/elearning/>

Additional References:

Domestic Animal Diversity Information System (DAD-IS) (<http://www.fao.org/dad-is/en/>)

Country examples

N/A

International Organization(s) for Global Monitoring

This document was prepared based on inputs from Food and Agricultural Organization (FAO).

For focal point information for this indicator, please visit <https://unstats.un.org/sdgs/dataContacts/>

Indicator 2.a.1

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Indicator Name, Target and Goal

Indicator 2.a.1: The agriculture orientation index for government expenditures

Target 2.a: Increase investment, including through enhanced international cooperation, in rural infrastructure, agricultural research and extension services, technology development and plant and livestock gene banks in order to enhance agricultural productive capacity in developing countries, in particular least developed countries

Goal 2: End hunger, achieve food security and improved nutrition and promote sustainable agriculture

Definition and Rationale

Definition:

The Agriculture Orientation Index (AOI) for Government Expenditures is defined as the Agriculture Share of Central Government Expenditure, divided by the Agriculture Share of GDP, where Agriculture refers to the agriculture, forestry, fishing and hunting sector. Government Expenditures are compiled according to the international Classification of the Functions of Government (COFOG), and Agriculture Share of GDP according to the System of National Accounts (SNA).

Concepts:

Government expenditures are based on the IMF Government Finance Statistics (GFS) methodology, and are defined as expenses plus the net investment in non-financial assets. They include compensation of employees, subsidies and grants paid as transfers to individuals or corporations, acquisitions of non-financial assets, etc. In particular, *Government Expenditure on Agriculture* includes all the expenditures that fall under the COFOG group 04.2 (Agriculture, Forestry, Fishing) of the Classification of the Functions of Government (COFOG).

Agriculture share of GDP refers to the share of contribution to the GDP from the agricultural sector where, agriculture refers to the agriculture, forestry, fishing and hunting sector, or Division A of International Standard of Industry Classification (ISIC) Rev 4 (equal to Division A+B of ISIC Rev 3.2).

Rationale and Interpretation:

Government spending in agriculture includes spending on sector policies and programs; soil improvement and soil degradation control; irrigation and reservoirs for agricultural use; animal health management, livestock research and training in animal husbandry; marine/freshwater biological research; afforestation and other forestry projects; etc.

Spending in these agricultural activities helps to increase sector efficiency, productivity and income growth by increasing physical or human capital and/or reducing inter-temporal budget constraints. However, the private sector typically under-invests in these activities due to the presence of market failure (e.g. the public good nature of research and development; the positive externalities from improved soil and water conditions; lack of access to competitive credit due to asymmetric information between producers and financial institutions, etc.). Similarly, the high risk faced by agricultural producers, particular smallholders unable to hedge against risk, often requires government intervention in terms of income redistribution to support smallholders in distress following crop failures and livestock loss from pests, droughts, floods, infrastructure failure, or severe price changes.

Government spending in agriculture is essential to address these market failures and need for income redistribution.

An Agriculture Orientation Index (AOI) greater than 1 reflects a higher share of government spending in the agriculture sector, relative to the sector's share in overall GDP. An AOI less than 1 reflects a lower share of government spending in the agricultural sector, relative to the sector's share in overall GDP. An AOI of 1 reflects neutrality in a government's orientation to the agriculture sector. The AOI is a currency-free measure and allows for comparison across countries with different agricultural sector size through viewing government expenditures into agriculture relative to the size of the agricultural sector of the country.

Data Sources and Collection Method

Data on government expenditures are collected from countries (Department of Finance or other central planning agency, National Statistics Office, and/or Ministry of Agriculture), using an annual questionnaire administered by FAO. For some countries that do not report such data to FAO, data may be obtained from the IMF Government Finance Statistics (GFS) database (the IMF also collects data on Government Expenditure by COFOG, but with less disaggregation of the Agriculture sector) or from official national governmental websites.

Data on agriculture value-added and GDP are based on the System of National Accounts (SNA), which is an analytical framework that compiles national data from a mix of survey, census and administrative (e.g. tax) sources. This data is obtained from the UN Statistics Division, which provides national accounts estimates for 220 countries and territories.

Method of Computation and Other Methodological Considerations

Computation Method:

The Agriculture Orientation Index can be calculated using the following formula:

$$\text{Agriculture Orientation Index (AOI)} = \frac{\text{Agriculture Share of Government Expenditure}}{\text{Agriculture Share of GDP}}$$

where,

Agriculture share of government expenditure is the proportion of total central government expenditure spent on the agricultural sector based on the COFOG classification; and

Agriculture share of GDP is the total value added in the agricultural sector as a proportion of the total value added in the economy (GDP). This is based on the Division A of International Standard of Industry Classification (ISIC) Rev 4.

Comments and limitations:

Since the numerator of this data is based on administrative sources, there is no confidence interval or standard error associated with government expenditure data. For the denominator, national accounts data typically do not provide any standard error or confidence interval information.

The key limitation with this indicator is that it takes into account only central government expenditure. To the extent that some countries may have heavier intervention in Agriculture by sub-national governments, this will not be taken into account.

In addition, AOI equal to 1 may not be the right target for a country, due to differences in degrees of decentralization, and degrees of market failure and income redistribution policies. Additionally, comparing an AOI within a country over time should be done along with its two components (the Agriculture share of Government Expenditures and the Agriculture Value Added Share of GDP), and in the context of the severity of market failure and agriculture sector income inequalities.

Proxy, alternative and additional indicators: N/A

Data Disaggregation

Since this indicator is based on central government expenditures, which does not take into account the demographics of beneficiaries, it does not allow for data disaggregation.

References

Official SDG Metadata URL

<https://unstats.un.org/sdgs/metadata/files/Metadata-02-0A-01.pdf>

Internationally agreed methodology and guideline URL

United Nations Statistics Division. *Classification of the Functions of Government (COFOG)*. New York. Available at: <https://unstats.un.org/unsd/cr/registry/regcst.asp?Cl=4&Top=1&Lg=1>

United Nations Statistics Division (2008). *System of National Accounts*. New York. Available at: <https://unstats.un.org/unsd/nationalacco>

[unt/sna.asp](#)

International Monetary Fund (2014). *Government Finance Statistics Manual 2014*. Washington, D.C. Available at: <https://www.imf.org/external/Pubs/FT/GFS/Manual/2014/gfsfinal.pdf>

United Nations Statistics Division. *International Standard Industrial Classification Rev. 4*. New York. Available at: <https://unstats.un.org/unsd/cr/registry/isic-4.asp>

Other references

[FAO SDG Portal and E-Learning:](#)

FAO. *Sustainable Development Goals Indicators*. Available at <http://www.fao.org/sustainable-development-goals/indicators/en/>

FAO. E-learning Centre. Available at <http://www.fao.org/elearning/>

Additional References:

FAOSTAT - Government Expenditure on Agriculture. <http://www.fao.org/faostat/en/#data/IG>

FAOSTAT Macro Indicators. <http://www.fao.org/faostat/en/#data/MK>

FAO ESS - Government Expenditure on Agriculture. <http://www.fao.org/economic/ess/investment/expenditure/en/>

FAO SDG Indicator 2.a.1 – Agriculture Orientation Index for Government Expenditure <http://www.fao.org/sustainable-development-goals/indicators/2.a.1/en/>

International Organization(s) for Global Monitoring

This document was prepared based on inputs from Food and Agricultural Organization (FAO).

For focal point information for this indicator, please visit <https://unstats.un.org/sdgs/dataContacts/>

Indicator 2.a.2

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Indicator Name, Target and Goal

Indicator 2.a.2: Total official flows (official development assistance plus other official flows) to the agriculture sector

Target 2.a: Increase investment, including through enhanced international cooperation, in rural infrastructure, agricultural research and extension services, technology development and plant and livestock gene banks in order to enhance agricultural productive capacity in developing countries, in particular least developed countries

Goal 2: End hunger, achieve food security and improved nutrition and promote sustainable agriculture

Definition and Rationale

Definition:

Total official flows are the gross disbursements of total Official Development Assistance (ODA) and other official flows from all donors to the agriculture sector.

Concepts:

Official Development Assistance (ODA) is defined by OECD's Development Assistance Committee (DAC) as those flows to countries and territories on the DAC list of ODA recipients and to multilateral institutions which are:

- (1) Provided by official agencies, including state and local governments, or by their executive agencies; and
- (2) Each transaction if which:
 - (a) is administered with the promotion of the economic development and welfare of developing countries as its main objective; and
 - (b) is concessional in character and conveys a grant element of at least 25 percent (calculated at a rate of discount of 10 percent).

Other Official Flows (OOF) are defined as transactions by the official sector which do not meet the conditions for eligibility as ODA, either because they are not primarily aimed at development, or because they are not sufficiently concessional. They also exclude officially supported export credits.

The *agriculture sector* is as defined by the DAC and comprises all Creditor Reporting System's (CRS) codes in the 311, 312 and 313 series (agriculture, forestry and fishing).

Rationale and Interpretation:

Total ODA and OOF to developing countries quantify the public effort (excluding export credits) that donors provide to developing countries for agriculture.

Data Sources and Collection Method

Donors have been reporting data to OECD's CRS since 1973 with information on type of finance, type of aid, type of flow etc. In addition, such data on ODA can also be acquired from national administrations, national aid agency, ministry of foreign affairs or ministry of finances, from their annual statistical reports.

Method of Computation and Other Methodological Considerations

Computation Method:

This indicator is calculated, using the data reported to the OECD's Creditor Reporting System (CRS), as the sum of all ODA and OOF from all donors to developing countries in the agriculture sector.

Comments and limitations:

Data in the Creditor Reporting System are available from 1973. However, the data coverage is considered complete since 1995 for commitments at an activity level and 2002 for disbursements.

Proxy, alternative and additional indicators: N/A

Data Disaggregation

The data are available at an activity level and can therefore be disaggregated by donor, recipient, type of flow, type of aid, sector etc. The sector level data can also be broken down into more granular levels (see http://www.oecd.org/dac/stats/documentupload/CRS_BI_VOLUNTARY_purpose_codes2016flows_en_July17.pdf)

References

Official SDG Metadata URL

<https://unstats.un.org/sdgs/metadata/files/Metadata-02-0A-02.pdf>

Internationally agreed methodology and guideline URL

<http://www.oecd.org/dac/stats/methodology.htm>

Other references

OECD. *Official Development Assistance – Definition and Coverage*. Paris. Available at: <http://www.oecd.org/dac/stats/officialdevelopmentassistance/assistance/assistance-definition-and-coverage.htm>

OECD (2016). *Converged Statistical Reporting Directives for the Creditor Reporting System (CRS) and the Annual DAC Questionnaire*. Paris. Available at: [http://www.oecd.org/dac/stats/documentupload/DCDDAC\(2016\)3FINAL.pdf](http://www.oecd.org/dac/stats/documentupload/DCDDAC(2016)3FINAL.pdf)

OECD. *Creditor Reporting System (CRS) Database*. Internet Site: <https://stats.oecd.org/Index.aspx?DataSetCode=CRS1>

Country examples

N/A

International Organization(s) for Global Monitoring

This document was prepared based on inputs from Organization for Economic Co-operation and Development (OECD).

For focal point information for this indicator, please visit <https://unstats.un.org/sdgs/dataContacts/>

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Indicator Name, Target and Goal

Indicator 2.b.1: Agricultural export subsidies

Target 2.b: Correct and prevent trade restrictions and distortions in world agricultural markets, including through the parallel elimination of all forms of agricultural export subsidies and all export measures with equivalent effect, in accordance with the mandate of the Doha Development Round

Goal 2: End hunger, achieve food security and improved nutrition and promote sustainable agriculture

Definition and Rationale**Definition:**

Agricultural export subsidies are defined in Article 1 paragraph (e) of the World Trade Organization (WTO) Agreement on Agriculture. Members notify to the WTO export subsidies budgetary outlays and quantities of subsidized exports in Tables ES:1 and supporting Tables ES:2. Budgetary outlays and quantities are expressed in a currency (national or other) and in quantity units as per Member's notification practices. The indicator reflects the budgetary outlays notified by WTO Members expressed in the same currency (US dollar).

Concepts:

Export subsidies budgetary outlays are government policies/spending to encourage export of goods as opposed to domestic consumption through various forms of economic incentives.

Table ES:1 and supporting table ES:2 constitute the notification formats to be used annually by WTO Members to report on their use of export subsidies as defined in document G/AG/2 dated 30 June 1995.

Table ES:1 is to be used by WTO Members with export subsidies reduction commitments levels shown in their Schedule of Commitments. This table includes the level of export subsidies budgetary outlays and quantities of subsidized exports during the notification year for the various products or groups of products listed in the Member's Schedule of Commitments.

Supporting table ES:2 is to be used by developing country Members making use of export subsidies pursuant to article 9 paragraph 4 of the Agreement on Agriculture. This table includes the level of export subsidies budgetary outlays and quantities of subsidized exports during the notification year for the corresponding products.

These two tables cover all the agricultural export subsidies used by WTO Members and notified to the WTO.

Rationale and Interpretation:

The purpose of this indicator is to give detailed information on the level of export subsidies used annually per product or group of products, as notified by WTO Members. This indicator provides the sum of all the export subsidies budgetary outlays used and notified annually Member by Member, by broad categories of Members and globally.

Agricultural export subsidies have the effect of lowering prices of exported agricultural goods. The amount of export subsidies budgetary outlays therefore constitutes an indicator of the degree of distortions generated by such measures. The reduction and removal of such subsidies reduce trade restrictions and distortions in world agricultural markets.

Data Sources and Collection Method

The sources of data are WTO Members' notifications in their Table ES:1 and supporting table ES:2 notifications, pursuant to the notification requirements and formats adopted by the WTO Committee on Agriculture and contained in document G/AG/2. Country authorities that compile statistics on subsidies can provide data on this.

Method of Computation and Other Methodological Considerations

Computation Method:

The indicator is calculated for all the Members with export subsidies reduction commitments levels shown in their Schedule of Commitments or having made use of export subsidies pursuant to article 9 paragraph 4 of the Agreement on Agriculture.

The indicator is calculated for each Member by summing the export subsidies budgetary outlays for the various products or groups of products contained in their respective Table ES:1 and supporting Table ES:2 notifications. The conversion rate used to express these amounts in US dollar is the IMF yearly average exchange rate.

The figures calculated for each Member are then summed together to calculate the indicator by broad categories of Members and globally.

Comments and limitations:

The quality of the indicator depends on WTO Members' timeliness and accuracy of their notifications.

Proxy, alternative and additional indicators: N/A

Data Disaggregation

Data could be disaggregated by categories of product or groups of products as notified by the WTO members.

References

Official SDG Metadata URL

<https://unstats.un.org/sdgs/metadata/files/Metadata-02-0B-01.pdf>

Internationally agreed methodology and guideline URL

https://www.wto.org/english/tratop_e/agric_e/transparency_toolkit_e.htm

Other references

World Trade Organization (WTO). *Agriculture Information Management System*. Geneva. <http://agims.wto.org/pages/Default.aspx>

Country examples

N/A

International Organization(s) for Global Monitoring

This document was prepared based on inputs from The World Trade Organization (WTO).

For focal point information for this indicator, please visit <https://unstats.un.org/sdgs/dataContacts/>

Indicator 2.c.1

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Indicator Name, Target and Goal

Indicator 2.c.1: Indicator of food price anomalies

Target 2.c: Adopt measures to ensure the proper functioning of food commodity markets and their derivatives and facilitate timely access to market information, including on food reserves, in order to help limit extreme food price volatility

Goal 2: End hunger, achieve food security and improved nutrition and promote sustainable agriculture

Definition and Rationale

Definition:

The indicator of food price anomalies (IFPA) identifies abnormally high or low prices that occur for a food commodity price series over a period of time. The IFPA relies on a weighted compound growth rate (CGR) that accounts for both within year and across year price growth.

Concepts:

A food commodity price is the market valuation for a given unit of measure (kilogram, tonne, etc.) of a primary agricultural product that can be bought and sold, such as coarse grains or wheat.

A compound growth rate (CGR) is a geometric mean that assumes a random variable grows at a steady rate, compounded over a specific period of time. Because it assumes a steady rate of growth the CGR smooths the effect of volatility of periodic price movements.

Rationale and Interpretation:

Advance warning of impending food crises emerging from abnormal growth in prices in global commodity markets can be critical to mitigating its impact. The food price surges in global markets in 2007-08 and 2011 are examples of this. Because prices summarize information held by a large number of economic agents, including their expectations regarding likely short-term developments in supply and demand, they are ideal to characterize the functioning of food commodity markets and may help to put in place policies that limit extreme price volatility.

If the indicator is larger than or equal to 1, the price for a given commodity is said to be abnormally high; if it is less than 1 and larger than or equal to 0.5, prices are considered moderately high; and otherwise, said to be Normal. Values close to 1 and higher should be closely monitored as they may be the result of a market shock. These shocks may be a result of a drop in supplies due to adverse weather or even policy shocks, such as import or export bans. Demand side shocks may also be responsible. Given that the aim of Target 2.c is "to ensure the proper functioning of food commodity markets and their derivatives and facilitate timely access to market information, including on food reserves, in order to help limit extreme food price volatility", the indicator can act as a potential bell weather and allow policy makers to adopt policies that would reduce the impact of any market shock.

Data Sources and Collection Method

The data sources used for the calculation of the indicator are obtained from FAO's Food Price Monitoring and Analysis Tool (FPMA-Tool) and FAOSTAT. The FPMA-Tool (<http://www.fao.org/giews/food-prices/tool/public/#/home>) compiles on a monthly basis 1 423 commodity price series in 90 countries. The commodity price data is obtained directly from national market information systems, national statistics institutes or ministries, or central banks. FAOSTAT compiles national data on the food CPI index for 150 countries on a monthly basis (<http://www.fao.org/faostat/en/#data/CP>). The data in FAOSTAT is obtained from the IMF as reported by countries.

Method of Computation and Other Methodological Considerations

Computation Method:

The compound growth rate (CGR) is a key concept in the calculation of this indicator. A CGR is a geometric mean compounded over a specific period of time. By assuming a steady rate of growth, the CGR smooths the effect of volatility of periodic price movements. The CGR at time t_n from time t_0 is given as follows:

$$CGR_{t_n} = \sqrt[n-t_0]{\frac{P_{t_1}}{P_{t_0}} \cdot \frac{P_{t_2}}{P_{t_1}} \cdot \dots \cdot \frac{P_{t_n}}{P_{t_{n-1}}}} - 1 = \left(\frac{P_{t_n}}{P_{t_0}}\right)^{\frac{1}{n-t_0}} - 1 \quad \text{Eq 1}$$

where P_{t_n} is the food commodity price at time t in period n . The indicator relies on two compound growth rates, so as to account for seasonal factors in agricultural and food prices. The first is a quarterly growth rate accounting for intra-annual seasonality. The second is a compound annual growth rate, accounting for inter-annual price variations. Both of these compounded rates of growth are calculated as moving averages over their corresponding time period. Following equation 1 above the indicator of food price anomalies can be defined as:

$$IFPA_{y,t}^G = \frac{CGR_{y,t}^G - \overline{CGR}_t^G}{\hat{\sigma}_{CGR}_t^G} \quad \text{Eq 2}$$

Where $IFPA_{y,t}^G$ is the quarterly (annual) IFPA for the compound growth rate G in month t of year y . Where $CGR_{y,t}^G$ is the quarterly (annual) compound growth rate G in month t of year y , \overline{CGR}_t^G is the weighted average of compound growth rate G in month t , $\hat{\sigma}_{CGR}_t^G$ is the weighted standard deviation for month t . Where \overline{CGR}_t^G and $\hat{\sigma}_{CGR}_t^G$ are defined as follows:

$$\overline{CGR}_t^G = \frac{1}{\sum_{y=1}^{\hat{Y}} w_y} \sum_{y=1}^{\hat{Y}} w_y CGR_{y,t}^G \quad \text{Eq 3}$$

Where w_y is a declining weight for year y and all other terms previously defined. And:

$$\hat{\sigma}_{CGR}_t^G = \sqrt{\frac{\sum_{y=1}^{\hat{Y}} w_y (CGR_{y,t}^G - \overline{CGR}_t^G)^2}{\sum_{y=1}^{\hat{Y}} w_y (\hat{Y}-1)/\hat{Y}}} \quad \text{Eq 4}$$

Where \hat{Y} is the total number of years, excluding the current year. Then the $IFPA_{y,t}$, in month t of year y , is given by:

$$IFPA_{y,t} = 0.6 \times IFPA_{y,t}^A + 0.4 \times IFPA_{y,t}^Q \quad \text{Eq 5}$$

Where $IFPA_{y,t}^A$ is the annual value A for the IFPA, in month t of year y and $IFPA_{y,t}^Q$ is the quarterly value Q for the IFPA, in month t of year y . $IFPA_{y,t}^A$. Then the total value for IFPA in year y is given by:

$$IFPA_y = \frac{1}{12} \sum_{t=0}^t IFPA_{y,t}$$

Detailed information on the methodology can be found in the e-learning course titled: SDG Indicator 2.c.1 - Food price anomalies (<http://www.fao.org/elearning/#/elc/en/course/SDG2C1>). For more in depth understanding the methodological paper published by the Global Information Early Warning System (GIEWS) of FAO: <http://www.fao.org/giews/food-prices/research/detail/en/c/235685/> is also available.

Comments and limitations:

This indicator cannot be used, and is not suitable, for forecasting of future events. It is only able to characterize previous events. The indicator can only characterize price growth and cannot isolate ex-post any changes in policy that may affect local price trends.

Proxy, alternative and additional indicators: N/A

Data Disaggregation

The IFPA can be disaggregated for a set of cereal commodities (wheat, rice, maize, sorghum/millet) that are critical for food consumption by country and market. The IFPA is also estimated using the food CPI index by country. This allows FAO to also characterize price movements of a complete and nationally defined food basket. Given granularity of the data, FAO can characterize the state of price volatility, and measure progress to reducing extreme shocks, at country, regional and global level.

References

Official SDG Metadata URL

<https://unstats.un.org/sdgs/metadata/files/Metadata-02-0C-01.pdf>

Internationally agreed methodology and guideline URL

<http://www.fao.org/giews/food-prices/research/detail/en/c/235685/>

Other references:

FAO SDG Portal and E-Learning:

FAO. *Sustainable Development Goals Indicators*. Available at <http://www.fao.org/sustainable-development-goals/indicators/en/>

FAO. E-learning Centre. Available at <http://www.fao.org/elearning/>

Additional References:

Baquedano, Felix G. (2015). *Developing an Indicator of Price Anomalies as an Early Warning Tool: A Compound Growth Approach*. FAO . Rome. Available at: http://www.fao.org/fileadmin/user_upload/foodprice/docs/resources/a-i7550e.pdf

Country examples

N/A

International Organization(s) for Global Monitoring

This document was prepared based on inputs from Food and Agriculture Organization (FAO).

For focal point information for this indicator, please visit <https://unstats.un.org/sdgs/dataContacts/>

Goal 3

Ensure healthy lives and promote well-being for all at all ages

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In this goal:

United Nations Statistics Division (UNSD) worked in consultation with each indicators' custodian agency(ies) to prepare these chapters. For indicators that do not have chapters here yet, they are currently being prepared and they will be uploaded here as soon as they become available.

If you have any questions on the e-Handbook, do not hesitate to contact Shaswat Sapkota (sapkotas@un.org).

Indicator 3.1.1

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Indicator Name, Target and Goal

Indicator 3.1.1: Maternal mortality ratio

Target 3.1: By 2030, reduce the global maternal mortality ratio to less than 70 per 100,000 live births

Goal 3: Ensure healthy lives and promote well-being for all at all ages

Definition and Rationale

Definition:

The maternal mortality ratio (MMR) is defined as the annual number of maternal deaths from any cause related to or aggravated by pregnancy or its management (excluding accidental or incidental causes) during pregnancy and childbirth or within 42 days of termination of pregnancy, irrespective of the duration and site of the pregnancy, per 100,000 live births, for a specified year.

Concepts:

A *maternal death* refers to a female death from any cause related to or aggravated by pregnancy or its management (excluding accidental or incidental causes) during pregnancy and childbirth or within 42 days of termination of pregnancy, irrespective of the duration and site of the pregnancy. It is important to note that not all deaths which occur temporally to pregnancy are considered "maternal deaths". Maternal deaths are a specific subset of deaths which occur during pregnancy, childbirth and the puerperium and can be further divided into two groups, namely direct and indirect obstetric deaths. Direct obstetric deaths result from obstetric complications of the pregnant state (pregnancy, labour and puerperium); from interventions, omissions or direct treatment; or from a chain of events resulting in any of these. Indirect deaths result from previously existing disease or disease that developed during pregnancy and was not directly due to obstetric causes but was aggravated by the physiologic effects of pregnancy. Deaths which do not meet these criteria, such as those which occur as a result of accidents, are defined by the more general term, "death occurring in pregnancy, childbirth or the puerperium" (previously referred to as "pregnancy related deaths") and are excluded from the definition of maternal health.

A *live birth* is the complete expulsion or extraction from its mother of a product of conception, irrespective of the duration of the pregnancy, which, after such separation, breathes or shows any other evidence of life—such as beating of the heart, pulsation of the umbilical cord, or definite movement of voluntary muscles—whether or not the umbilical cord has been cut or the placenta is attached. Each product of such a birth is considered a live birth.

Rationale and Interpretation:

This indicator monitors deaths related to pregnancy and childbirth. It reflects the capacity of health systems to provide effective health care in preventing and addressing the complications occurring during pregnancy and childbirth.

Indicator values range from less than 10 in most developed countries, with an average of around 169 per 100,000 live births in the developing regions.

Data Sources and Collection Method

Primary sources of data include CRSV, population based household surveys, reproductive age mortality studies, disease surveillance or sample registration systems, special studies on maternal mortality, and national population censuses. Complete CRSV systems with accurate cause of death estimations are the most reliable data source for calculating maternal mortality and monitoring change over time. However, these are rare in developing countries. Official data are usually available from health service records, but in some locations few women in rural areas have access to health services. Therefore, in developing countries, survey data, especially those from the Demographic and Health Surveys (DHS) and similar household surveys constitute the most common source of data on maternal mortality.

Because maternal mortality is a relatively rare event, large sample sizes are needed when data are derived from household surveys. This is very costly and may still result in estimates with large confidence intervals.

The sisterhood method, used in DHS surveys and Multiple Indicator Cluster Surveys (MICS), reduces sample size requirements by asking survey respondents about the survivorship of sisters. Respondents are asked four simple questions about how many of their sisters reached adulthood, how many have died and whether those who died were pregnant at the time of death. While this method reduces sample size requirements, it produces estimates covering some 7-12 years before the survey, which renders data problematic for monitoring progress or observing the impact of interventions. The direct sisterhood method asks respondents to provide date of death, which permits the calculation of more recent estimates, but even then, the reference period tends to refer to 0-6 years before the survey.

Method of Computation and Other Methodological Considerations

Computation Method:

The maternal mortality ratio is calculated by dividing recorded (or estimated) maternal deaths by total recorded (or estimated) live births in the same period and multiplying by 100,000. The measurement requires information on pregnancy status, timing of death (during pregnancy, during childbirth, or within 42 days of termination of pregnancy), and cause of death. The following formula is used for calculating the maternal mortality ratio for a given time period:

$$MMR = \frac{\text{Recorded (or estimated) maternal deaths}}{\text{Total (recorded or estimated) live births}} \times 100,000$$

Comments and limitations:

Maternal mortality is often difficult to measure. Civil Registration Vital Statistics (CRVS) and health information systems in most developing countries are weak, and thus, cannot provide an accurate assessment of maternal mortality. Even figures derived from complete CRVS systems, such as those in developed countries, suffer from misclassification and underreporting of maternal deaths.

Due to very large confidence intervals, maternal mortality estimates might not be suitable for assessing trends over time. As a result, it is recommended that country level process indicators, such as attendance by skilled health personnel at delivery and use of health facilities for delivery, be used to supplement maternal mortality ratios for assessing progress towards the reduction in maternal mortality at the country level.

The maternal mortality ratio should not be confused with the maternal mortality rate (number of maternal deaths divided by person-years lived by women of reproductive age), which reflects not only the risk of maternal death per pregnancy or birth but also the level of fertility in the population. The maternal mortality ratio (whose denominator is the number of live births) indicates the risk of death once a woman becomes pregnant, and does not take fertility levels into consideration.

Proxy, alternative and additional indicators:

In addition to the MMR and MMRate, there exist two additional indicators:

(1) the adult lifetime risk of maternal mortality for women in the population is defined as the probability that a 15-year old woman will die eventually from a maternal cause; and

(2) the proportion of deaths among women of reproductive age that are due to maternal causes (PM) is calculated as the number of maternal deaths divided by the total deaths among women aged 15-49 years.

Data Disaggregation

A list of aspirational inequity measurements are proposed for disaggregation such as income level, residence (urban/rural), educational attainment, ethnicity, humanitarian settings, conflict zones and refugees as well as adolescent 15-19 years.

References**Official SDG Metadata URL**

<https://unstats.un.org/sdgs/metadata/files/Metadata-03-01-01.pdf>

Internationally agreed methodology and guideline URL

<http://www.who.int/reproductivehealth/publications/monitoring/maternal-mortality-2015/en/>

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WHO-UNICEF-UNFPA-World Bank – United Nations Population Division (2015). *Trends in Maternal Mortality: 1990 to 2015*. Geneva. Available at: http://apps.who.int/iris/bitstream/10665/194254/1/9789241565141_eng.pdf?ua=1

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Country examples

N/A

International Organization(s) for Global Monitoring

This document was prepared based on inputs from World Health Organization (WHO).

For focal point information for this indicator, please visit <https://unstats.un.org/sdgs/dataContacts/>

Indicator 3.2.1

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Indicator Name, Target and Goal

Indicator 3.2.1: Under-five mortality rate

Target 3.2: By 2030, end preventable deaths of newborns and children under 5 years of age, with all countries aiming to reduce neonatal mortality to at least as low as 12 per 1,000 live births and under-5 mortality to at least as low as 25 per 1,000 live births

Goal 3: Ensure healthy lives and promote well-being for all at all ages

Definition and Rationale

Definition:

The under-five mortality rate (U5MR) is the probability (expressed as a rate per 1,000 live births) of a child born in a specified year or period dying before reaching the age of five if subject to current age-specific mortality rates.

Concepts:

A live birth is the complete expulsion or extraction from its mother of a product of conception, irrespective of the duration of the pregnancy, which, after such separation, breathes or shows any other evidence of life—such as beating of the heart, pulsation of the umbilical cord, or definite movement of voluntary muscles—whether or not the umbilical cord has been cut or the placenta is attached. Each product of such a birth is considered a live birth.

Rationale and Interpretation:

Mortality rates among young children are a key output indicator for child health and well-being, and, more broadly, for social and economic development. It is a closely watched public health indicator because it reflects the access of children and communities to basic health interventions such as vaccination, medical treatment of infectious diseases and adequate nutrition.

By 2030, all countries are expected to reduce under-5 mortality to at least as low as 25 per 1,000 live births.

Data Sources and Collection Method

Vital registration systems are the preferred source of data on under-five mortality because they collect information prospectively and cover the entire population. However, many low and lower middle income countries lack fully functioning vital registration systems that accurately record all births and deaths. Thus, household surveys, such as Demographic and Health Surveys (DHS) and Multiple Indicator Cluster Surveys (MICS), and periodic population censuses have become the primary source of data on child mortality in low and lower middle income countries.

National Statistical Office or the Ministry of Health are mostly involved in generating under-five mortality data at the national level.

Method of Computation and Other Methodological Considerations

Computation Method:

Strictly speaking, the U5MR is not rate, since they are not calculated by dividing the number of deaths by the population at risk. Rather, the measures represent the probability of dying by a certain age derived from a life table.

Two methods for calculating U5MR exist: the direct method and the indirect method. The direct method requires each child's date of birth, survival status, and date or age at death. This information is typically found in vital registration systems and in household surveys that collect complete birth histories. A complete birth history records the dates of birth, and, if applicable, the dates of death of all children born to each woman that is interviewed.

There are different direct methods of calculating under-five mortality rates. For data from vital registration systems, the calculation of U5MR can be derived from a standard period abridged life table with the number of deaths for age group <1 year (noted D0) and for the age group 1-4 (D1-4), as well as the mid-year population for the same age groups (P0 and P1-4) as inputs. Survey programmes use a synthetic cohort approach, which combines mortality probabilities for small age segments based on real cohort mortality experience into common age.

The indirect method requires relatively little information that is available in censuses and several surveys. Only a few short, simple questions are required to collect it. This information consists of the total number of children born to each woman, the number who survive and the woman's age (or the number of years since she first gave birth). The indirect method -often called the "Brass method", converts the proportion of reported dead children ever born to women in age groups 15-19, 20-24,... and 45-49 into estimates of the probability of dying before attaining certain ages. The method assumes that the age of the mother can serve as a proxy for the age of her children and thus for how long the children have been exposed to the risk of dying.

For further details on the methodology please refer to: http://childmortality.org/files_v21/download/Child%20Mortality%20Estimation%20Explanatory%20Notes.pdf

Comments and limitations:

Many countries do not have timely and reliable U5MR data but rather have differing mortality rates from different sources. Data from different sources require different calculation methods and may suffer from different errors, for example random errors in sample surveys or systematic errors due to misreporting. Recall errors are common as data are collected retrospectively. As a result, different sources often yield widely different estimates of mortality for a given time period and available data collected by countries are often inconsistent across sources. Therefore, it is important to analyse, reconcile and evaluate all data sources simultaneously for each country. The UN IGME method aims to minimize the errors for each estimate, harmonize trends over time and produce up-to-date and properly assessed estimates of under-five mortality.

The UN Inter-agency Group for Child Mortality Estimation (UN IGME) uses a Bayesian B-splines biasadjusted model to estimate U5MR. The spline regression model is fitted to all empirical U5MR data from vital registration systems, population censuses, household surveys and sample registration systems in a country, after data quality assessment. The model generates a smooth trend curve that averages over possibly disparate estimates from the different data sources for a country and extrapolates the estimates to a target year. UN IGME generates such estimates with uncertainty bounds. The differences between the UN IGME estimates and national official estimates are usually not large if empirical data has good quality.

For further details on the methodology please refer to:

<https://arxiv.org/pdf/1309.1602.pdf>

http://childmortality.org/files_v21/download/IGME%20report%202017%20child%20mortality%20final.pdf

http://childmortality.org/files_v21/download/Child%20Mortality%20Estimation%20Explanatory%20Notes.pdf

<http://www.childmortality.org/>

Proxy, alternative and additional indicators: N/A

Data Disaggregation

Common disaggregation for mortality indicators includes disaggregation by sex, age (neonatal, infant, child), wealth quintile, residence, and mother's education. Disaggregated data are not always available. Disaggregation by geographic location is usually at regional level, or the minimum provincial level for survey or census data. Data from well-functioning vital registration systems can provide further geographical breakdowns.

References

Official SDG Metadata URL

<https://unstats.un.org/sdgs/metadata/files/Metadata-03-02-01.pdf>

Internationally agreed methodology and guideline URL

<https://arxiv.org/pdf/1309.1602.pdf>

http://childmortality.org/files_v21/download/IGME%20report%202017%20child%20mortality%20final.pdf

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Other referencesUNICEF Briefing Notes on SDG Indicators:

UNICEF. *Briefing notes on SDG global indicators related to children*. Available at <https://data.unicef.org/resources/sdg-global-indicators-related-to-children/>

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Walker N, Hill K, Zhao FM. (2012). *Child Mortality Estimation: Methods Used to Adjust for Bias due to AIDS in Estimating Trends in Under-Five Mortality*. Plos Medicine. 2012;9(8). Available at: <http://journals.plos.org/plosmedicine/article?id=10.1371/journal.pmed.1001298>

Country examples

N/A

International Organization(s) for Global Monitoring

This document was prepared based on inputs from United Nations Children’s Fund (UNICEF).

For focal point information for this indicator, please visit <https://unstats.un.org/sdgs/dataContacts/>

Indicator 3.2.2

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Indicator Name, Target and Goal

Indicator 3.2.2: Neonatal mortality rate

Target 3.2: By 2030, end preventable deaths of newborns and children under 5 years of age, with all countries aiming to reduce neonatal mortality to at least as low as 12 per 1,000 live births and under-5 mortality to at least as low as 25 per 1,000 live births

Goal 3: Ensure healthy lives and promote well-being for all at all ages

Definition and Rationale

Definition:

The neonatal mortality rate (NMR) is the probability that a child born in a specific year or period will die during the first 28 completed days of life if subject to current age-specific mortality rates, expressed per 1000 live births.

Concepts:

A *live birth* is the complete expulsion or extraction from its mother of a product of conception, irrespective of the duration of the pregnancy, which, after such separation, breathes or shows any other evidence of life—such as beating of the heart, pulsation of the umbilical cord, or definite movement of voluntary muscles—whether or not the umbilical cord has been cut or the placenta is attached. Each product of such a birth is considered a live birth.

Rationale and Interpretation:

Child mortality, including neonatal mortality rate (NMR), is a key output indicator for child health and well-being, and, more broadly, for social and economic development. It is a closely watched public health indicator because it reflects the access of children and communities to basic health interventions such as vaccination, medical treatment of infectious diseases and adequate nutrition.

Strictly speaking, the NMR is not rate, since they are not calculated by dividing the number of deaths by the population at risk. Rather, the measures represent the probability of dying by a certain age derived from a life table.

By 2030, all countries are expected to reduce neonatal mortality to at least as low as 12 per 1000 live births.

Data Sources and Collection Method

Vital registration systems are the preferred source of data because they collect information prospectively and cover the entire population. However, many low and lower middle income countries lack fully functioning vital registration systems that accurately record all births and deaths. Thus, household surveys, such as Demographic and Health Surveys (DHS) and Multiple Indicator Cluster Surveys (MICS), and periodic population censuses have become the primary source of data on child mortality in low and lower middle income countries.

National Statistical Office or the Ministry of Health are mostly involved in generating neonatal mortality data at the national level.

Method of Computation and Other Methodological Considerations**Computation Method:**

The direct method requires each child's date of birth, survival status, and date or age at death. This information is typically found in vital registration systems and in household surveys that collect complete birth histories. A complete birth history records the dates of birth, and, if applicable, the dates of death of all children born to each woman that is interviewed.

There are different direct methods of calculating neonatal mortality rates. For data from vital registration systems, the calculation of NMR can be derived from the number of deaths of children in the first month during a particular time period is divided by the number of births in that same period. Survey programmes use a synthetic cohort approach, which combines mortality probabilities for small age segments based on real cohort mortality experience into common age.

Comments and limitations:

Many countries do not have timely and reliable NMR data but rather have differing mortality rates from different sources. Data from different sources may suffer from different errors, for example random errors in sample surveys or systematic errors due to misreporting. Recall errors are common as data are collected retrospectively. As a result, different sources often yield widely different estimates of mortality for a given time period and available data collected by countries are often inconsistent across sources. Therefore, it is important to analyse, reconcile and evaluate all data sources simultaneously for each country. The UN IGME method aims to minimize the errors for each estimate, harmonize trends over time and produce up-to-date and properly assessed estimates of neonatal mortality.

The UN Inter-agency Group for Child Mortality Estimation (UN IGME) uses a Bayesian B-splines model to estimate NMR. The spline regression model is fitted to all empirical data from vital registration systems, population censuses, household surveys and sample registration systems in a country, after data quality assessment. This method models the ratio of neonatal mortality rate / (under-five mortality rate - neonatal mortality rate). The model generates a smooth trend curve that averages over possibly disparate estimates from the different data sources for a country and extrapolates the estimates to a target year. Estimates of NMR are obtained by recombining the estimates of the ratio with UN IGME-estimated under-five mortality rate. UN IGME generates such estimates with uncertainty bounds. The differences between the UN IGME estimates and national official estimates are usually not large if empirical data has good quality.

For further details on the methodology please refer to:

<https://www.demographic-research.org/volumes/vol38/15/38-15.pdf>

http://www.childmortality.org/files_v21/download/IGME%20report%202017%20child%20mortality%20final.pdf

http://childmortality.org/files_v21/download/Child%20Mortality%20Estimation%20Explanatory%20Notes.pdf

Proxy, alternative and additional indicators: N/A

Data Disaggregation

Common disaggregations for mortality indicators includes disaggregation by sex, wealth quintile, residence, and mother's education. Disaggregated data are not always available. Disaggregation by geographic location is usually at regional level, or the minimum provincial level for survey or census data. Data from well-functioning vital registration systems can provide further geographical breakdowns.

Neonatal deaths (deaths among live births during the first 28 completed days of life) may be subdivided into early neonatal deaths, occurring during the first 7 days of life, and late neonatal deaths, occurring after the 7th day but before the 28th completed day of life.

Neonatal mortality rates can be also disaggregated by cause, including preterm birth complications, pneumonia, and diarrhoea.

References

Official SDG Metadata URL

<https://unstats.un.org/sdgs/metadata/files/Metadata-03-02-01.pdf>

Internationally agreed methodology and guideline URL

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Pedersen J, Liu J. (2012). *Child Mortality Estimation: Appropriate Time Periods for Child Mortality Estimates from Full Birth Histories*. *Plo s Medicine*. 2012;9(8). Available at: <http://journals.plos.org/plosmedicine/article?id=10.1371/journal.pmed.1001289>

Silva R. (2012). *Child Mortality Estimation: Consistency of Under-Five Mortality Rate Estimates Using Full Birth Histories and Summary Birth Histories*. *Plos Medicine*. 2012;9(8). Available at: <http://journals.plos.org/plosmedicine/article?id=10.1371/journal.pmed.1001296>

Walker N, Hill K, Zhao FM. (2012). *Child Mortality Estimation: Methods Used to Adjust for Bias due to AIDS in Estimating Trends in Under-Five Mortality*. *Plos Medicine*. 2012;9(8). Available at: <http://journals.plos.org/plosmedicine/article?id=10.1371/journal.pmed.1001298>

Country examples

N/A

International Organization(s) for Global Monitoring

This document was prepared based on inputs from United Nations Children's Fund (UNICEF).

For focal point information for this indicator, please visit <https://unstats.un.org/sdgs/dataContacts/>

Indicator 3.3.1

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Indicator Name, Target and Goal

Indicator 3.3.1: Number of new HIV infections per 1,000 uninfected population, by sex, age and key populations

Target 3.3: By 2030, end the epidemics of AIDS, tuberculosis, malaria and neglected tropical diseases and combat hepatitis, water-borne diseases and other communicable diseases

Goal 3: Ensure healthy lives and promote well-being for all at all ages

Definition and Rationale

Definition:

This indicator is defined as the number of new HIV infections per 1,000 uninfected population.

Concepts:

Human Immunodeficiency Virus (HIV) is a virus that weakens the immune system, ultimately leading to Acquired Immune Deficiency Syndrome (AIDS). HIV destroys the body's ability to fight off infection and disease, which can ultimately lead to death. Without treatment, median survival from the time of infection is about 10.5 years for males and 11.5 years for females. Access to treatment improves the health of the individual, increases survival to near normal life expectancies, and greatly reduces the chance of onward transmission. Treatment coverage has increased rapidly since the early 2000s but still varies by region. No vaccine is currently available.

Rationale and Interpretation:

Monitoring the incidence rate of HIV provides a measure of progress toward achieving the target of reducing the number of new HIV infections.

Data Sources and Collection Method

Teams of epidemiologist and HIV specialists in each country are responsible for producing the HIV estimates using comparable models. The models start with the most recent UN Population Division estimates of population by age, sex and year. Programme data on the numbers of people receiving antiretroviral medicines are also entered into the model. The HIV surveillance data used in the model to estimate incidence vary depending on what data are available in the country; however the model primarily relies on HIV prevalence measures or case surveillance or mortality reports.

Measuring HIV infections directly requires conducting large household surveys each year and is a very challenging endeavour (for example In countries with low prevalence the sample sizes would need to be well over 100,000 households).

Further information on the estimation model can be found at:

<http://www.unaids.org/en/dataanalysis/datatools/spectrum-epp> or www.epidem.org

Method of Computation and Other Methodological Considerations

Computation Method:

This indicator is calculated using the following formula for a given reporting period:

$$HIV\ incidence\ rate = \frac{\text{Number of people newly infected during the reporting period}}{\text{Total number of uninfected population}} \times 1,000$$

There are a number of direct methods of measuring incidence, including the two most common:

- (1) Longitudinal follow-up of individuals who do not have HIV – This method involves repeated testing of a selected cohort of uninfected individuals to determine the proportion that has acquired infection over time; and
- (2) Application of laboratory tests for recent HIV infection – This method involves using laboratory tests to distinguish recent infections (i.e., from within the last year) from long-standing infections.

The first method is challenging because it will require following and testing a nationally-representative number of people regularly over time. The sample of individuals monitored would have to be large to allow for meaningful inference from the results. The second method has the potential to misclassify individuals as newly infected even though their infections have been longstanding due to limitations in the performance of currently available laboratory tests. In addition, a very large, nationally-representative sample of individuals is required to calculate a meaningful value. This is possible in some very high HIV burden countries although it is unlikely that conducting this large of a survey could be done on an annual basis. In addition, many people do not get tested regularly or after every possible exposure.

Given these challenges an indirect method based on mathematical modeling is currently used to estimate HIV incidence in most countries. Comparable modeled estimates of HIV incidence are available for countries representing 99% of the global population. Country teams produce the modelled estimates and national HIV programme managers approve them before they are compiled and published by UNAIDS.

Comments and limitations:

Global HIV surveillance experts have developed models to infer current and historical HIV incidence (see www.epidem.org for more details on these models). For many countries, including the high HIV burden countries, data on HIV prevalence, direct measures of incidence from national population surveys, where available, and antiretroviral coverage are used to estimate HIV incidence. In other countries with robust case surveillance and vital registration systems, data on HIV diagnosis and cause-specific mortality are used to estimate incidence trends. Both methods have limitations as they rely on assumptions and model parameters to overcome challenges of sub-optimal data inputs.

Some nationally-representative household surveys are periodically measuring recent HIV infections directly. These surveys require large sample sizes to accurately measure incidence. There are still some technical uncertainties on how to adjust for false positives among the samples identified as recent infections and these measures are typically not available annually.

Proxy, alternative and additional indicators: N/A

Data Disaggregation

Disaggregation should be by age groups (0-14, 15-24, 15-49, 50+ years), place of residence, sex, mode of transmission (including mother-to-child transmission). A critical further disaggregation is by key populations (men who have sex with men, sex workers, people who inject drugs, transgender people, and prisoners) and within these groups by ages (< 25, 25+ years).

References

Official SDG Metadata URL

<https://unstats.un.org/sdgs/metadata/files/Metadata-03-03-01.pdf>

Internationally agreed methodology and guideline URL

<http://www.unaids.org/en/dataanalysis/datatools/spectrumapp>

Other references

UNAIDS (2016). *Methods for Deriving UNAIDS Estimates*. Available at: http://www.unaids.org/sites/default/files/media_asset/2016_methods-for-deriving-UNAIDS-estimates_en.pdf

UNAIDS (2017). Description of the compilation of HIV estimates. http://www.unaids.org/en/resources/presscentre/featurestories/2017/july/20170710_data

UNAIDS (2018) Global AIDS Monitoring 2018: Indicators for monitoring the 2016 United Nations Political Declaration on Ending AIDS. Available at:

http://www.unaids.org/sites/default/files/media_asset/global-aids-monitoring_en.pdf

UNAIDS. *Website for relevant data*. Internet Site: <http://aidsinfo.unaids.org/>

WHO (2015). *Consolidated Strategic Information Guidelines for HIV in the Health Sector*. Geneva. Available at: <http://www.who.int/hiv/pub/guidelines/strategic-information-guidelines/en/>

Country examples

N/A

International Organization(s) for Global Monitoring

This document was prepared based on inputs The Joint United Nations Programme on HIV/AIDS (UNAIDS).

For focal point information for this indicator, please visit <https://unstats.un.org/sdgs/dataContacts/>

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Indicator 3.3.2

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Indicator Name, Target and Goal

Indicator 3.3.2: Tuberculosis incidence per 100,000 population

Target 3.3: By 2030, end the epidemics of AIDS, tuberculosis, malaria and neglected tropical diseases and combat hepatitis, water-borne diseases and other communicable diseases

Goal 3: Ensure healthy lives and promote well-being for all at all ages

Definition and Rationale

Definition:

The tuberculosis incidence per 100,000 population is defined as the estimated number of new and relapse tuberculosis (TB) cases (all forms of TB, including cases in people living with HIV) arising in a given year, expressed as a rate per 100, 000 population.

Concepts:

Tuberculosis is an infectious bacterial disease caused by *Mycobacterium tuberculosis*, which most commonly affects the lungs. It is transmitted from person to person via droplets from the throat and lungs of people with the active respiratory disease.

A *tuberculosis case* is defined as a patient in whom tuberculosis has been bacteriologically confirmed or diagnosed by a clinician.

Rationale and Interpretation:

Detecting tuberculosis and curing it are key interventions for addressing poverty and inequality. Prevalence and deaths are more sensitive markers of the changing burden of tuberculosis than incidence (new cases), but data on incidence are more comprehensive and give the best overview of the impact of global tuberculosis control.

Incidence rates are important because they give an indication of the extent of TB in a population, and of the size of the task faced by a national TB control programme. Incidence rates can be used to track changes in the rate at which people infected with *Mycobacterium tuberculosis* develop TB disease. Improvement in the quality of TB surveillance data result in reduced uncertainty about indicator values.

Data Sources and Collection Method

International organizations like the WHO collect data from the following four national sources:

1. National case notification data (available in all countries) combined with expert opinion about case detection gaps;
2. Results from recent national TB prevalence surveys where available;
3. National case notifications in high-income countries adjusted by a standard factor to account for under-reporting and under-diagnosis and
4. Capture recapture modelling using data on TB case detection from at least three case lists (e.g. record-linkage of records from a

national TB case notification database, health insurance records, laboratory records, records from private hospital and clinics).

Method of Computation and Other Methodological Considerations

Computation Method:

Direct measurement of incidence of TB presents major logistic and financial challenges associated with large sample size surveys. Theoretically, data from TB surveillance systems that are linked to health systems of high coverage and performance may capture all (or almost all) incident cases of TB.

Current methods to estimate TB incidence can be grouped into four major categories. Estimation methods are detailed in an online technical appendix attached to the latest Global TB Report.

1. Case notification data combined with expert opinion about case detection gaps. Expert opinion, elicited in regional workshops or country missions, is used to estimate levels of under-reporting and under-diagnosis. Trends are estimated using either mortality data, surveys of the annual risk of infection or exponential interpolation using estimates of case detection gaps for three years;
2. Results from TB prevalence surveys. Incidence is estimated using prevalence survey results and derived from a model that accounts for the impact of HIV on the distribution of disease duration;
3. Notifications in high-income countries adjusted by a standard factor to account for under-reporting and under-diagnosis; and
4. Results from inventory studies of under-reporting of detected TB, with capture-recapture modelling based on at least three lists.

Comments and limitations:

N/A

Proxy, alternative and additional indicators:

Proxy indicators of TB incidence include case notification rates in countries meeting the following criteria: universal access to health care (with universal health insurance or equivalent), mandatory notification of new cases to public health authorities and high performance of the national TB surveillance system.

Data Disaggregation

This indicator can be by age and sex categories, and could be disaggregated by type of TB infection (for example drug resistant vs. non-resistant).

References

Official SDG Metadata URL

<https://unstats.un.org/sdgs/metadata/files/Metadata-03-03-02.pdf>

Internationally agreed methodology and guideline URL

<https://arxiv.org/ftp/arxiv/papers/1603/1603.00278.pdf>

Other references

World Health Organization. *Tuberculosis (TB) Data*. Internet Site. <http://www.who.int/tb/country/data/download/en/>

World Health Organization (2017). *Global TB Report 2017*. Geneva http://www.who.int/tb/publications/global_report/en/

World Health Organization (2013). *Definitions and reporting framework for tuberculosis – 2013 revision*. Geneva. Internet Site. <http://www.who.int/tb/publications/definitions/en/>

World Health Organization. *World Health Assembly governing body documentation: official records*. Geneva. Internet Site. <http://apps.who.int/gb/or/>

World Health Organization. *Methods used by WHO to estimate the global burden of TB disease*. http://www.who.int/tb/publications/global_report/gtbr2017_online_technical_appendix_disease_burden_estimation.pdf?ua=1.

Country examples

N/A

International Organization(s) for Global Monitoring

This document was prepared based on inputs from World Health Organization (WHO).

For focal point information for this indicator, please visit <https://unstats.un.org/sdgs/dataContacts/>

Indicator 3.3.5

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- Data Sources and Collection Method
- Method of Computation and Other Methodological Considerations
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Indicator Name, Target and Goal

Indicator 3.3.5: Number of people requiring interventions against neglected tropical diseases

Target 3.3: By 2030, end the epidemics of AIDS, tuberculosis, malaria and neglected tropical diseases and combat hepatitis, water-borne diseases and other communicable diseases

Goal 3: Ensure healthy lives and promote well-being for all at all ages

Definition and Rationale

Definition:

This indicator is defined as the number of people requiring treatment and care for any one of the neglected tropical diseases (NTDs) targeted by the WHO NTD Roadmap and World Health Assembly resolutions.

Concepts:

Neglected tropical diseases (NTDs) are a diverse group of communicable diseases that prevail in tropical and subtropical conditions in more than 100 countries. They include the following diseases: Buruli ulcer, Chagas disease, dengue, dracunculiasis (guinea-worm disease), echinococcosis, foodborne trematodiasis, human African trypanosomiasis (sleeping sickness), leishmaniases, leprosy, lymphatic filariasis, mycetoma, onchocerciasis (river blindness), rabies, schistosomiasis, soil-transmitted helminthiasis, taeniasis and neurocysticercosis, trachoma, and yaws. An up-to-date list is available at http://www.who.int/neglected_diseases/diseases/en/.

Treatment and care is defined as preventive, curative, surgical or rehabilitative measures against the NTDs. It consists of:

- (1) Mass treatment known as preventive chemotherapy (PC) for at least one NTD; and
- (2) Individual treatment and care for any NTD.

PC consists of the regular, large-scale administration of drugs - either alone or in combination, to entire population groups, with the aim of reducing transmission and associated morbidity; PC is the public health strategy recommended by WHO against some helminth infections (lymphatic filariasis, onchocerciasis, schistosomiasis and soil transmitted helminthiasis) and one chlamydial infection (trachoma).

Other key interventions against NTDs (e.g. vector management, veterinary public health, water, sanitation and hygiene) are to be addressed in the context of other targets and indicators, namely Universal Health Coverage (UHC) and universal access to water and sanitation.

Rationale and Interpretation:

The “end of the epidemic” of NTDs will be evidenced first by decreases in the number of people requiring treatment and care, as NTDs are eradicated, eliminated or controlled.

However, this indicator should not be interpreted as the number of people at risk for NTDs. The number of people at risk is larger. Instead, this number represents the people at a level of risk that requires medical interventions – i.e., treatment and care for NTDs.

The number should be decreasing over time towards zero. Global targets imply a 90% reduction by 2030.

Data Sources and Collection Method

Data for this indicator is compiled by relevant government agencies such as the ministry of health, through national NTD programs.

For NTDs requiring mass treatment (PC): WHO's Joint Request for Selected PC Medicines (JRSM) program supports countries in securing medicines through donations from pharmaceutical companies for NTD treatments. In such cases, it includes data on the number of people requiring PC. In other cases, the WHO has designed the PC Epidemiological Data Reporting Form (EPIRF) to help governments standardize and report their epidemiological data, including data on the number of people requiring PC.

For NTDs requiring individual treatment and care: the District Health Information System (DHIS, version 2) enables accurate and timely dissemination of data on the number of cases requiring treatment and care for NTDs, from the district level up to national level. WHO is working to support the use of the DHIS2 to allow for prompt collection, flow, analysis and sharing of data by national NTD programmes.

Method of Computation and Other Methodological Considerations

Computation Method:

This indicator is calculated as the higher of the below two numbers for a given region/administrative unit:

- (1) Average annual number of people requiring mass treatment for at least one NTD. People may require PC for more than one NTD. To avoid double-counting, the number of people requiring PC is therefore compared across the NTDs, by age group and implementation unit (e.g. district). The largest number of people requiring PC among all NTDs is retained for each age group in each implementation unit. The largest number is considered to be a conservative estimate of the number of people requiring PC for at least one NTD; and
- (2) Number of new cases requiring individual treatment and care for any NTD. Currently, the number of new cases is based on country reports, whenever available, of new and known cases of Buruli ulcer, Chagas disease, cysticercosis, dengue, guinea-worm disease, echinococcosis, human African trypanosomiasis (HAT), leprosy, the leishmaniases, rabies and yaws.

Comments and limitations:

Country reports may not be perfectly comparable over time. Improved surveillance and case-finding may lead to an apparent increase in the number of people known to require treatment and care. Some further estimation may be required to adjust for changes in surveillance and case-finding. Missing country reports may need to be imputed for some diseases in some years.

Proxy, alternative and additional indicators: N/A

Data Disaggregation

Data can be disaggregated by disease and by age group. Data can also be disaggregated by sex and location (urban / rural).

References

Official SDG Metadata URL

<https://unstats.un.org/sdgs/metadata/files/Metadata-03-03-05.pdf>

Internationally agreed methodology and guideline URL

WHO (2012). Weekly epidemiological record (No.2, 2012, 87, 17-28) <http://www.who.int/wer/2012/wer8702.pdf?ua=1>

Other references

WHO (2007). *Global plan to combat neglected tropical diseases, 2008–2015*. Geneva. Available at: http://apps.who.int/iris/bitstream/10665/69708/1/WHO_CDS_NTD_2007.3_eng.pdf?ua=1

WHO (2012). *Accelerating work to overcome the global impact of neglected tropical diseases: A Roadmap for Implementation*. Geneva. Available at: http://www.who.int/neglected_diseases/NTD_RoadMap_2012_Fullversion.pdf

WHO (2015). *Investing to overcome the global impact of neglected tropical diseases*. Geneva. Available at: http://www.who.int/neglected_diseases/9789241564861/en/

Country examples

N/A

International Organization(s) for Global Monitoring

This document was prepared based on inputs from World Health Organization (WHO).

For focal point information for this indicator, please visit <https://unstats.un.org/sdgs/dataContacts/>

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Indicator 3.4.1

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Indicator Name, Target and Goal

Indicator 3.4.1: Mortality rate attributed to cardiovascular disease, cancer, diabetes or chronic respiratory disease

Target 3.4: By 2030, reduce by one third premature mortality from non-communicable diseases through prevention and treatment and promote mental health and well-being

Goal 3: Ensure healthy lives and promote well-being for all at all ages

Definition and Rationale

Definition:

This indicator is defined as the per cent of 30-year-old people who would die before their 70th birthday from cardiovascular diseases, cancer, diabetes, or chronic respiratory diseases, under the assumption that the experienced mortality rate does not change over time, excluding other causes of death such as accidents or HIV/AIDS. This indicator is calculated using the life table method.

Concepts:

Probability of dying refers to the likelihood that an individual would die between two ages given current mortality rates at each age, calculated using life table methods. The probability of death between two ages may be called a mortality rate.

Life tables show the mortality experience of a hypothetical group of infants born at the same time and subject throughout their lifetime to a set of age-specific mortality rates.

Cardiovascular disease, cancer, diabetes or chronic respiratory diseases refer to diseases coded as I00-I99, C00-C97, E10-E14 and J30-J98 of the 10th revision of the International Statistical Classification of Diseases and Related Health problems (ICD-10).

Rationale and Interpretation:

Disease burden from non-communicable diseases (NCDs) among adults is rapidly increasing in developing countries due to ageing. Cardiovascular diseases, cancer, diabetes and chronic respiratory diseases are the four main causes of NCD burden. Measuring the risk of dying from these four major causes is important to assess the extent of burden from premature mortality due NCDs in a population.

Data Sources and Collection Method

The preferred data source is death registration systems with complete coverage and medical certification of cause of death. Where such death registration systems do not exist, data can be collected through household surveys and sample registration systems with verbal autopsy. For further information, please refer to WHO (2010).

Method of Computation and Other Methodological Considerations

Computation Method:

This indicator is calculated based on the life tables influenced by only the four NCDs and applying the the cause-specific death rate to each 5-year age range. (If the cause-specific death rate cannot be disaggregated by 5-year age range, it can be constant.) The mortality rate for each 5-year age group is calculated as follows:

$${}^5M_x = \frac{\text{Total deaths from four NCDs between exact age } x \text{ and exact age } (x + 5)}{\text{Total population between exact age } x \text{ and exact age } (x + 5)}$$

Mortality rates must be calculated for each five-year age group between ages 30 and 70. Then translate the mortality rate into probability of dying between exact age ,

$(x + 5)$, 5q_x :

:

$${}^5q_x = \frac{{}^5M_x \times 5}{1 + {}^5M_x \times 2.5}$$

Finally, the probability of death between the ages of 30 to 70, independent of other causes of death can be calculated as:

$${}_{40}q_{30} = 1 - \prod_{x=30}^{65} (1 - {}^5q_x)$$

Comments and limitations:

Data on deaths are available from countries from death registration data or sample registration systems that record information on cause of death, but less than one half of WHO member states have well-functioning death-registration systems that record causes of death. Data gaps and limitations in some regions reinforce the need for caution when interpreting global comparative cause of death assessments, as well as the need for increased investment in population health measurement systems.

The use of verbal autopsy methods in sample registration systems, demographic surveillance systems and household surveys provides some information on causes of death in countries without well-established death registration systems, but there remain considerable challenges in the validation and interpretation of such data, and in the assessment of uncertainty associated with diagnoses of underlying cause of death.

Proxy, alternative and additional indicators: N/A

Data Disaggregation

This indicator can be disaggregated by sex and subnational area.

References

Official SDG Metadata URL

<https://unstats.un.org/sdgs/metadata/files/Metadata-03-04-01.pdf>

Internationally agreed methodology and guideline URL

http://www.who.int/nmh/ncd-tools/indicators/GMF_Indicator_Definitions_FinalNOV2014.pdf?ua=1

<http://www.who.int/healthinfo/indicators/2018/en/>

Other references:

ICD-10: Version 2016: <http://apps.who.int/classifications/icd10/browse/2016/en>

WHO (2010). *Improving the quality and use of birth, death and cause-of-death information: guidance for a standards-based review of country practices*. Available at: http://www.who.int/healthinfo/tool_cod_2010.pdf?ua=1

WHO (2014). *NCD Global Monitoring Framework: Indicator Definitions and Specifications*. Geneva. Available at: http://www.who.int/nmh/ncdtools/indicators/GMF_Indicator_Definitions_FinalNOV2014.pdf?ua=1

WHO. *Global Health Observatory: Indicator Metadata Registry*. Geneva. Internet Site: <http://apps.who.int/gho/data/node.wrapper.imr?x-iid=3354>

WHO (2018). *WHO methods and data sources for country-level causes of death 2000-2016*. Geneva. Available at: http://www.who.int/healinfo/global_burden_disease/GlobalCOD_method_2000_2016.pdf

World Health Assembly Resolution, WHA66.10 (2014). *Follow-up to the Political Declaration of the Highlevel Meeting of the General Assembly on the Prevention and Control of Non-communicable Diseases. Including Appendix 2: Comprehensive global monitoring framework, including 25 indicators, and a set of nine voluntary global targets for the prevention and control of noncommunicable diseases*. Available at: http://apps.who.int/gb/ebwha/pdf_files/WHA66/A66_R10-en.pdf?ua=1

WHO (2013). *Global Action Plan for the Prevention and Control of Noncommunicable Diseases 2013-2020*. Geneva. Available at: http://apps.who.int/iris/bitstream/10665/94384/1/9789241506236_eng.pdf?ua=1

Country examples

N/A

International Organization(s) for Global Monitoring

This document was prepared based on inputs from World Health Organization (WHO).

For focal point information for this indicator, please visit <https://unstats.un.org/sdgs/dataContacts/>

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Indicator Name, Target and Goal

Indicator 3.4.2: Suicide Mortality Rate

Target 3.4: By 2030, reduce by one third premature mortality from non-communicable diseases through prevention and treatment and promote mental health and well-being

Goal 3: Ensure healthy lives and promote well-being for all at all ages

Definition and Rationale

Definition:

This indicator is defined as the number of suicide deaths in a given year divided by the population, expressed per 100,000 persons.

Concepts:

Suicide is the act of causing one's own death. Codes X-60-84 and Y87.0 of the International Statistical Classification of Diseases and Related Health Problems (ICD-10) are considered as suicide deaths for this indicator.

Rationale and Interpretation:

Mental disorders occur in all regions and cultures of the world. The most prevalent of these disorders are depression and anxiety, which are estimated to affect nearly 1 in 10 people. At its worst, depression and other mental illnesses such as bipolar disorder or schizophrenia can lead to suicide. In 2016, there were close to 800,000 estimated suicide deaths worldwide.

Data Sources and Collection Method

The preferred data source is death registration systems with complete coverage and medical certification of cause of death. Where such

death registration systems do not exist, data can be collected through household surveys with verbal autopsy, sample registration or sentinel registration systems. In some cases, special studies and surveillance systems can also provide usable data.

Method of Computation and Other Methodological Considerations

Computation Method:

Suicide mortality rate can be calculated using the formula below:

$$\text{Suicide mortality rate} = \frac{\text{Number of suicide deaths in a year}}{\text{Mid - year population in the same year}} \times 100,000$$

Comments and limitations:

Data on deaths are available from countries from death registration data or sample registration systems that record information on cause of death, but less than one half of WHO Member States have well-functioning death-registration systems that record causes of death. Even where such systems exist, recording of suicide may be prevented by:

- Poor linkages with coronial and police systems. In the absence of such linkages, the proportion of suicides which are classified as injuries of undetermined intent, unintentional injury or unknown cause may be very high, and the suicide rate is underestimated.
- Stigma. Due to stigma, suicides may be recorded as unintentional injury deaths, underestimating the suicide rate.
- Legal or financial considerations. For example, life insurance policies may preclude payment when deaths are due to suicide, leading to underrecording of suicide deaths. In some countries suicide is considered a criminal act.

Proxy, alternative and additional indicators: N/A

Data Disaggregation

This indicator can be disaggregated by sex, age subnational geographic region and method of suicide.

References

Official SDG Metadata URL

<https://unstats.un.org/sdgs/metadata/files/Metadata-03-04-02.pdf>

Internationally agreed methodology and guideline URL

http://www.who.int/gho/mental_health/suicide_rates/en/
<http://www.who.int/healthinfo/indicators/2018/en/>

Other references

ICD-10: Version 2016: <http://apps.who.int/classifications/icd10/browse/2016/en>

WHO. *Global Health Observatory: Indicator Metadata Registry*. Geneva. Internet Site: <http://apps.who.int/gho/data/node.wrapper.imr?x-id=4664>

WHO (2010). *Improving the quality and use of birth, death and cause-of-death information: guidance for a standards-based review of country practices*. Available at: http://www.who.int/healthinfo/tool_cod_2010.pdf?ua=1

WHO (2018). *WHO methods and data sources for country-level causes of death 2000-2016*. Geneva. Available at: http://www.who.int/healthinfo/global_burden_disease/GlobalCOD_method_2000_2016.pdf

World Health Assembly Resolution WHA66.8 (2013). *Comprehensive mental health action plan 2013-2020, including Appendix 1: Indicators for Measuring Progress Towards Defined Targets of the Comprehensive Mental Health Action Plan 2013-2020*. Geneva. Available at: http://apps.who.int/gb/ebwha/pdf_files/WHA66/A66_R8-en.pdf?ua=1

Country examples

N/A

International Organization(s) for Global Monitoring

This document was prepared based on inputs from World Health Organization (WHO).

For focal point information for this indicator, please visit <https://unstats.un.org/sdgs/dataContacts/>

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Indicator Name, Target and Goal

Indicator 3.5.2: Harmful use of alcohol, defined according to the national context as alcohol per capita (aged 15 years and older) consumption within a calendar year in litres of pure alcohol

Target 3.5: Strengthen the prevention and treatment of substance abuse, including narcotic drug abuse and harmful use of alcohol

Goal 3: Ensure healthy lives and promote well-being for all at all ages

Definition and Rationale

Definition:

Total alcohol per capita consumption (APC) is defined as the total (sum of recorded and unrecorded alcohol) amount of alcohol consumed per person (15 years of age and older) over a calendar year, in litres of pure alcohol, adjusted for tourist consumption. The estimates for the total alcohol consumption are produced by summing up the 3-year average per capita (15 years of age and older) recorded alcohol consumption and an estimate of per capita (15+) unrecorded alcohol consumption for a calendar year.

Concepts:

Recorded alcohol consumption refers to alcohol consumed according to the official statistics at country level based on production, import, export, and sales or taxation data.

Unrecorded alcohol consumption refers to alcohol which is not taxed and is outside the usual system of governmental control, such as home or informally produced alcohol (legal or illegal), smuggled alcohol, surrogate alcohol (which is alcohol not intended for human consumption), or alcohol obtained through cross-border shopping (which is recorded in a different jurisdiction).

Tourist consumption takes into account tourists visiting the country and inhabitants visiting other countries. Positive figures denote alcohol consumption of outbound tourists being greater than alcohol consumption by inbound tourists, negative numbers the opposite. Tourist consumption is based on UN statistics, and data are provided by IHME.

Pure alcohol volume is derived using the following conversions of alcohol content (% alcohol by volume): Beer (barley beer 5%), Wine (grape wine 12%; must of grape 9%, vermouth 16%), Spirits (distilled spirits 40%; spirit-like 30%), and Other (sorghum, millet, maize beers 5%; cider 5%; fortified wine 17% and 18%; fermented wheat and fermented rice 9%; other fermented beverages 9%).

Rationale and Interpretation:

Alcohol consumption can have an impact not only on the incidence of diseases, injuries and other health conditions, but also on the course of disorders and their outcomes in individuals. Alcohol consumption has been identified as a component cause for more than 200 diseases, injuries and other health conditions. Per capita alcohol consumption is widely accepted as the best possible indicator of alcohol exposure in populations and of effectiveness of population-based prevention efforts to reduce the harmful use of alcohol. It is also the key indicator for estimation of alcohol-attributable disease burden and alcohol-attributable deaths. Its correct interpretation, however, requires the use of additional population-based indicators such as prevalence of drinking and heavy episodic drinking, and, as a result, stimulates development of national monitoring systems on alcohol and health involving strengthening of national data on sales of alcoholic beverages and production and trade with contributions from a wide range of stakeholders as well as conducting representative population-based surveys to generate data on patterns of alcohol consumption.

Data Sources and Collection Method

For recorded alcohol consumption, government statistics are the preferred data source. In cases where government data on production, import, export, sales or taxation are inadequate, alcohol industry statistics are used. In the absence of such data, FAOSTAT is used as a source of data. In order to improve the quality of data, countries need to develop/strengthen registration, monitoring and surveillance systems of sales and taxation data or on production, import and export of alcoholic beverages or, e.g. through their national statistics offices or tax administration departments.

For unrecorded alcohol consumption, nationally representative survey data, specific empirical investigations, and expert opinions can provide the necessary data for producing the estimates. In order to improve the data, countries need to conduct specific empirical investigations or include questions on unrecorded consumption in their nationally representative surveys, in the same way as it is included e.g. in the WHO STEPS survey instrument.

For tourist consumption, the litres of alcohol consumed by tourists in a country are based on the number of tourists who visited a country, the average amount of time they spent in the country, and how much these people drink on average in their countries of origin (estimated based on per capita consumption of recorded and unrecorded alcohol). Furthermore, tourist alcohol consumption also accounts for the inhabitants of a country consuming alcohol while visiting other countries (based on the average time spent outside of their country (for all people 15 years and older) and the amount of alcohol consumed in their country of origin). These estimations assume (1) that people drink the same amounts of alcohol when they are tourists as they do in their home countries, and (2) that global tourist consumption is equal to 0 (and thus tourist consumption can be either net negative or positive). In order to improve the data, countries need to record tourist flows to and from the country including the length of stay.

Method of Computation and Other Methodological Considerations

Computation Method:

The following formula is used for the calculation of this indicator:

$$APC = \left(\frac{\text{(3yr average of recorded alcohol consumption + unrecorded alcohol consumption in the calendar year)}}{\text{Midyear resident population (15 years or older) in the same calendar year}} \right) + / - \text{tourist consumption}$$

Retail sales data or associated taxation data offer the most accurate estimation of recorded alcohol consumption in a defined population during a calendar year. When such data is not available, recorded alcohol consumption is estimated from data on the production and trade of alcoholic beverages. National survey data taken in isolation cannot be used for reliable estimation of the overall alcohol consumption in populations.

The estimates of unrecorded alcohol consumption are usually based on the data generated in population-based surveys, specific empirical investigations or from expert opinions. Alternatively, the estimates can be produced by mathematical modelling using statistical associations of unrecorded alcohol consumption with other population-based indicators. Triangulation of data generated by different methods improve the validity of the estimates.

Comments and limitations:

The estimation of unrecorded APC remains a challenge, and triangulation of data from different sources as well as Delphi techniques are used for increasing validity of estimates. During the recent years the number of research activities focused on improvement of the estimates of unrecorded alcohol consumption as well as their geographical coverage have increased substantially.

Proxy, alternative and additional indicators: N/A

Data Disaggregation

This indicator can be disaggregated by sex, age and socioeconomic status (for example, income, education etc.).

References

Official SDG Metadata URL

<https://unstats.un.org/sdgs/metadata/files/Metadata-03-05-02.pdf>

Internationally agreed methodology and guideline URL

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Country examples

N/A

International Organization(s) for Global Monitoring

This document was prepared based on inputs from World Health Organization (WHO).

For focal point information for this indicator, please visit <https://unstats.un.org/sdgs/dataContacts/>

Indicator 3.6.1

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Indicator Name, Target and Goal

Indicator 3.6.1: Death rate due to road traffic injuries

Target 3.6: By 2020, halve the number of global deaths and injuries from road traffic accidents

Goal 3: Ensure healthy lives and promote well-being for all at all ages

Definition and Rationale

Definition:

This indicator is defined as the number of fatalities (deaths) from injuries experienced from road traffic accidents per 100,000 population.

Concepts:

Road: Line of communication (travelled way) open to public traffic, primarily for the use of road motor vehicles, using a stabilized base other than rails or air strips. *Included are paved roads and other roads with a stabilized base, e.g. gravel roads. Roads also cover streets, bridges, tunnels, supporting structures, junctions, crossings and interchanges.*

Road network: All roads in a given area.

Road vehicle: A vehicle running or drawn on wheels intended for use on roads.

Road motor vehicle: A road vehicle fitted with an engine providing its sole means of propulsion, which is normally used for carrying

persons or goods, or for drawing (on the road), vehicles used for the carriage of persons or goods.

Road traffic: Any movement of a road vehicle on a given road network.

Road transport: Any movements of goods and/or passengers using a road vehicle on a given road network.

Road traffic crash: A collision or incident involving at least one road vehicle in motion, on a public road or private road to which the public has right of access. *Included are: collisions between road vehicles; between road vehicles and pedestrians; between road vehicles and animals or fixed obstacles and with one road vehicle alone. Included are collisions between road and rail vehicles. Multi-vehicle collisions are counted as only one crash provided that any successive collisions happen within a very short time period.*

Injury: Physical damage that results when a human body is suddenly or briefly subjected to intolerable levels of energy. It can be a bodily lesion resulting from acute exposure to excessive energy or impairment of function resulting from lack of vital elements.

Road traffic injury (or casualty): A person who has sustained physical damage (i.e. injury) as a result of a road traffic crash.

Road user: a person using any part of the road system as a non-motorized or motorized transport user.

Road traffic fatality: Any person killed immediately or dying within 30 days as a result of an injury crash, excluding suicides. *For countries that do not apply the threshold of 30 days, conversion coefficients are estimated so that comparisons on the basis of the 30 day-definition can be made.*

Injury crash: Any road traffic crash resulting in at least one injured or killed person.

Fatal crash: Any road traffic crash resulting in a person killed immediately or dying within 30 days as a result of the crash.

Footnote: The term “accident”, which is widely used, can give the impression, probably unintended, of inevitability and unpredictability – an event that cannot be managed. The term “crash” is used instead, to denote an event, or series of events, amenable to rational analysis and remedial action.

Rationale and Interpretation:

Road traffic injuries are currently estimated to be the eighth leading cause of death across all age groups globally, far ahead of whereas HIV/AIDS which is now the 14th leading cause of death with slightly over a million deaths per year. They are the leading cause of death for young people aged 15–29 years, and as a result take a heavy toll on those entering their most productive years.

Road traffic injuries are increasing, notably in low- and middle-income countries, where rates are twice those in high-income countries. This is partly attributable to the rapid rate of motorization in many developing countries that has occurred without a concomitant investment in road safety strategies and land use planning. While road traffic fatality rates are decreasing in some high-income countries, the rapid increase in road traffic crashes in low- and middle income countries has driven an overall global increase in deaths and injuries. Indeed, current trends suggest that road traffic injuries will become the seventh leading cause of death by 2030, with the disparity between high- and low-income countries further accentuated.

Every year the lives of more than 1.4 million people are cut short because of a road traffic crash. In addition to death, between 20 and 50 million more people suffer non-fatal injuries, with many incurring a disability due to their injury.

Road traffic injuries cause considerable economic losses to individuals, their families, and to nations. These losses arise from the cost of treatment as well as lost productivity for those killed or disabled by their injuries, and for family members who need to take time off work or school to care for the injured. Road traffic crashes cost most countries 3% of their gross domestic product.

Data Sources and Collection Method

The main sources of the data on fatal road traffic injuries are:

- Police records
- Health facility records
- Death certificates / vital registration
- Insurance records
- Media reports

It is important for a country to develop and ensure that a reliable surveillance system is in place for collection, analysis and dissemination of road traffic injury data. The system should collect data on a minimum set of variables that is useful for national analysis.

Minimum data elements			
Crash related	Road Related	Vehicle related	Person related
• Crash identifier (unique reference number assigned to the crash, usually by police)	• Type of roadway	• Vehicle number	• Person ID
• Crash data	• Road functional class	• Vehicle type	• Occupant's vehicle number

· Crash time	· Speed limit	· Vehicle make	· Pedestrian's linked vehicle number
· Crash municipality/place	· Road obstacles	· Vehicle model	· Date of birth
· Crash location	· Road surface conditions	· Vehicle model year	· Sex
· Crash type	· Junction	· Engine size	· Type of road user
· Impact type	· Traffic control at junction	· Vehicle special function	· Seating position
· Weather conditions	· Road curve	· Vehicle manoeuvre (what the vehicle was doing at the time of the crash)	· Injury severity
· Light conditions	· Road segment grade		· Safety equipment
· Crash severity			· Pedestrian manoeuvre
			· Alcohol use suspected
			· Alcohol test
			· Drug use
			· Driving licence issue date
			· Age

Method of Computation and Other Methodological Considerations

Computation Method:

The following formula is used to calculate this indicator:

$$\text{Death rate due to road traffic injuries} = \frac{\text{Number of deaths due to road traffic accidents}}{\text{Total population of the country}} \times 100,000$$

For cases where underlying data is incomplete or unavailable, international organizations like the WHO model this indicator's value using various estimation methods. The method used depends on the level of coverage of death registration data and the population of the country. For further information on the methods, see page 70 of http://who.int/violence_injury_prevention/road_safety_status/2015/en/

Comments and limitations:

Results can vary based on differences in the data used for population and whether it comes from national data or the estimates produced by the UN department of population.

Many countries do not have vital registration data, in which cases surveys are used for estimations. Therefore, attention needs to be paid when comparing across countries.

Proxy, alternative and additional indicators: N/A

Data Disaggregation

This indicator does not reveal much when it is an aggregate figure. It is therefore important to disaggregate it along dimensions that can be interpreted easily and used to raise awareness and advocate for action. The key dimensions for disaggregation are road users, age, sex and income groups of countries. For example, disaggregation by road users reveals how road traffic death varies by different road users in different regions such as pedestrians, cyclists, 2-or 3-wheelers, bus passengers and drivers. Disaggregating by age will show which age groups are more or less affected by road traffic deaths. Examining variation by sex indicates impact of road traffic deaths among males and females. For example, deaths among males is three times higher than among the females. Looked at along income groups of countries will reveal how low-, middle- and high-income countries are affected by road traffic death. Ninety percent of road traffic deaths occur in low- and middle -income countries, and while these countries also account for 82% of the world's population.

References

Official SDG Metadata URL

<https://unstats.un.org/sdgs/metadata/files/Metadata-03-06-01.pdf>

Internationally agreed methodology and guideline URL

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http://www.who.int/violence_injury_prevention/road_traffic/en/

Country examples

N/A

International Organization(s) for Global Monitoring

This document was prepared based on inputs from World Health Organization (WHO).

For focal point information for this indicator, please visit <https://unstats.un.org/sdgs/dataContacts/>

Indicator 3.7.1

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Indicator Name, Target and Goal

Indicator 3.7.1: Proportion of women of reproductive age (aged 15-49 years) who have their need for family planning satisfied with modern methods

Target 3.7: By 2030, ensure universal access to sexual and reproductive health-care services, including for family planning, information and education, and the integration of reproductive health into national strategies and programmes

Goal 3: Ensure healthy lives and promote well-being for all at all ages

Definition and Rationale**Definition:**

This indicator is defined as the percentage of women of reproductive age (15-49 years) who desire either to have no (additional) children or to postpone the next child and who are currently using a modern contraceptive method.

Concepts:

The percentage of women of reproductive age (15-49 years) who have their need for family planning satisfied with modern methods is also referred to as the proportion of demand for family planning satisfied by modern methods. The components of the indicator are contraceptive prevalence (any method and modern methods) and unmet need for family planning.

Contraceptive prevalence is the percentage of women who are currently using, or whose sexual partner is currently using, at least one method of contraception, regardless of the method used. Unmet need for family planning is defined as the percentage of women of reproductive age, either married or in a union, who want to stop or delay childbearing but are not using any method of contraception.

Modern contraceptive methods include sterilization, the intra-uterine device (IUD), the implant, injectables, oral contraceptive pills,

condoms, vaginal barrier methods (including the diaphragm, cervical cap and spermicidal foam, jelly, cream and sponge), lactational amenorrhea method (LAM), emergency contraception and other modern methods not reported separately (e.g., the contraceptive patch or vaginal ring). traditional contraceptive methods include rhythm (e.g., fertility awareness-based methods, periodic abstinence), withdrawal and other traditional methods not reported separately.

Rationale and Interpretation:

The proportion of demand for family planning satisfied with modern methods is useful in assessing overall levels of coverage for family planning programmes and services. Access to and use of an effective means to prevent pregnancy helps enable women and their partners to exercise their rights to decide freely and responsibly the number and spacing of their children and to have the information, education and means to do so.

Meeting demand for family planning with modern methods also contributes to maternal and child health by preventing unintended pregnancies and closely spaced pregnancies, which are at higher risk for poor obstetrical outcomes. Levels of demand for family planning satisfied with modern methods of 75 per cent or more are generally considered high, and values of 50 per cent or less are generally considered as very low.

Data Sources and Collection Method

The data used to calculate this indicator comes from nationally-representative household survey data. Multi-country survey programmes that include relevant data for this indicator are: Contraceptive Prevalence Surveys (CPS), Demographic and Health Surveys (DHS), Fertility and Family Surveys (FFS), Reproductive Health Surveys (RHS), Multiple Indicator Cluster Surveys (MICS), Performance Monitoring and Accountability 2020 surveys (PMA), World Fertility Surveys (WFS), other international survey programmes and national surveys.

Method of Computation and Other Methodological Considerations

Computation Method:

The numerator is the percentage of women of reproductive age (15-49 years old) who are currently using, or whose sexual partner is currently using, at least one modern contraceptive method. The denominator is the total demand for family planning (the sum of contraceptive prevalence (any method) and the unmet need for family planning). Estimates are with respect to women who are married or in a union.

The following general formula can be used to calculate the proportion of women of reproductive age (15-49 years) who have their need for family planning satisfied with modern methods (*W*):

$$W = \frac{\text{The number of women (15-49 years) or their partner who currently use at least one modern contraceptive method to meet family planning needs}}{\text{The number of women (15-49 years) with family planning needs (i.e. sum of contraceptive prevalence and unmet need for family planning)}} \times 100$$

Comments and limitations:

Differences in the survey design and implementation, as well as differences in the way survey questionnaires are formulated and administered can affect the comparability of the data. The most common differences relate to the range of contraceptive methods included and the characteristics (age, sex, marital or union status) of the persons for whom contraceptive prevalence is estimated (base population) and in the calculation of unmet need for family planning.

The time frame used to assess contraceptive prevalence can also vary. In most surveys there is no definition of what is meant by "currently using" a method of contraception. In some surveys, the lack of probing questions, asked to ensure that the respondent understands the meaning of the different contraceptive methods, can result in an underestimation of contraceptive prevalence, in particular for traditional methods.

Sampling variability can also be an issue, especially when contraceptive prevalence is measured for a specific subgroup (according to method, age-group, level of educational attainment, place of residence, etc.) or when analysing trends over time.

Proxy, alternative and additional indicators: N/A

Data Disaggregation

Relevant dimensions for disaggregation include: age, geographic location, marital status, socioeconomic status and other categories, depending on the data source and number of observations.

References

Official SDG Metadata URL

<https://unstats.un.org/sdgs/metadata/files/Metadata-03-07-01.pdf>

Internationally agreed methodology and guideline URL

<http://www.un.org/en/development/desa/population/>

Other references

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Country examples

N/A

International Organization(s) for Global Monitoring

This document was prepared based on inputs from Population Division, Department of Economic and Social Affairs (DESA).

For focal point information for this indicator, please visit <https://unstats.un.org/sdgs/dataContacts/>

Indicator 3.7.2

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Indicator Name, Target and Goal

Indicator 3.7.2: Adolescent birth rate (aged 10-14 years; aged 15-19 years) per 1,000 women in that age group

Target 3.7: By 2030, ensure universal access to sexual and reproductive health-care services, including for family planning, information and education, and the integration of reproductive health into national strategies and programmes

Goal 3: Ensure healthy lives and promote well-being for all at all ages

Definition and Rationale

Definition:

This indicator is defined as the annual number of births to females of age groups 10-14 or 15-19 per 1000 females in the respective age group.

Concepts:

Live birth is defined as to the complete expulsion or extraction from its mother of a product of conception, irrespective of the duration of the pregnancy, which, after such separation, breathes or shows any other evidence of life—e.g. beating of the heart, pulsation of the umbilical cord or definite movement of voluntary muscles—whether or not the umbilical cord has been cut or the placenta is attached. Each product of such a birth is considered live born (WHO, 2018). Total number of live births is then the total number of births excluding stillbirths.

Rationale and Interpretation:

Reducing adolescent pregnancies and adolescent birth rates is an important priority for many Governments (United Nations, 1994; United Nations, 2013). Adolescent childbearing is associated with a wide range of risks for young mothers. Women who become pregnant and give birth very early in their lives as well as their newborns are subject to elevated health risks (Nove and others, 2014; WHO, 2014). Particularly in low- and middle-income countries, the risk of deaths of infants born to teenage mothers is about 50 per cent higher than the risk of death of newborns of mothers aged 20-29 (WHO, 2014). Adolescent pregnancies are closely linked to unsafe abortions, an often cause for maternal deaths and lingering health problems are often caused by. Young women are particularly vulnerable as they are more likely than older women to undergo late abortions (Lim and others, 2012) and to have repeat abortions (Collier, 2009). Apart from health risks for mother and child, adolescent pregnancy curtails opportunities for socio-economic development of young girls, forcing young girls to discontinue or interrupt their education, depriving them of advanced education, secure job opportunities, in many cases leading to lower future earnings, perpetuation of poverty cycles, social and political exclusion (United Nations, 2013). Therefore, preventing births very early in a woman's life is an important measure to provide young woman with adequate education and life-long opportunities, improve maternal health, and reduce infant mortality.

Data Sources and Collection Method

The best estimates of fertility and adolescent birth rates in particular are obtained from a universal and well-functioning civil registration and vital statistics system (United Nations, 2014). In such a system, all births are registered shortly after occurrence and a birth certificate is issued for every child born. The information from the birth certificates is then used for the production of vital statistics. The population exposures needed for computations of fertility rates are based on annual population estimates, which are derived from the population by age and sex enumerated in population censuses, births, deaths, and migration for intercensal or postcensal periods. In countries with operating population registers population censuses are not regularly conducted, since statistics in such countries are based on the continuous collection of information on both population and vital events. In these countries, annual population estimates are based on the data recorded in the population registers.

The quality of the estimates depends on the accuracy of the information collected on births and on the accuracy of population estimates. One of the main sources of error is the incomplete coverage of birth registration or population statistics. Population registers tend to produce population data of better quality and accuracy than population censuses. Nevertheless, population estimates based on registers might still be affected by inaccurate and incomplete data on international migration. When vital registration systems fail to record all births that take place during a given period of time or population censuses fail to enumerate every individual, their coverage is said to be incomplete. Using incomplete data to produce fertility estimates requires adjustments to births and population estimates. In the case of population censuses, adjusted population estimates are usually produced by conducting a post enumeration survey. Also, the coverage and completeness of civil registration is often assessed by a dual registration approach or by using alternative sources of information on vital events. More detailed accounts of methods for assessing the quality of population and vital statistics are given in Preston and others (2001), Bogue and others (1993), Shryock, Siegel, and Associates (1980). Moriyama (1990) describes an array of methods historically used to evaluate the quality of population and vital statistics in the United States.

In countries with incomplete vital registration, the main sources of information on fertility levels and trends are population censuses and nationally-representative household surveys.

The infrequency with which censuses are conducted (typically every 10 years) is one of their main limitations—it is often inadequate for the management and monitoring of population and development programmes. A more flexible and by far less expensive mechanism for collecting fertility data are sample household surveys. Due to their smaller sample sizes, data on fertility can be collected more frequently and questions can be more detailed and targeted than in population censuses. Full birth histories have become the dominant source for producing estimates of fertility levels and trends for countries without well-functioning civil registration and vital statistics systems. A birth history records every live-born child a woman has had, the child's sex, date of birth and, if the child died, the date of death. The full birth histories have been routinely collected starting with the World Fertility Survey in the late 1970s. Direct computation of fertility rates from birth histories is well documented in Croft (1991) and Rutstein and Rojas (2006).

Some examples of relevant, internationally coordinated surveys are the Demographic and Health Surveys (DHS), the Reproductive Health Surveys (RHS), and the Multiple Indicator Cluster Surveys (MICS). Examples of national surveys are the European Fertility and Family Surveys (FFS) or the Pan-Arab Project for Family Health (PAPFAM).

Method of Computation and Other Methodological Considerations

Computation Method:

Monitoring this indicator requires tracking of two rates: (1) age-specific fertility rate for mothers aged 10-14 and (2) age-specific fertility rate for mothers aged 15-19. An age-specific fertility rate is defined as ratio of annual numbers of live births of mothers of a certain age interval to person-years lived (or population exposures) by women in that age interval (Preston and others, 2001). The age-specific fertility rate for mothers aged 10-14 is defined then as

$$F_{10-14} = \frac{\text{number of live births to women aged 10 - 14}}{\text{Person - years lived by women aged 10 - 14}} \times 1000$$

Similarly, the age-specific fertility rate for mothers aged 15-19 is defined then as

$$F_{15-19} = \frac{\text{number of live births to women aged 15 - 19}}{\text{Person - years lived by women aged 15 - 19}} \times 1000$$

Both rates could be computed for single calendar years and for longer periods.

Comments and limitations:

Discrepancies between the sources of data at the country level are common and the level of the adolescent birth rate depends in part on the source of the data selected. For civil registration, rates are subject to limitations which depend on the completeness of birth registration, the treatment of infants born alive but die before registration or within the first 24 hours of life, the quality of the reported information relating to age of the mother, and the inclusion of births from previous periods. The population estimates may suffer from limitations connected to age misreporting and coverage.

For survey and census data, both the numerator and denominator come from the same population. The main limitations concern age misreporting, birth omissions, misreporting the date of birth of the child, and sampling variability in the case of surveys. With respect to estimates of the adolescent birth rate among females aged 10-14 years, comparative evidence suggests that a very small proportion of births in this age group occur to females below age 12. Other evidence based on retrospective birth history data from surveys indicates that women aged 15-19 years are less likely to first births before age 15 than women from the same birth cohort when asked five years later at ages 20-24 years.

The adolescent birth rate is commonly reported as the age-specific fertility rate for ages 15-19 years in the context of calculation of total fertility estimates. It has also been called adolescent fertility rate. A related measure is the proportion of adolescent fertility measured as the percentage of total fertility contributed by women aged 15-19.

Empirical evidence on adolescent fertility for the 10-14 year age group is often lacking as the rates are not routinely published as for the 15-19 year group due to much smaller rates, limited data collection, and dubious quality due to omission and competence issues. Even if the data are collected, they often require special access and data processing. By and large, the most of empirical evidence on adolescent births is available for the age group 15-19.

Proxy, alternative and additional indicators: N/A

Data Disaggregation

The disaggregation of adolescent birth rates by geographical area, rural or urban residence, women's level of education, poverty status and other characteristics that are relevant in the national context help identify population sub-groups where levels of adolescent birth rates are highest and formulate policies for the reduction of adolescent birth rates and the improvement of reproductive health of adolescent girls.

The indicator would benefit from disaggregation by single year because fertility rates vary significantly within and across the 10-14 and 15-19 5-year age groups. Evidence suggests that a very small proportion of births in this age group occur to females below age 12, and that the risk of childbearing in these two age-groups sharply increases with age. Age patterns vary across countries and over time, but in general, the single-age disaggregation permits for a finer assessment of the risks, and the identification of the populations served by the relevant programs.

The recommended dimensions of disaggregation for this indicator includes age (by single years of age, whenever possible), education, marital status (married/in union; never married; ever married; all women), socioeconomic status (country-specific categories), geographical location and other relevant categories, as allowed by the corresponding data source and the number of observations underlying each unit of disaggregation.

Specific limitations for data disaggregation by specific to indicator 3.7.2 include:

1. Age: fertility data in surveys and vital registration are often not collected or reported for individuals under the age of 15 years, for cultural, legal and other reasons;
2. Marital status: fertility data often collected only for married/in union women (for cultural and legal reasons)
3. Sample size of household surveys

References

Official SDG Metadata URL

<https://unstats.un.org/sdgs/metadata/files/Metadata-03-07-02.pdf>

Internationally agreed methodology and guideline URL

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Country examples

N/A

International Organization(s) for Global Monitoring

This document was prepared based on inputs from Population Division, Department of Economic and Social Affairs (DESA).

For focal point information for this indicator, please visit <https://unstats.un.org/sdgs/dataContacts/>

Indicator 3.8.2

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Indicator Name, Target and Goal

Indicator 3.8.2: Proportion of population with large household expenditures on health as a share of total household expenditure or income

Target 3.8: Achieve universal health coverage, including financial risk protection, access to quality essential health-care services and access to safe, effective, quality and affordable essential medicines and vaccines for all

Goal 3: Ensure healthy lives and promote well-being for all at all ages

Definition and Rationale

Definition:

This indicator is defined as the proportion of population that spends a large portion of the total household income or expenditure on health-related expenditures. Two thresholds are used to define "large household expenditures on health" – (1) greater than 10%; and (2) greater than 25% of total household expenditure or income.

Concepts:

Health-related expenditure is defined as any expenditure incurred at the time of service use to get any type of care (promotive, preventive, curative, rehabilitative, palliative or long-term care) including all medicines, vaccines and other pharmaceutical preparations as well as all health products, from any type of provider and for all members of the household. These health expenditures are characterized by a direct payment that are financed by a household's income (including remittances), savings or loans but do not include any third-party payer reimbursement. Direct health care payments are labelled Out-Of-Pocket (OOP) payments in the classification of health care financing schemes (HF) of the international Classification for Health Accounts (ICHA). OOP health expenditures are the most unequitable source of funding for the health system because directly related to the underlying severity of the health condition (the sicker spend more), based solely on the ability to pay of the household (no pooling is possible), lead to service delivery only if the individual pays.

The components of a household's health care consumption expenditure so defined should be consistent with division 06 of the UN Classification of Individual Consumption According to Purpose (COICOP 2018) and include expenditures on medicines and medical products (06.1), outpatient care services (06.2), inpatient care services (06.3) and other health services (06.4).

Expenditure on household consumption is a monetary welfare measure. It is generally defined as the sum of the monetary values of all items (goods and services) consumed by the household during a reference period. It includes the imputed values of goods and services that are not purchased but procured otherwise for consumption.

Household income is also a monetary welfare measure. The most relevant measure of income is disposable income as it is close to the maximum available to the household for consumption expenditure during the accounting period. Disposable income is defined as total income less direct taxes (net of refunds), compulsory fees and fines. Total income is generally composed of income from employment, property income, income from household production of services for own consumption, transfers received in cash and goods, transfers received as services.

Expenditure on household consumption is the recommended monetary welfare measure.

Rationale and Interpretation:

The target of this indicator calls for granting access to healthcare based on health needs and not the household's capacity to pull together all its financial resources to meet the health needs of its members. Therefore, this indicator attempts to identify those people who need to devote a substantial share of their total household expenditure or income (budget) to health care. Some direct payments might be needed to access healthcare but no one, at whatever income level, should have to choose between spending on health and spending on other basic goods and services such as education tuitions, food necessities, housing and utilities. This is then a way to assess the extent to which health systems lead to financial hardship.

Data Sources and Collection Method

The recommended data sources for the monitoring of this indicator are household surveys with information on both household consumption expenditure on health and total household consumption expenditures, which are routinely conducted by national statistical offices (NSOs). Household budget surveys (HBS) and household income and expenditure surveys (HIES) typically collect these as they are primarily conducted to provide inputs to the calculation of consumer price indices or the compilation of national accounts.

Another potential source of information is socio-economic or living standards surveys; however, some of these surveys may not collect information on total household consumption expenditures – for example, when a country measures poverty using income as the welfare measure. The most important criterion for selecting a data source to measure this indicator is the availability of both household consumption expenditure on health and total household consumption expenditures.

Income is more difficult to measure accurately due to its greater variability over time. Consumption is less variable over time and easier to measure. It is therefore recommended that whenever there is information on both household consumption and income the former is used.

Method of Computation and Other Methodological Considerations

Computation Method:

The following formula can be used for calculating the population weighted average number of people with large household expenditure on health as a share of total household expenditure or income:

$$\frac{\sum_i m_i \omega_i 1\left(\frac{\text{health expenditure of the household } i}{\text{total expenditure of the household } i} > \tau\right)}{\sum_i m_i \omega_i}$$

where i denotes a household, $1()$ is the indicator function that takes on the value 1 if the bracketed expression is true, and 0 otherwise, m_i corresponds to the number of household members of i , ω_i corresponds to the sampling weight of household i ,

τ is a threshold identifying large household expenditure on health as a share of total household consumption or income (i.e. 10% and 25%).

Comments and limitations:

This indicator attempts to identify financial hardship that individuals face when using their income, savings or taking loans to pay for health care. However, most household surveys fail to identify the source of funding used by a household who is reporting health expenditure. In countries where there is no retrospective reimbursement of household spending on health this is not a problem. But in those countries where there is retrospective reimbursement – for example, via a contributory health insurance scheme - the amount reported by a household on health expenditures might be totally or partially reimbursed at some later point, perhaps outside the recall period of the household survey.

This indicator relies on a single cut-off point to identify what constitutes 'large health expenditure as a share of total household expenditure or income'. People just below or above such thresholds are not taken into account, which is always the problem with measures based on cut-offs. By plotting the cumulative distribution function of the health expenditure ratio, it is possible to identify the

proportion of the population that is devoting any share of its household's budget to health for any threshold.

Low values of this indicators can be driven by people's inability to spend anything on health which, at least for the services that are included in 3.8.1, should result in low levels of coverage. This is why both indicators 3.8.1 and 3.8.2 should be monitored jointly.

This indicator can experience measurement errors due to both sampling and non-sampling errors. The definition of this indicators suggests that the monetary welfare measure can be based on an income approach or a consumption expenditure one. But recent evidence suggests that this choice has implications for the measurement of inequalities. Income-based measures show a greater concentration of the proportion of the population with large household expenditure on health among the more worse-off than expenditure-based measures.

Proxy, alternative and additional indicators: N/A

Data Disaggregation

This indicator can be disaggregated by gender and age of the head of the household, geographical location (rural/urban), and quintiles of the household welfare measures (total household expenditure or income).

References

Official SDG Metadata URL

<https://unstats.un.org/sdgs/metadata/files/Metadata-03-08-02.pdf>

Internationally agreed methodology and guideline URL

http://www.who.int/health_financing/topics/financial-protection/monitoring-sdg/en/; <http://datatopics.worldbank.org/universal-health-coverage/>

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Information on other measures of financial protection available at: Global level ; WHO-regional office for Europe; WHO-regional office for the Eastern Mediterranean ; WHO-regional office for the South East Asia

Country examples

N/A

International Organization(s) for Global Monitoring

This document was prepared based on inputs from World Health Organization (WHO).

For focal point information for this indicator, please visit <https://unstats.un.org/sdgs/dataContacts/>

Indicator 3.9.1

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Indicator Name, Target and Goal

Indicator 3.9.1: Mortality rate attributed to household and ambient air pollution

Target 3.9: By 2030, substantially reduce the number of deaths and illnesses from hazardous chemicals and air, water and soil pollution and contamination

Goal 3: Ensure healthy lives and promote well-being for all at all ages

Definition and Rationale

Definition:

This indicator is defined as the mortality attributable to the joint effects of household and ambient air pollution, and can be expressed as per 100,000 population for any given population group (eg. children under 5 years of age).

Concepts:

Ambient air pollution refers to outdoor pollution resulting from emissions from industrial activity, households, cars and trucks, etc.

Household air pollution refers to indoor pollution resulting from the use of polluting cooking fuels such as kerosene, wood, coal animal dung, charcoal and crop wastes

Ambient and household are often treated separately, although they are strongly interlinked since household air pollution is a large –often underestimated – source of ambient air pollution. They have been dealt with separately by both scientist and policy makers for historical and practical reasons. Household air pollution also include the use of polluting fuels for lighting and heating purposes.

Rationale and Interpretation:

The target aims to reduce the number of deaths from hazardous air pollution. This indicator tracks mortality rates attributed to ambient and household air pollution, as air pollution is the biggest environmental risk to health.

Evidence from epidemiological studies have shown that exposure to air pollution is linked, among others, to the important diseases taken into account in this estimate:

- Acute respiratory infections (estimated for all ages);
- Cerebrovascular diseases (stroke) in adults (estimated above 25 years);
- Ischaemic heart diseases (IHD) in adults (estimated above 25 years);
- Chronic obstructive pulmonary disease (COPD) in adults (estimated above 25 years); and
- Lung cancer in adults (estimated above 25 years).

In order to achieve a meaningful reduction in deaths associated with air pollution from particulate matter, it is important not only and firstly to reduce air pollution levels, but also to reduce exposure whenever possible (e.g. for household air pollution using clean cooking technologies, avoiding cooking with children around etc.) and to reduce the prevalence of air pollution associated diseases such as those mentioned above.

Data Sources and Collection Method

- Exposure to ambient air pollution : Countries regularly reporting annual concentration of PM2.5 or PM10 from ground monitoring networks can use these values, provided that they are representative for the level of exposure in the population (e.g. the monitoring station must be located where people spend a meaningful amount of time, for work, leisure or residential). Otherwise, country population exposure to annual mean concentration of particulate matter (PM2.5, of a diameter equal or less than 2.5 micrometre) are derived from methods using both ground measurements and satellite information, as regularly reported for SDG 11.6.2 for urban areas, but are also derived for urban and rural (see http://www.who.int/airpollution/ambient/AAP_exposure_Apr2018_final.pdf?ua=1) and can be used.

- Exposure to household air pollution : Countries having conducted specific and proper indoor monitoring of PM2.5 (e.g. India) may use these values. For the others, the proxy indicator of proportion of population in a country relying mainly on polluting fuels and technologies

for cooking, as regularly reported in national household surveys or censuses can be used. This indicator is modelled by WHO and regularly reported as SDG 7.1.2. (see : http://www.who.int/airpollution/data/HAP_exposure_results_final.pdf?ua=1). The source of data for the modelled, reported estimates is country data from national household surveys or censuses.

- Demographic data: Population data used were from the United Nations Population Division, The World Population Prospects – the 2017 revision, New York 2017 (5). Country may have their own population estimates.

- Health data : The total number of deaths and DALYs (disability-adjusted life years) for each country, by sex and age group for acute lower respiratory infections (ALRI), chronic obstructive pulmonary diseases (COPD), lung cancer, ischaemic heart diseases (IHD), and stroke have been compiled by the World Health Organization (10). Country may have their own health estimates.

- Exposure-risk relationships: To estimate the relative risk for a disease caused by air pollution exposure from PM2.5, an integrated exposure response function (IER) is used. The IER was originally developed for the Global Burden of Disease Study (Lim et al, 2010; Burnett et al, 2014) and has also been used by WHO (12,13). The IER combines the epidemiological evidence for outdoor air pollution, second-hand smoke, household air pollution and active smoking to estimate the level of disease risk (e.g. stroke) at different levels of PM2.5 concentrations (aka dose). In other words, the same mathematical relationship or measure is used to estimate the risk of heart disease from particulate matter originating from outdoor air pollution as that of second-hand smoke or household air pollution. An updated version of the IER functions is used for ALRI, COPD, lung cancer, IHD and stroke, as in Cohen et al (4) and GBD 2016 (14). However, relative risks derived from national (e.g. France, China) or regional studies (HRAPIE project for Europe) can be used if available.

Method of Computation and Other Methodological Considerations

Computation Method:

Mortality rates attributable to air pollution from particulate matter can be obtained through the comparative risk assessment methodology (Ezzati et al, 2002). It consists of assessing a population attributable fraction (PAF) for each disease associated with air pollution. This fraction is derived from the distribution of the exposure in the population, and applied (e.g. multiplied) to the background disease rate of the disease[1]:

Attributable burden = PAF x background disease (expressed in number, rate of deaths, DALYs, etc)

The PAFs for ambient and household air pollution are first calculated separately. They are then combined in a way that take into account the overlap, i.e. the fact that household air pollution contributes to ambient air pollution (Ezzatti et al, 2003, Lim et al, 2010).

The mortality attributable to the joint effects of household and ambient air pollution (MAP), expressed per 100,000 people, can be calculated using the formula:

$$MAP = \frac{\text{Number of deaths attributable to the joint effects of household and ambient air pollution}}{\text{The total population}} \times 100,000$$

The numerator can be estimated using an approach that involves the following steps:

- (1) Measuring how widespread the exposure is in the population
- (2) Measuring the increased (or relative) risk of a disease resulting from the exposure
- (3) Applying the fraction obtained by (1) and (2) to the total burden of disease

More information can be found at : <http://www.who.int/airpollution/data/en/>

Comments and limitations:

- Ambient air pollution levels of particulate matter derived from ground monitoring networks can be used as exposure metrics, provided that they are representative for the level of exposure in the population (e.g. the monitoring station must be located where people spend a meaningful amount of time, for work, leisure or residential).

- The proportion of households in a country relying mainly on polluting fuels and technologies for cooking is currently used as a proxy indicator to derived exposure to household air pollution. Households mainly cooking with coal, wood, charcoal, dung, crop residues or kerosene are considered exposed. There are however more and more data available on indoor (e.g. kitchen) PM2.5 measurements due to cooking with polluting fuels. Currently there is a very little to no nationally representative data capturing the type of solid fuel cookstoves. However recognizing the importance of how the fuel and technology impact the level of household air pollution, estimate exposure and disease burden attributed to both the fuel and solid fuel stove in combination (pending data availability) will be considered in the future. The same apply for the use of polluting fuel and technologies for heating and lighting

An approximation of the combined effects of risk factors is possible if independence and little correlation between risk factors with impacts on the same diseases can be assumed (Ezzati et al 2003). In the case of air pollution, however, there are some limitations to estimate the joint effects: limited knowledge on the distribution of the population exposed to both household and ambient air pollution, correlation of exposures at individual level as household air pollution is a contributor to ambient air pollution, and non-linear interactions (Lim et al. 2012, Smith et al. 2014). In several regions, however, household air pollution remains mainly a rural issue, while

ambient air pollution is predominantly an urban problem. Also, in some continents, many countries are relatively unaffected by household air pollution, while ambient air pollution is a major concern. If assuming independence and little correlation, a rough estimate of the total impact can be calculated, which is less than the sum of the impact of the two risk factors.

Proxy, alternative and additional indicators: N/A

[1] Example : PAF = 0.18, background number of deaths from lung cancer : 100, attributable mortality = $0.18 \times 100 = 18$.

Data Disaggregation

This indicator can be disaggregated by sex, disease and age.

References

Official SDG Metadata URL

<https://unstats.un.org/sdgs/metadata/files/Metadata-03-09-01.pdf>

Internationally agreed methodology and guideline URL

N/A

Other references

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Country examples

N/A

International Organization(s) for Global Monitoring

This document was prepared based on inputs from World Health Organization (WHO).

For focal point information for this indicator, please visit <https://unstats.un.org/sdgs/dataContacts/>

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Indicator Name, Target and Goal

Indicator 3.9.2: Mortality rate attributed to unsafe water, unsafe sanitation and lack of hygiene (exposure to unsafe Water, Sanitation and Hygiene for All (WASH) services)

Target 3.9: By 2030, substantially reduce the number of deaths and illnesses from hazardous chemicals and air, water and soil pollution and contamination

Goal 3: Ensure healthy lives and promote well-being for all at all ages

Definition and Rationale

Definition:

This indicator is defined as the number of deaths from unsafe water, unsafe sanitation and lack of hygiene (exposure to unsafe WASH services) in a year per 100,000 population.

Concepts:

Deaths attributable to unsafe water, sanitation and hygiene (WASH) are counted using the WASH attributable fractions of diarrhoea (ICD-10 code A00, A01, A03, A04, A06-A09), intestinal nematode infections (ICD-10 code B76- B77, B79) and protein-energy malnutrition (ICD-10 code E40-E46).

Rationale and Interpretation:

The number of deaths from unsafe water, sanitation and hygiene can be prevented by improving those services and practices. Therefore, measuring the number of deaths that can be attributed to unsafe WASH supports progress towards such prevention.

Data Sources and Collection Method

Data of the proportion of the population using safely managed drinking water services, safely managed sanitation services and having a handwashing facility with soap and water at home is compiled on an annual basis from country-representative household surveys (such as MICS and DHS) through the JMP and can be accessed from their website: <https://washdata.org/>

Increased risk of exposure to unsafe WASH is estimated from a) systematically reviewing the scientific evidence of health effects from unsafe WASH, and b) statistical techniques, such as meta-analysis, to derive a combined or pooled estimate of the associated health effect. These estimates are also updated regularly and the latest updates can be found here: <https://onlinelibrary.wiley.com/doi/abs/10.1111/tmi.13051>

Most recent disease-specific national mortality figures can be downloaded from the website of the WHO Global Health Observatory's (GHO) website: http://www.who.int/healthinfo/global_burden_disease/estimates/en/

Method of Computation and Other Methodological Considerations

Computation Method:

The mortality from unsafe water, unsafe sanitation and lack of hygiene, , can be calculated by the formula:

$$M_{WASH} = \frac{\text{Number of deaths from unsafe WASH}}{\text{Number of the total population}} \times 100,000 \quad (I)$$

The numerator could be estimated using an approach that calculates the population attributable fraction (PAF), which is the proportional reduction of deaths or disease that would occur if exposure to a risk was removed or reduced to an alternative exposure distribution. The calculation of the PAF involves the following steps:

- (1) Measuring how widespread the exposure is in the population (P_i)
- (2) Measuring the increased (or relative) risk of a disease resulting from the exposure (RR_i)
- (3) Applying the fraction obtained by (1) and (2) to the total burden of disease

For the simplest case when the exposure is categorical (grouped) and exposure is completely removed or compared with an unexposed population, the PAF can be calculated as:

$$PAF = \frac{\sum P_i RR_i - 1}{\sum P_i RR_i} \quad (II)$$

The PAF is then multiplied with the total disease burden (here mortality) to calculate the attributable mortality (such as the "Number of deaths from unsafe WASH" used in formula (I)).

For different situations, i.e. the exposure is continuous or it is not completely removed, formula (II) needs to be adapted. This can be found in the following report on page 120 (Annex 3): http://apps.who.int/iris/bitstream/handle/10665/204585/9789241565196_eng.pdf?sequence=1

Further detailed description of the statistical techniques and models that could be used for estimating the numerator can be found at: <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4156511/>

Comments and limitations:

The main limitation is that not all countries have death registration systems, and survey registration data need to be completed with other types of information. Also, both exposure assessment and estimation of the increased (relative) risk from the specific exposure involves different degrees of uncertainties which leads to uncertainties in the resulting PAFs.

Proxy, alternative and additional indicators:

Exposure to unsafe WASH and the increased (or relative) risk from this exposure can be estimated by using three proxy indicators:

1. the proportion of the population using safely managed drinking water services
2. the proportion of the population using safely managed sanitation services
3. the proportion of the population with handwashing facilities with soap and water at home.

Safely managed drinking water services are defined as drinking water from an improved water source which is located on premises, available when needed and free from faecal and priority chemical contamination. Safely managed sanitation services are defined as use of improved facilities which are not shared with other households and where excreta are safely disposed in situ or transported and treated off-site. For a list of improved water and sanitation services and more detailed information please refer to the website of the WHO/UNICEF Joint Monitoring Programme for Water Supply, Sanitation and Hygiene (JMP): <https://washdata.org/>

Data Disaggregation

This indicator can be disaggregated by geographic location, age group, sex and income groups (wealth quintiles).

References

Official SDG Metadata URL

<https://unstats.un.org/sdgs/metadata/files/Metadata-03-09-02.pdf>

Internationally agreed methodology and guideline URL

<http://apps.who.int/gho/data/node.imr.SDGWSHBOD?lang=en>

Other references

WHO. *Global Health Observatory: Indicator Definition*. Geneva. Available at: <http://apps.who.int/gho/data/node.imr.SDGWSHBOD?lang=en>

http://www.who.int/water_sanitation_health/diseases-risks/burden/en/

WHO (2014). *WHO methods and data sources for country-level causes of death 2000–2012*. Geneva. Available at: http://www.who.int/healthinglobal_burden_disease/GlobalCOD_method_2000_2012.pdf?ua=1

Country examples

N/A

International Organization(s) for Global Monitoring

This document was prepared based on inputs from World Health Organization (WHO).

For focal point information for this indicator, please visit <https://unstats.un.org/sdgs/dataContacts/>

Indicator 3.9.3

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Indicator Name, Target and Goal

Indicator 3.9.3: Mortality rate attributed to unintentional poisoning

Target 3.9: By 2030, substantially reduce the number of deaths and illnesses from hazardous chemicals and air, water and soil pollution and contamination

Goal 3: Ensure healthy lives and promote well-being for all at all ages

Definition and Rationale

Definition:

This indicator is defined as the number of deaths from unintentional poisonings in a year per 100,000 population.

Concepts:

Unintentional poisonings refer to International Statistical Classification of Diseases and Related Health Problems (ICD-10) codes X40, X43-X44, and X46-X49, classified as “accidental poisoning by exposure to noxious substances.”

Rationale and Interpretation:

Measuring how the mortality rate from unintentional poisonings provides an indication of the extent of inadequate management of hazardous chemicals and pollution, and of the effectiveness of a country’s health system.

Data Sources and Collection Method

The data for this indicator comes from civil registration systems that record vital events such as births, deaths, and marriages. Civil registration records are the best source of vital statistics because they generate data on a continuous basis and for the whole country, at both national and local levels. However, such systems are often weak or incomplete in developing countries. In countries where the civil registration system lacks complete coverage, or has major deficiencies due to issues of quality and timeliness, it may be necessary, on an interim basis, to use alternative sources to generate vital statistics. Sources for such interim data include “population censuses”, “household sample surveys”, “demographic surveillance” in sentinel sites and sample registration systems. Although these sources can and do generate measures of vital events, they cannot replace civil registration, which is the only method that collects such information on a continuous basis, and the only source that can provide individuals with a legal document of a vital event.

For more details, please see: Improving the quality of use of birth, death and cause-of-death information available at: http://www.who.int/healthinfo/tool_cod_2010.pdf?ua=1

Method of Computation and Other Methodological Considerations

Computation Method:

Unintentional poisoning mortality rate can be calculated using the formula below:

$$\text{Unintentional poisoning mortality rate} = \frac{\text{Number of unintentional poisoning deaths in a year}}{\text{Mid - year population in the same year}} \times 100,000$$

Comments and limitations:

Data on deaths are available from countries from death registration data or sample registration systems that record information on cause of death, but less than one half of WHO member states have well-functioning death-registration systems that record causes of death. In countries that have such systems, drug and alcohol overdoses are frequently certified to ICD-10 code X49 (“other and unspecified chemicals and noxious substances”), which leads to an overestimate of the mortality rate from unintentional poisoning deaths from hazardous chemicals and pollution.

Proxy, alternative and additional indicators: N/A

Data Disaggregation

This indicator can be disaggregated by age group, sex, subnational area, and types of poisoning.

References

Official SDG Metadata URL

<https://unstats.un.org/sdgs/metadata/files/Metadata-03-09-03.pdf>

Internationally agreed methodology and guideline URL

<http://www.who.int/healthinfo/indicators/2018/en/>

Other references

WHO. *Global Health Observatory: Indicator Definition*. Geneva. Available at: <http://apps.who.int/gho/data/node.imr.SDGPOISON?lang=en>

WHO. *Health Statistics and Information Systems: Estimates for 2000-2015 – Cause Specific Mortality*. Geneva. Internet site: http://www.who.int/healthinfo/global_burden_disease/estimates/en/index1.html

WHO (2018). *WHO methods and data sources for country-level causes of death 2000–2016*. Geneva. Available at: http://terrance.who.int/mediacentre/data/ghe/GlobalCOD_method_2000_2016.pdf?ua=1

WHO (2010). *Improving the quality of use of birth, death and cause-of-death information*. Available at: http://www.who.int/healthinfo/tool_cod_2010.pdf?ua=1

International Organization(s) for Global Monitoring

This document was prepared based on inputs from World Health Organization (WHO).

For focal point information for this indicator, please visit <https://unstats.un.org/sdgs/dataContacts/>

Indicator 3.b.2

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Indicator Name, Target and Goal

Indicator 3.b.2: Total net official development assistance to the medical research and basic health sectors

Target 3.b: Support the research and development of vaccines and medicines for the communicable and non-communicable diseases that primarily affect developing countries, provide access to affordable essential medicines and vaccines, in accordance with the Doha Declaration on the TRIPS Agreement and Public Health, which affirms the right of developing countries to use to the full the provisions in the Agreement on Trade-Related Aspects of Intellectual Property Rights regarding flexibilities to protect public health, and, in particular, provide access to medicines for all

Goal 3: Ensure healthy lives and promote well-being for all at all ages

Definition and Rationale

Definition:

This indicator is defined as the total amount of gross disbursements of official development assistance (ODA) from all donors to medical research and basic health sectors.

Concepts:

ODA is defined as those flows to countries and territories on the Development Assistance Committee's (DAC) list of ODA recipients and to multilateral institutions which are

- (1) Provided by official agencies, including state and local governments, or by the executive agencies; and
- (2) Each transaction:
 1. is administered with the promotion of the economic development and welfare of developing countries as its main objective; and
 2. is concessional in character and conveys a grant element of at least 25% (calculated at a rate of discount of 10%).

ODA for Medical research and basic health sectors is calculated as the sum of all activities in the OECD's Creditor Reporting System (CRS) using codes in the 122 series (basic health) and CRS code 12182 (medical research).

Rationale and Interpretation:

Monitoring the total ODA flows to developing countries helps quantify the public effort that donors provide to developing countries for medical research and basic health.

Data Sources and Collection Method

The data are reported by donors according to the methodology outlined by OECD's development finance standards.

A statistical reporter is responsible for the collection of DAC statistics in each providing country/agency. This reporter is usually located in the national aid agency, Ministry of Foreign Affairs or Finance etc

Method of Computation and Other Methodological Considerations

Computation Method:

This indicator is calculated as the sum of all ODA flows from all donors to developing countries in the CRS for medical research and basic health, as reported by the donor countries.

Comments and limitations:

Data in the Creditor Reporting System are available from 1973. However, the data coverage is considered complete from 1995 for commitments at an activity level and 2002 for disbursements.

Proxy, alternative and additional indicators: N/A

Data Disaggregation

The data are available at an activity level and can therefore be disaggregated by donor, recipient, type of flow, type of aid, sector etc. The sector level data can also be broken down into more granular levels (see <http://www.oecd.org/dac/financing-sustainable-development/development-finance-standards/purposecodessectorclassification.htm>)

References

Official SDG Metadata URL

<https://unstats.un.org/sdgs/metadata/files/Metadata-03-0B-02.pdf>

Internationally agreed methodology and guideline URL

<http://www.oecd.org/dac/financing-sustainable-development/development-finance-standards/>

Other references

OECD. *Financing for Sustainable Development*. Paris. Internet site: <http://www.oecd.org/dac/financing-sustainable-development/>

Country examples

N/A

International Organization(s) for Global Monitoring

This document was prepared based on inputs from the Organization for Economic Co-operation and Development (OECD).

For focal point information for this indicator, please visit <https://unstats.un.org/sdgs/dataContacts/>

Indicator 3.c.1

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Indicator Name, Target and Goal

Indicator 3.c.1: Health worker density and distribution

Target 3.c: Substantially increase health financing and the recruitment, development, training and retention of the health workforce in developing countries, especially in least developed countries and small island developing States

Goal 3: Ensure healthy lives and promote well-being for all at all ages

Definition and Rationale

Definition:

This indicator consists of 4 sub-indicators.

Density of physicians: The density of physicians is defined as the number of physicians, including generalists and specialist medical practitioners per 1,000 population in the given national and/or subnational area.

Density of nursing and midwifery personnel: The density of nursing and midwifery personnel is defined as the number of nursing and midwifery personnel per 1,000 population in the given national and/or subnational area.

Density of dentistry personnel: The density of dentistry personnel is defined as the number of dentists, dental technician/assistants and related occupation personnel per 1,000 population in the given national and/or subnational area.

Density of pharmaceutical personnel: The density of pharmaceutical personnel is defined as the number of pharmacists, pharmaceutical, technicians/assistants and related occupation personnel per 1,000 population in the given national and/or subnational area.

Concepts:

Physicians is the occupation classified in the ISCO-08 codes 221,2211 and 2212.

Nursing and midwifery personnel is the occupation classified in the ISCO-08 codes 2221, 2222, 3221 and 3222.

Dentistry personnel is the occupation classified in the ISCO-08 codes 2261, 3214 (excluding medical prosthetic related technicians) and 3251.

Pharmaceutical personnel is the occupation classified in the ISCO-08 codes 2262 and 3213.

Active health workers who provide services to patients and communities (practising health worker) or whose medical education is a prerequisite for the execution of the job (e.g. education, research, public administration) even if the health worker is not directly providing services (professionally active health worker). If data are not available for practising or professionally active health workers, data with the closest definition can be used, such as "health worker licensed to practice". For more information refer to the NHWA Handbook.

Health occupations should be reported separately.

Rationale and Interpretation:

Health worker density, with respect to each occupation, provides a view of the level of healthcare workforce available in a given area such that efforts to increase the recruitment, development, training and retention of this workforce can be undertaken in places that need it.

Data Sources and Collection Method

The data is compiled from routine administrative information systems (including reports on staffing and payroll as well as professional training, registration and licensure), population censuses, labour force and employment surveys and health facility assessments. Most of the data from administrative sources are derived from published national health sector reviews and/or official country reports to WHO offices.

Following the adoption of the Global strategy on human resources for health: workforce 2030 and resolution (WHA 69.19) to address human resources for health (HRH) challenges at the 69th World Health Assembly, May 2016, Member States are called on to consolidate a core set of human resources for health data with annual reporting to the Global Health Observatory, as well as progressive implementation of National Health Workforce Accounts (NHWA), to support national policy and planning and the Global Strategy's monitoring and accountability framework. Since its launch in November 2017, Member States are called to use the NHWA data platform to report health workforce data. For additional information, contact hrhstatistics@who.int

To view latest available data: <http://www.who.int/hrh/statistics/nhwa/en/>

Method of Computation and Other Methodological Considerations

Computation Method:

Countries are encouraged to provide the number of active health workers disaggregated by occupation.

Currently, this is being reported separately – density of each health occupations is separately reported.

Health worker density for the occupation i in the area a can be calculated using the following formula:

For a given health occupation i , in the country

$$HWD_i = \frac{\sum HW_i}{POP} \times 1000$$

where,

HW_i is the number of health workers of the occupation i ; and

POP is the total population of the country.

Comments and limitations:

Previously, this indicator was estimated using 2 measurements: density of physicians, and density of nursing and midwifery personnel. But in the context of the SDGs, the dataset has been expanded to include physicians, nursing personnel, midwifery personnel, dentistry personnel and pharmaceutical personnel. The dataset is planned to progressively move to cover all health cadres.

Data on health workers tend to be more complete for the public sector and may underestimate the active workforce in the private, military, nongovernmental organization and faith-based health sectors.

Depending on the nature of the original data source figures for physicians may include practising physicians only or all registered physicians. Traditional and complementary medicine professionals (ISCO 2230) is not included here.

The figures for number of nursing and midwifery include nursing personnel and midwifery personnel, whenever available. In many countries, nurses trained with midwifery skills are counted and reported as nurses. This makes the distinction between nursing personnel and midwifery personnel difficult to draw.

The figures for number of dentistry personnel include dentists, dental technicians/assistants and related occupations. Due to variability of data sources, the professional-level and associate-level occupations may not always be distinguishable.

The figures for number of pharmaceutical personnel include pharmacists, pharmaceutical technicians/assistants and related occupations. Due to variability of data sources, the professional-level and associate-level occupations may not always be distinguishable.

Due to the differences in data sources, considerable variability remains across countries in the coverage, periodicity, quality and completeness of the original data.

Proxy, alternative and additional indicators: N/A

Data Disaggregation

This indicator can be disaggregated by occupation and geographic area.

References**Official SDG Metadata URL**

<https://unstats.un.org/sdgs/metadata/files/Metadata-03-0C-01.pdf>

Internationally agreed methodology and guideline URL

http://www.who.int/hrh/documents/brief_nhwa_handbook/en/

Other references

Sixty-Ninth World Health Assembly (2016). *Global strategy on human resources for health: Workforce 2030*. Agenda Item 16.1. Available at: http://apps.who.int/gb/ebwha/pdf_files/WHA69/A69_R19-en.pdf

WHO (2014). *Global strategy on human resources for health: Workforce 2030*. Geneva. Available at: http://who.int/hrh/resources/pub_gl_obstrathrh-2030/en/

WHO (2018). *WHO Global Health Workforce Statistics*. Available at: <http://www.who.int/hrh/statistics/hwfstats/en>

WHO (2018). *Global Health Workforce Statistics*. Available at: <http://apps.who.int/gho/data/node.main.A1444?lang=en&showonly=HWF>

WHO (2018). *National Health Workforce Accounts: A Handbook, n.d.* Available at: <http://www.who.int/hrh/statistics/nhwa/en/>

Country examples

N/A

International Organization(s) for Global Monitoring

This document was prepared bas018 on inputs from World Health Organization (WHO).

For focal point information for this indicator, please visit <https://unstats.un.org/sdgs/dataContacts/>

Goal 4

Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all

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In this goal:

United Nations Statistics Division (UNSD) worked in consultation with each indicators' custodian agency(ies) to prepare these chapters. For indicators that do not have chapters here yet, they are currently being prepared and they will be uploaded here as soon as they become available.

If you have any questions on the e-Handbook, do not hesitate to contact Shaswat Sapkota (sapkotas@un.org).

Indicator 4.1.1

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Indicator Name, Target and Goal

Indicator 4.1.1: Proportion of children and young people (a) in Grades 2 /3; (b) at the end of primary; and (c) at the end of lower secondary achieving at least a minimum proficiency level in (i) reading and (ii) mathematics, by sex

Target 4.1: By 2030, ensure that all girls and boys complete free, equitable and quality primary and secondary education leading to relevant and effective learning outcomes

Goal 4: Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all

Definition and Rationale

Definition:

This indicator is defined as the percentage of children and young people who have achieved a minimum proficiency level in (i) reading and (ii) mathematics during primary (Grade 2 or 3) and at the end of primary and lower secondary education.

Concepts:

Minimum proficiency level corresponds to the minimum set of skills or knowledge required for a given subject such as reading or mathematics. Learning assessments are designed to measure a range of skill levels which are defined during the design of the assessment. As the assessment design can vary between national assessments and across international assessments ideally these benchmarks should be aligned. Minimum proficiency levels for existing cross-national learning assessments have been provisionally adopted by the international community for interim reporting but in order to increase country coverage there is a need to achieve comparability across national and international assessments.

Rationale and Interpretation:

The indicator is a direct measure of the minimum learning outcomes achieved in reading and mathematics during or at the end of the relevant stages of education.

To create internationally comparable data, an international benchmark for minimum proficiency will need to be developed and adopted to address the variation in performance levels across national and cross-national assessments. This benchmark will divide learners into those who did not achieve the minimum proficiency and those who did. A value at or above the defined minimum proficiency score indicates that learners have achieved minimum proficiency levels in the required subject area.

Data Sources and Collection Method

Regional and international large-scale school-based learning assessments such as the Programme d'analyse des systèmes éducatifs de la CONFEMEN (PASEC), the Progress in International Reading Literacy Study (PIRLS), the Programme for International Student Assessment (PISA), the Southern and Eastern Africa Consortium for Monitoring Educational Quality (SACMEQ), the Tercer Estudio Regional Comparativo y Explicativo (TERCE) and the Trends in International Mathematics and Science Study (TIMSS), are good sources of data for this indicator. National learning assessments are another potential source.

In order to extend coverage to include out-of-school children and youth, the UIS is developing a strategy to work with household surveys, including citizen-led assessments. This will require the mapping of the content being assessed to a common framework and ensuring minimum technical standards are observed such surveys.

Method of Computation and Other Methodological Considerations

Computation Method:

Divide the total number of children and young people in a given stage of education n who have achieved the minimum proficiency level in a given subject s (mathematics or reading) by the total population in the given stage of education or relevant age group and multiply by 100.

The formula is:

$$MPL_{t,n,s} = \frac{MP_{t,n,s}}{P_{t,n}} \times 100$$

where,

$MP_{t,n,s}$ is the number of children and young people in the stage of education n , who have achieved or exceeded the minimum proficiency level in subject s in school year t ;

$P_{t,n}$ is the total population in the stage of education n in school year t ;

n denotes the grade or education level that was assessed; and

s denotes the subject (mathematics or reading).

Comments and limitations:

Countries set their own standards so performance levels may not always be directly comparable. Furthermore, assessments most are

typically administered within school systems. The current indicators cover only those individuals that are in school. The relative size of in-school target populations vary from country to country due to differences in the out-of-school populations.

Assessing competencies of children and young people who are out-of-school would require household-based surveys, which may be very costly and difficult to administer. Such surveys are unlikely to be available on the scale needed within the next 3-5 years. Due to this, the initial focus is on assessing children that are in-school. The development of more coherent implementation plans to assess out-of-school children will require more time.

There is only one threshold that divides children and young people in different stages of education into below minimum or at or above minimum proficiency levels:

- (1) Below minimum level is the proportion of children and young people who do not achieve the minimum standard as established by countries; and
- (2) At or above minimum level is the proportion of children and young people who have achieved at least the minimum standard.

Due to the variation in performance level thresholds across countries, the national performance levels will have to be mapped to a globally defined minimum proficiency level. This mapping will allow for meaningful comparisons of performance across countries.

Proxy, alternative and additional indicators: N/A

Data Disaggregation

This indicator is required to be disaggregated by sex and level or stage of education. It can be also disaggregated by age or age group, location, socio-economic status, migrant status, ethnicity and disability status.

References

Official SDG Metadata URL

<https://unstats.un.org/sdgs/metadata/files/Metadata-04-01-01.pdf>

Internationally agreed methodology and guideline URL

http://uis.unesco.org/sites/default/files/documents/unesco-infopaper-sdg_data_gaps-01.pdf

Other references

PASEC. *Programme d'analyse des systemes educatifs de la confemen*. Internet site: <http://www.pasec.confemen.org/>

IEA. *Progress in International Reading Literacy Study (PIRLS)*. Internet site: <http://www.iea.nl/pirls>

OECD. *Programme for International Student Assessment (PISA)*. Internet site: <https://www.oecd.org/pisa/aboutpisa/>

The Southern and Eastern Africa Consortium for Monitoring Educational Quality (SACMEQ). Internet site: <http://www.sacmeq.org/?q=sacmeq-projects/sacmeq-iv>

UNESCO. *Tercer Estudio Regional Comparativo y Explicativo (TERCE)*. Internet site: <http://www.unesco.org/new/es/santiago/education/education-assessment-ilece/terce/>

IEA. *Trends in International Mathematics and Science Study (TIMSS)*. Internet site: http://www.iea.nl/timss_2015.html

Country examples

To view the latest available data: <http://data.uis.unesco.org>

International Organization(s) for Global Monitoring

This document was prepared based on inputs from United Nations Educational, Scientific and Cultural Organization (UNESCO) Institute for Statistics (UIS).

For focal point information for this indicator, please visit <https://unstats.un.org/sdgs/dataContacts/>

Indicator 4.2.2

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Indicator Name, Target and Goal

Indicator 4.2.2: Participation rate in organized learning (one year before the official primary entry age), by sex

Target 4.2: By 2030, ensure that all girls and boys have access to quality early childhood development, care and pre-primary education so that they are ready for primary education

Goal 4: Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all

Definition and Rationale

Definition:

This indicator is defined as the percentage of children aged one year younger than the official entry age to primary education who participate in one or more organized learning programmes, including programmes which offer a combination of education and care. Participants in early childhood education and primary education are both included. The age considered will vary by country depending on the official entry age to primary education.

Concepts:

An *organized learning* programme is one which consists of a coherent set or sequence of educational activities designed with the intention of achieving pre-determined learning outcomes or the accomplishment of a specific set of educational tasks. Early childhood and primary education programmes are examples of organized learning programmes.

Early childhood and primary education are defined in the 2011 revision of the [International Standard Classification of Education \(ISCED 2011\)](#). *Early childhood education* is typically designed with a holistic approach to support children's early cognitive, physical, social and emotional development and to introduce young children to organized instruction outside the family context. *Primary education* offers learning and educational activities designed to provide students with fundamental skills in reading, writing and mathematics, and establish a solid foundation for learning and understanding core areas of knowledge and personal development. It focuses on learning at a basic level of complexity with little, if any, specialisation.

The *official primary entry age* is the age at which children are expected to start primary education according to national legislation or policies. Where more than one age are specified, for example, in different parts of a country, the most common official entry age (i.e. the age at which most children in the country are expected to start primary) is used for the calculation of this indicator.

Rationale and Interpretation:

The indicator measures children's exposure to organized learning activities in the year prior to the start of primary school as a representation of access to quality early childhood development, care and pre-primary education.

A high value of the indicator shows a high degree of participation in organized learning immediately before the official entrance age to primary education.

Data Sources and Collection Method

This indicator can be calculated using administrative data from schools and other centres of organized learning combined with single year of age population estimates from population censuses and surveys. The data can also be acquired from nationally representative household surveys.

Ministries of Education or National Statistical Offices are typical sources of such data.

Method of Computation and Other Methodological Considerations

Computation Method:

This indicator can be calculated by dividing the number of children participating in an organized learning programme who are one year younger than the official entry age to primary education by the population of the same age group and multiplying the result by 100.

The participation rate, of the age group $a-1$, is calculated as follows:

$$PR_{a-1}^t = \frac{P_{a-1}^t}{SAP_{a-1}^t} \times 100$$

where

$$P_{a-1}^t$$

is the number of children participating in early childhood or primary education (ISCED levels 0 or 1) who are aged one year below the official entry age a to primary education in reference year t

$$SAP_{a-1}^t$$

is the population who are one year younger than the official entry age a to primary education in reference year t

Comments and limitations:

Participation in learning programmes in the early years is not full time for many children, meaning that exposure to learning environments outside of the home will vary in intensity. The indicator measures the percentage of children who are exposed to organized learning but not the intensity or quality of the programme. More work is needed to ensure that the definition of learning programmes is consistent across various surveys and defined in a manner that is easily understood by survey respondents, ideally with complementary information collected on the amount of time children spend in learning programmes.

Nationally-published figures may differ from the international ones because of differences between national education systems and the International Standard Classification of Education (ISCED), differences in coverage (i.e. the extent to which different types of education – e.g. private or special education – are included in one rather than the other) and/or between national and the United Nations Population Division population estimates.

Proxy, alternative and additional indicators:

Other indicators which measure participation in organized learning at young ages include net and gross enrolment rates in early childhood, pre-primary and primary education and age specific enrolment rates.

Data Disaggregation

This indicator is required to be disaggregated by sex. It can also be disaggregated by sex, location, income and disability status.

References

Official SDG Metadata URL

<https://unstats.un.org/sdgs/metadata/files/Metadata-04-02-02.pdf>

Internationally agreed methodology and guideline URL

UNESCO Institute for Statistics. (2017a). *Metadata for the global and thematic indicators for the follow-up and review of SDG 4 and Education 2030*. Accessible at: http://uis.unesco.org/sites/default/files/documents/metadata-global-thematic-indicators-sdg4-education2030-2017-en_1.pdf

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UNESCO Institute for Statistics (UIS) (2016). *UIS Questionnaire on Students and Teachers (ISCED 0-4)*. Montreal: UIS. Accessible at: <http://uis.unesco.org/en/uis-questionnaires>

UNESCO Institute for Statistics (UIS) (2012a). *International Standard Classification of Education (ISCED) 2011*. Montreal: UIS. Accessible at: <http://uis.unesco.org/sites/default/files/documents/international-standard-classification-of-education-isced-2011-en.pdf>

UNESCO Institute for Statistics (UIS) (2018). *Glossary*. Accessible at: <http://uis.unesco.org/en/glossary>

Other references

None.

Country examples

To view the latest available data: <http://data.uis.unesco.org>

International Organization(s) for Global Monitoring

This document was prepared based on inputs from United Nations Educational, Scientific and Cultural Organization (UNESCO) Institute for Statistics (UIS).

For focal point information for this indicator, please visit <https://unstats.un.org/sdgs/dataContacts/>

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Indicator 4.3.1

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Indicator Name, Target and Goal

Indicator 4.3.1: Participation rate of youth and adults in formal and non-formal education and training in the previous 12 months, by sex

Target 4.3: By 2030, ensure equal access for all women and men to affordable and quality technical, vocational and tertiary education, including university

Goal 4: Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all

Definition and Rationale

Definition:

This indicator is defined as the percentage of youth and adults in a given age range (e.g. 15-24 years, 25-64 years, etc.) participating in formal or non-formal education or training in a given time period (e.g. last 12 months)

Concepts:

Formal education and training is defined as education provided by the system of schools, colleges, universities and other formal educational institutions that normally constitutes a continuous 'ladder' of full-time education for children and young people, generally beginning at the age of 5 to 7 and continuing to up to 20 or 25 years old. In some countries, the upper parts of this 'ladder' are organized programmes of joint part-time employment and part-time participation in the regular school and university system.

Non-formal education and training is defined as any organized and sustained learning activities that do not correspond exactly to the above definition of formal education. Non-formal education may therefore take place both within and outside educational institutions and cater to people of all ages. Depending on national contexts, it may cover educational programmes to impart adult literacy, life-skills, work-skills, and general culture.

Rationale and Interpretation:

This indicator shows the level of participation of youth and adults in education and training of all types, as a representation of access to affordable and quality training.

A high value indicates a large share of the population in the relevant age group has access to and takes part in formal and non-formal education and training.

Data Sources and Collection Method

This indicator can be calculated using administrative data from schools and other places of education and training or data from household or other sample surveys on participants in formal and non-formal education and training by single year of age or broader age groups (e.g. 5- or 10-year age groups); population censuses and surveys are sources for population estimates by single year of age or age group (if using administrative data on participation). Ministries of Education or National Statistical Offices are typical sources of such data.

Eurostat's Adult Education Survey (AES) and OECD's Survey of Adult Skills in its Programme for the International Assessment of Adult Competencies (PIAAC) both of which are household surveys are good sources of data for this indicator. Eurostat's Continuing Vocational Training Survey (CVTS) collects data on participation in work-related education and training from enterprises.

Labour Force Surveys (LFS) can also serve as a source of data for participation in education and training though often the reference period in which participation should be reported is four weeks rather than 12 months.

More work is being undertaken to review existing national household surveys to see if they can be suitable sources for this indicator. A possible module for inclusion in national sample surveys is being developed by the Working Group on Indicator Development of UNESCO's [Technical Cooperation Group on SDG-Education 2030 Indicators](#).

National authorities who are already developing new surveys or modules to collect these data can refer to use Eurostat's Adult Education Survey or the OECD's Survey of Adult Skills as possible templates.

Method of Computation and Other Methodological Considerations

Computation Method:

This indicator is calculated by dividing the total number of people in a given age group, a , who participated in formal and non-formal education and training in the given reference period by the population of the same age group and multiplying the result by 100.

The participation rate, of the age group a in year t , is calculated as follows:

$$PR_a^t = \frac{P_a^t}{POP_a^t} \times 100$$

where

$$P_a^t$$

is the number of people in age group a who participated in formal and non-formal education and training in the given reference period in year t

$$POP_a^t$$

is the population in age group a in year t

Comments and limitations:

Formal and non-formal education and training can be offered in a variety of settings including schools and universities, workplace environments and others, and can have a variety of durations. Administrative data often capture only provision in formal settings such as schools and universities. Participation rates do not capture the intensity or quality of the provision nor the outcomes of the education and training on offer.

Proxy, alternative and additional indicators:

Although the preferred reference period for this indicator is education and training undertaken in a 12-month period, many surveys are available which capture data for a shorter period. Such sources, suitably footnoted, may be used where the preferred indicator is not available.

Data Disaggregation

This indicator is required to be disaggregated by sex. It can be also disaggregated by age, location, income and disability status. It may also be disaggregated by type of education or training.

References

Official SDG Metadata URL

<https://unstats.un.org/sdgs/metadata/files/Metadata-04-03-01.pdf>

Internationally agreed methodology and guideline URL

UNESCO Institute for Statistics. (2017). Metadata for the global and thematic indicators for the follow-up and review of SDG 4 and

Education 2030. Accessible at: http://uis.unesco.org/sites/default/files/documents/metadata-global-thematic-indicators-sdg4-education2030-2017-en_1.pdf

Other references

Eurostat. *Adult Education Survey*. Internet Site. Available at: [http://ec.europa.eu/eurostat/statistics-explained/index.php/Adult_Education_Survey_\(AES\)_methodology](http://ec.europa.eu/eurostat/statistics-explained/index.php/Adult_Education_Survey_(AES)_methodology)

Eurostat. *European Continuing Vocational Training Survey*. Internet Site. Available at: [http://ec.europa.eu/eurostat/statistics-explained/index.php/Continuing_Vocational_Training_Survey_\(CVTS\)_methodology](http://ec.europa.eu/eurostat/statistics-explained/index.php/Continuing_Vocational_Training_Survey_(CVTS)_methodology)

Eurostat. *European Labour Force Survey*. Internet Site. Available at: http://ec.europa.eu/eurostat/statistics-explained/index.php/EU_Labour_force_survey_-_methodology http://ec.europa.eu/eurostat/cache/metadata/en/trng_lfs_4w0_esms.htm

ILO. Labour Force Surveys. Accessible at: <http://www.ilo.org/dyn/lfsurvey/lfsurvey.home>

OECD. *Survey of Adult Skills (PIAAC)*. Accessible at: <http://www.oecd.org/skills/piaac/>

Country examples

To view the latest available data: <http://data.uis.unesco.org>

International Organization(s) for Global Monitoring

This document was prepared based on inputs from United Nations Educational, Scientific and Cultural Organization (UNESCO) Institute for Statistics (UIS).

For focal point information for this indicator, please visit <https://unstats.un.org/sdgs/dataContacts/>

Indicator 4.4.1

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Indicator Name, Target and Goal

Indicator 4.4.1: Proportion of youth and adults with information and communications technology (ICT) skills, by type of skill

Target 4.4: By 2030, substantially increase the number of youth and adults who have relevant skills, including technical and vocational skills, for employment, decent jobs and entrepreneurship

Goal 4: Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all

Definition and Rationale

Definition:

This indicator is defined as the percentage of youth (aged 15-24 years) and adults (aged 15 years and above) that have undertaken certain computer-related activities in a given time period (e.g. last three months).

Concepts:

Computer-related activities to measure ICT skills include:

1. Copying or moving a file or folder
2. Using copy and paste tools to duplicate or move information within a document
3. Sending e-mails with attached files (e.g. document, picture, and video)
4. Using basic arithmetic formulae in a spreadsheet
5. Connecting and installing new devices (e.g. modem, camera, printer)

6. Finding, downloading, installing and configuring software
7. Creating electronic presentations with presentation software (including text, images, sound, video or charts)
8. Transferring files between a computer and other devices
9. Writing a computer program using a specialised programming language

A *computer* refers to a desktop computer, a laptop (portable) computer or a tablet (or similar handheld computer). It does not include equipment with some embedded computing abilities, such as smart TV sets or cell phones.

Rationale and Interpretation:

ICT skills determine the effective use of information and communication technology. The lack of such skills continues to be one of the key barriers keeping people, in particular women, from fully benefiting from the potential of information and communication technologies. This indicator makes the link between ICT usage and impact and helps measure and track the level of proficiency of users. A high value indicates that a large share of the reference population has the ICT skill being measured.

Data Sources and Collection Method

Ministry of education, national statistical offices and other data providers would be required to conduct household surveys or learning assessment such as Multiple Indicator Cluster Surveys (MICS), to collect information for calculation of this indicator. In some cases, surveying the schools which maintain administrative data on ICT skills of students can also be a valid source. For cross-national purposes, data providers include Eurostat and the International Telecommunication Union (ITU).

Method of Computation and Other Methodological Considerations

Computation Method:

The indicator, $PICT_{a,s}$, is calculated as follows:

$$PICT_{a,s} = \frac{ICT_{a,s}}{P_a} \times 100$$

where,

$PICT_{a,s}$ is the percentage of people in age group a who have ICT skill s

$ICT_{a,s}$ is the number of people in age group a who have ICT skill s ;

P_a is the population in age group a ; and

s denotes one of the listed 9 ICT skills.

The indicator is calculated as the percentage of people in a given population who have responded 'yes' to a selected number of variables e.g. the use of ICT skills in various subject areas or learning domains, the use of ICT skills inside or outside of school and/or workplace, the minimum amount of time spent using ICT skills inside and outside of school and/or workplace, availability of internet access inside or outside of school and/or workplace, etc.

Comments and limitations:

The indicator is based on the responses provided by interviewees regarding certain computer-related activities that they have carried out in a reference period of time. However, it is not a direct assessment of skills nor of the effectiveness of how those activities were conducted.

This indicator is relatively new but based on an internationally-agreed definition and methodology, which have been developed under the coordination of International Telecommunications Union (ITU), through its Expert Groups and following an extensive consultation process with countries. It is also one of the Partnership on Measuring ICT for Development's Core List of Indicators, which was endorsed by the UN Statistical Commission in 2014.

Proxy, alternative and additional indicators: N/A

Data Disaggregation

This indicator is required to be disaggregated by type of skill. Therefore, this indicator should be calculated for each of the 9 ICT skills separately using the number of respondents that have responded 'yes' to questions on each skill. This indicator can also be

disaggregated by age or age-group of students, sex, location and socio-economic status if collected in the relevant survey.

References

Official SDG Metadata URL

<https://unstats.un.org/sdgs/metadata/files/Metadata-04-04-01.pdf>

SDG 4 global and thematic indicators Metadata URL

<http://sdg4monitoring.uis.unesco.org/metadata-global-thematic-indicators-follow-up-review-sdg4-education2030-2017.pdf>

Other references

International Telecommunications Union (2014). *Manual for Measuring ICT Access and Use by Households and Individuals*. Available at: https://www.itu.int/dms_pub/itu-d/opb/ind/D-IND-ITCMEAS-2014-PDF-E.pdf

Eurostat (2015). *Methodological Manual for Statistics on the Information Society*. Available at: https://circabc.europa.eu/sd/a/50760cae-348b-4a8a-9569-a96a6704fb70/Methodological_Manual_2015_ISS.zip

Country examples

N/A

International Organization(s) for Global Monitoring

This document was prepared based on inputs from United Nations Educational, Scientific and Cultural Organization (UNESCO) Institute for Statistics (UIS) and International Telecommunications Union (ITU).

For focal point information for this indicator, please visit <https://unstats.un.org/sdgs/dataContacts/>

Indicator 4.5.1

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Indicator Name, Target and Goal

Indicator 4.5.1: Parity indices (female/male, rural/urban, bottom/top wealth quintile and others such as disability status, indigenous peoples and conflict-affected, as data become available) for all education indicators on this list that can be disaggregated

Target 4.5: By 2030, eliminate gender disparities in education and ensure equal access to all levels of education and vocational training for the vulnerable, including persons with disabilities, indigenous peoples and children in vulnerable situations

Goal 4: Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all

Definition and Rationale

Definition:

This indicator is defined as the ratio of the value of the underlying indicator (e.g. 4.1.1) for one sub-group to that of another. Typically, the value for the likely more disadvantaged group is the numerator. A value of exactly 1 indicates parity between the two groups although, for analytical purposes, values between 0.97 and 1.03 are typically assumed to be at parity.

Parity indices can be calculated for the following SDG 4 global indicators:

- 4.1.1

- 4.2.1
- 4.2.2
- 4.3.1
- 4.4.1
- 4.6.1
- 4.c.1

Concepts:

See metadata for relevant underlying indicator.

Rationale and Interpretation:

Parity indices are used to measure relative disparity between two sub-populations of interest with regard to a given indicator.

In the context of this indicator, the indices highlight the relative differences between two population sub-groups of interest. For example, a parity index for indicator 4.4.1, could provide insights into the differences between men and women (or any other dimension of interest) in ICT skills.

The further from the range 0.97 and 1.03 the parity index lies, the greater the disparity between the two groups of interest.

Data Sources and Collection Method

Data source is the same as the underlying indicator for which this parity measure is being calculated.

Method of Computation and Other Methodological Considerations**Computation Method:**

This indicator can be calculated by dividing a given indicator for the dimension of interest (sex, wealth, location, etc.) for the likely more disadvantaged group (female, poorest quintile, rural, etc.), $IND_{i,d}^t$, by the value for the likely more advantaged group (male, richest quintile, urban, etc.), $IND_{i,a}$.

The parity index for a given dimension (sex, wealth, location, etc.), DPI , for any indicator is given as follows:

$$DPI_i^t = \frac{IND_{i,d}^t}{IND_{i,a}^t}$$

where

IND_i is the Education 2030 (SDG 4) indicator i for which an equity measure is needed;

d is the likely more disadvantaged group (eg. female, poorest, rural, etc.); and

a is the likely more advantaged group (eg. male, richest, urban, etc.).

Comments and limitations:

The indicator can be adjusted to be symmetrical about 1 and limited to a range between 0 and 2 through a simple transformation by inverting ratios that exceed 1 and subtracting them from 2.

Proxy, alternative and additional indicators: N/A

Data Disaggregation

Parity indices can be calculated for any sub-group of interest for which sufficient data are available taking account of sample sizes and standard errors.

References

Official SDG Metadata URL

<https://unstats.un.org/sdgs/metadata/files/Metadata-04-05-01.pdf>

Internationally agreed methodology and guideline URL

UNESCO Institute for Statistics. (2017a). *Metadata for the global and thematic indicators for the follow-up and review of SDG 4 and Education 2030*. Accessible at: http://uis.unesco.org/sites/default/files/documents/metadata-global-thematic-indicators-sdg4-education2030-2017-en_1.pdf

Other references:

Information on indicators and the calculation of parity indices is available at:

UNESCO Institute for Statistics (UIS) (2018). Glossary. Accessible at: <http://uis.unesco.org/en/glossary>

Country examples:

To view the latest available data: <http://data.uis.unesco.org>

International Organization(s) for Global Monitoring

This document was prepared based on inputs from United Nations Educational, Scientific and Cultural Organization (UNESCO) Institute for Statistics (UIS).

For focal point information for this indicator, please visit <https://unstats.un.org/sdgs/dataContacts/>

Indicator 4.6.1

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Indicator Name, Target and Goal

Indicator 4.6.1: Proportion of population in a given age group achieving at least a fixed level of proficiency in functional (a) literacy and (b) numeracy skills, by sex

Target 4.6: By 2030, ensure that all youth and a substantial proportion of adults, both men and women, achieve literacy and numeracy

Goal 4: Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all

Definition and Rationale

Definition:

This indicator is defined as the proportion of youth (aged 15-24 years) and of adults (aged 15 years and above) who have achieved or exceeded a given level of proficiency in (a) literacy and (b) numeracy. The fixed or minimum level of proficiency is measured relative to literacy and numeracy scales defined according to national, regional and international learning assessments.

Concepts:

The *fixed level of proficiency* is the benchmark of basic knowledge in a domain (literacy or numeracy) measured through learning assessments. Currently, there are no common standards to determine the fixed level of proficiency that have been validated by the international community or countries.

The concepts of *functional literacy and numeracy* are based on the UNESCO definition which covers a continuum of proficiency levels rather than a dichotomy. A person is *functionally literate* who can engage in all those activities in which literacy is required for effective functioning of their group and community and also for enabling them to continue to use reading, writing and calculation for their own and the community's development. The assessment of functional literacy and numeracy should cover various proficiency levels ranging from a low level to the mastery of the requisite domain.

Rationale and Interpretation:

The indicator is a direct measure of the functional proficiency of youth and adults in literacy and numeracy which divides youth and adults into those who have achieved the requisite fixed level of proficiency and those who have not.

(1) Below the fixed proficiency level is the proportion of youth and adults who have not achieved the minimum proficiency level as established by countries according to the global competency or skills framework.

(2) At or above the fixed proficiency level is the proportion of youth and adults who have achieved at least the minimum proficiency level.

Due to the heterogeneity of performance levels set by national and cross-national assessments, these performance levels will be based on a global competency or skills framework. Once the performance levels are established, the global education community will be able to identify for each country the proportion of youth and adults who achieved at least minimum proficiency level.

Data Sources and Collection Method

This indicator is collected via skills' assessment surveys of the youth and adult populations. OECD's Survey of Adult Skills in its Programme for the International Assessment of Adult Competencies (PIAAC), the World Bank's Skills Towards Employment and Productivity (STEP) measurement programme, and the UIS's Literacy Assessment and Monitoring Programme (LAMP), all of which are household surveys, are good sources of data for this indicator. A new Short Literacy Survey (SLS) based on LAMP has recently been developed to offer a less costly and technically demanding option for countries. National surveys of adult literacy and numeracy skills may be additional sources.

Only PIAAC measures both literacy and numeracy skills. STEP and the newly developed SLS only measure literacy. Both PIAAC and STEP can be put on a common scale as they are linked psychometrically by design.

Method of Computation and Other Methodological Considerations

Computation Method:

This indicator can be calculated by dividing the number of persons aged 15-24 years or 15 years and above achieving at least the minimum fixed level of proficiency in a large-scale representative assessment survey on literacy and/or numeracy, , by the total number of participants of the same age-group who participated in the assessment.

The proportion of youth and adults who have achieved *at least the minimum threshold* of proficiency, $PMIN_{a,s}^t$ of the age group a in reference year t , is calculated as follows:

$$PMIN_{a,s}^t = \frac{P_{a,s}^t}{POP_{a,s}^t} \times 100$$

where

$P_{a,s}^t$ is the number of youth or adults in age group a who have achieved at least the minimum proficiency level in domain s in reference year t

$POP_{a,s}^t$ is the total number of youth or adults in age group a who participated in the assessment of domain s in reference year t

s denotes the domain whether literacy or numeracy

Comments and limitations:

The measurement of youth and adult proficiencies in literacy and numeracy requires some form of direct assessment. Using household surveys to measure learning can be costly and difficult to administer and may underestimate learning in areas that are critical to daily life but are harder to assess in standardised approaches. The result may be inaccurate representations of what youth and adults know and can do, especially in relation to applying skills that may vary across contexts.

Proxy, alternative and additional indicators: N/A

Data Disaggregation

This indicator is required to be disaggregated by sex. It can be also disaggregated by age group, location, income and disability status.

References

Official SDG Metadata URL

<https://unstats.un.org/sdgs/metadata/files/Metadata-04-06-01.pdf>

Internationally agreed methodology and guideline URL

UNESCO Institute for Statistics. (2017a). *Metadata for the global and thematic indicators for the follow-up and review of SDG 4 and Education 2030*. Accessible at: http://uis.unesco.org/sites/default/files/documents/metadata-global-thematic-indicators-sdg4-education2030-2017-en_1.pdf

UNESCO Institute for Statistics (UIS) (2018). Glossary. Accessible at: <http://uis.unesco.org/en/glossary>

Other references

Organization for Economic Cooperation and Development (OECD). *Programme for the International Assessment of Adult Competencies (PIAAC)*. Internet Site: <http://www.oecd.org/site/piaac/>

The World Bank (WB). *STEP Skills Measurement Programme*. Internet Site: <http://microdata.worldbank.org/index.php/catalog/step/about>

Country examples

To view the latest available data: <http://data.uis.unesco.org>

International Organization(s) for Global Monitoring

This document was prepared based on inputs from United Nations Educational, Scientific and Cultural Organization (UNESCO) Institute for Statistics (UIS).

For focal point information for this indicator, please visit <https://unstats.un.org/sdgs/dataContacts/>

Indicator 4.a.1

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Indicator Name, Target and Goal

Indicator 4.a.1: Proportion of schools with access to: (a) electricity; (b) the Internet for pedagogical purposes; (c) computers for pedagogical purposes; (d) adapted infrastructure and materials for students with disabilities; (e) basic drinking water; (f) single-sex basic sanitation facilities; and (g) basic handwashing facilities (as per the WASH indicator definitions)

Target 4.a: Build and upgrade education facilities that are child, disability and gender sensitive and provide safe, non-violent, inclusive and effective learning environments for all

Goal 4: Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all

Definition and Rationale

Definition:

The indicator is defined as the percentage of schools by level of education (primary, lower secondary and upper secondary education) with access to the following facilities:

(a) Electricity; (b) the Internet for pedagogical purposes; (c) computers for pedagogical purposes; (d) adapted infrastructure and materials for students with disabilities; (e) basic drinking water; (f) single-sex basic sanitation facilities; and (g) basic handwashing facilities.

Concepts:

Electricity means regularly and readily available sources of power (e.g. grid/mains connection, wind, water, solar and fuel-powered generator, etc.) that enable the adequate and sustainable use of ICT infrastructure for educational purposes.

Internet access for pedagogical purposes refers to the use of the Internet to deliver instructional materials on a computer or through other devices, in accordance with learners' pedagogical needs. Access implies that the Internet is available for enhancing teaching and learning and is accessible by pupils. Internet is defined as a worldwide interconnected computer network, which provides pupils access to a number of communication services including the World Wide Web and carries e-mail, news, entertainment and data files, irrespective of the device used (i.e. not assumed to be only via a computer and thus can also be accessed by mobile telephone, tablet, PDA, games machine, digital TV etc.). Access can be via a fixed narrowband, fixed broadband, or via mobile network.

Computers for pedagogical purposes implies the use of computers to support course delivery or independent teaching and learning needs. This may include activities using computers to meet information needs for research purposes, develop presentations, perform hands-on exercises and experiments, share information, and participate in online discussion forums for educational purposes. It includes a desktop computer, a laptop computer and a tablet.

Adapted infrastructure is defined as any built environment related to education facilities that are accessible to all users, including those with different types of disability, to be able to gain access to use and exit from them. Accessibility includes ease of independent approach, entry, evacuation and/or use of a building and its services and facilities (such as water and sanitation), by all the building's potential users with an assurance of individual health, safety and welfare during the course of those activities.

Adapted materials include learning materials and assistive products that enable students and teachers with disabilities/functioning limitations to access learning and to participate fully in the school environment.

Accessible learning materials include textbooks, instructional materials, assessments and other materials that are available and provided in appropriate formats such as audio, braille, sign language and simplified formats that can be used by students and teachers with disabilities/functioning limitations.

Basic drinking water is defined as a functional drinking water source (MDG 'improved' categories) on or near the premises and water points accessible to all users during school hours.

Single-sex basic sanitation facilities are defined as functional sanitation facilities (MDG 'improved' categories) separated for males and females on or near the premises.

Basic handwashing facilities are defined as functional handwashing facilities, with soap and water available to all girls and boys.

Rationale and Interpretation:

This indicator reflects the level of access in schools to key basic services and facilities that are necessary to ensure a safe and effective learning environment for all students.

A high value indicates that schools have good access to the relevant services and facilities. Ideally, each school should have access to all these services and facilities.

Data Sources and Collection Method

The data required to calculate this indicator are available through administrative records from schools and other providers of education and training.

Ministries of Education or National Statistical Offices are typical sources of such data.

Method of Computation and Other Methodological Considerations**Computation Method:**

Divide the number of schools with access to the relevant facility in each level of education by the total number of schools for the same level of education and multiply the result by 100.

The indicator, $PS_{n,f}^t$ at the level n of education with access to facility f is defined as follows:

$$PS_{n,f}^t = \frac{S_{n,f}^t}{S_n^t} \times 100$$

here

$S_{n,f}^t$ is the number of schools at level n of education with access to facility f in reference year t

S_n^t is the total number of schools at the level n of education in reference year t

Comments and Limitations:

Nationally-published figures may differ from the international ones because of differences between national education systems and the International Standard Classification of Education (ISCED), or differences in coverage (i.e. the extent to which different types of education – e.g. private or special education – are included in one rather than the other).

The indicator measures the existence in schools of the given service or facility but not its quality or operational state.

Proxy, alternative and additional indicators: N/A

Data Disaggregation

This indicator can be disaggregated by level of education and location.

References

Official SDG Metadata URL

<https://unstats.un.org/sdgs/metadata/files/Metadata-04-0A-01.pdf>

UNESCO Institute for Statistics. (2017a). *Metadata for the global and thematic indicators for the follow-up and review of SDG 4 and Education 2030*. Accessible at: http://uis.unesco.org/sites/default/files/documents/metadata-global-thematic-indicators-sdg4-education2030-2017-en_1.pdf

Internationally agreed methodology and guideline URL

UNESCO Institute for Statistics (UIS) (2009). *Guide to Measuring Information and Communication Technologies in Education*. Montreal: UIS. Accessible at: <http://unesdoc.unesco.org/images/0018/001865/186547e.pdf>

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Other references

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Country examples

To view the latest available data: <http://data.uis.unesco.org>

International Organization(s) for Global Monitoring

This document was prepared based on inputs from United Nations Educational, Scientific and Cultural Organization (UNESCO) Institute for Statistics (UIS).

For focal point information for this indicator, please visit <https://unstats.un.org/sdgs/dataContacts/>

Indicator 4.b.1

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Indicator Name, Target and Goal

Indicator 4.b.1: Volume of official development assistance flows for scholarships by sector and type of study

Target 4.b: By 2020, substantially expand globally the number of scholarships available to developing countries, in particular least developed countries, small island developing States and African countries, for enrolment in higher education, including vocational training and information and communications technology, technical, engineering and scientific programmes, in developed countries and other developing countries

Goal 4: Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all

Definition and Rationale

Definition:

The indicator is defined as the gross disbursements of total Official Development Assistance (ODA) from all donors for scholarships.

Concepts:

The Development Assistance Committee (DAC) defines *ODA* as those flows to countries and territories on the DAC list of ODA recipients and multilateral institutions which are:

- (1) Provided by official agencies, including state and local governments, or by their executive agencies; and
- (2) Each transaction of which:
 - a. is administered with the promotion of the economic development and welfare of developing countries as its main objective; and
 - b. is concessional in character and conveys a grant element of at least 25 percent (calculated at a rate of discount of 10%).

Scholarships are financial aid awards for individual students and contributions to trainees. The beneficiary students and trainees are nationals of developing countries. Financial aid awards include bilateral grants to students registered for systematic instruction in private or public institutions of higher education to follow full-time studies or training courses in the donor country. Estimated tuition costs of students attending schools financed by the donor but not receiving individual grants are not included here, but under item imputed student costs (CRS type of aid E01). Training costs relate to contributions for trainees from developing countries receiving mainly non-academic, practical or vocational training in the donor country.

Rationale and Interpretation:

Total ODA flows to developing countries quantify the global public effort that donors provide to developing countries as educational scholarships.

Data Sources and Collection Method

The OECD/DAC has been collecting data on official and private resource flows from 1960 at an aggregate level and 1973 at an activity level through the CRS (CRS data are considered complete from 1995 for commitments at an activity level and 2002 for disbursements).

A statistical reporter is responsible for the collection of DAC statistics in each providing country/agency. This reporter is usually located in the national aid agency, the Ministry of Foreign Affairs or Finance etc.

Method of Computation and Other Methodological Considerations

Computation Method:

This indicator is calculated as the sum of all ODA flows from all donors to developing countries in the form of scholarships, as reported to the OECD's Creditor Reporting System (CRS) by donor countries.

Comments and limitations:

DAC statistics are standardized on a calendar year basis for all donors and may differ from fiscal year data available in budget documents for some countries.

Data in the Creditor Reporting System are available from 1973. However, the data coverage is considered complete from 1995 for commitments at an activity level and 2002 for disbursements. Data for scholarships are only available since 2010 when the new typology of aid was introduced in DAC statistics.

Proxy, alternative and additional indicators: N/A

Data Disaggregation

The data are available at an activity level and can therefore be disaggregated by donor, recipient, type of flow, sector etc. (see <http://www.oecd.org/dac/financing-sustainable-development/development-finance-standards/dacandcrscodelists.htm>).

References

Official SDG Metadata URL

<https://unstats.un.org/sdgs/metadata/files/Metadata-04-0B-01.pdf>

Internationally agreed methodology and guideline URL

<http://www.oecd.org/dac/stats/methodology.htm>

Other references

N/A

Country examples

N/A

International Organization(s) for Global Monitoring

This document was prepared based on inputs from Organization for Economic Cooperation and Development (OECD)

For focal point information for this indicator, please visit <https://unstats.un.org/sdgs/dataContacts/>

Indicator 4.c.1

Contents

- Indicator Name, Target and Goal
- Definition and Rationale
- Data Sources and Collection Method
- Method of Computation and Other Methodological Considerations
- Data Disaggregation
- References
- International Organization(s) for Global Monitoring

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Indicator Name, Target and Goal

Indicator 4.c.1: Proportion of teachers in: (a) pre-primary; (b) primary; (c) lower secondary; and (d) upper secondary education who have received at least the minimum organized teacher training (e.g. pedagogical training) pre-service or in-service required for teaching at the relevant level in a given country

Target 4.c: By 2030, substantially increase the supply of qualified teachers, including through international cooperation for teacher training in developing countries, especially least developed countries and small island developing States

Goal 4: Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all

Definition and Rationale

Definition:

This indicator is defined as the percentage of teachers by level of education taught (pre-primary, primary, lower secondary and upper secondary education) who have received at least the minimum organized pedagogical teacher training pre-service and in-service required for teaching at the relevant level in a given country.

Concepts:

A teacher is *trained* if they have received at least the minimum organized pedagogical teacher training pre-service and in-service required for teaching at the relevant level in each country.

Rationale and Interpretation:

Teachers play a key role in ensuring the quality of education provided. Ideally all teachers should receive adequate, appropriate and relevant pedagogical training to teach at the chosen level of education and be academically well-qualified in the subject(s) they are expected to teach. This indicator measures the share of the teaching work force which is pedagogically well-trained.

A high value indicates that most students are being taught by teachers who are pedagogically well-trained to teach.

Data Sources and Collection Method

The data for this indicator come from administrative data from schools and other organized learning centres.

Ministries of Education and National Statistical Offices are typical sources of such data.

Method of Computation and Other Methodological Considerations

Computation Method:

This indicator is calculated by dividing the number of trained teachers at each level of education by the total number of teachers at the same level and multiplying the result by 100.

The percentage of trained teachers for each level of education (n), who are trained or have a minimum level of organized teacher training, PTT_n^t is calculated as follows:

$$PTT_n^t = \frac{TT_n^t}{T_n^t} \times 100$$

where

TT_n^t is the number of trained teachers at level n of education in reference year t

T_n^t is the total number of teachers at level n of education in reference year t

Comments and limitations:

National minimum training requirements can vary widely from one country to the next. This variability between countries lessens the usefulness of global tracking because the indicator would only show the percent reaching national standards, not whether teachers in different countries have similar levels of training. Further work would be required if a common standard for teacher training is to be applied across countries.

Proxy, alternative and additional indicators: N/A

Data Disaggregation

This indicator can be disaggregated by sex, level of education, type of institution (public/private) and by location (urban/rural).

References

Official SDG Metadata URL

<https://unstats.un.org/sdgs/metadata/files/Metadata-04-0C-01.pdf>

UNESCO Institute for Statistics. (2017a). *Metadata for the global and thematic indicators for the follow-up and review of SDG 4 and Education 2030*. Accessible at: http://uis.unesco.org/sites/default/files/documents/metadata-global-thematic-indicators-sdg4-education2030-2017-en_1.pdf

Internationally agreed methodology and guideline URL

http://uis.unesco.org/sites/default/files/documents/uis_ed_m_2016_0.pdf

UNESCO Institute for Statistics (UIS) (2017). *Instruction Manual: Survey of Formal Education*. Montreal: UIS. Accessible at: <http://uis.unesco.org/sites/default/files/documents/instruction-manual-survey-formal-education-2017-en.pdf>

UNESCO Institute for Statistics (UIS) (2016). *UIS Questionnaire on Students and Teachers (ISCED 0-4)*. Montreal: UIS. Accessible at: <http://uis.unesco.org/en/uis-questionnaires>

UNESCO Institute for Statistics (UIS) (2012a). *International Standard Classification of Education (ISCED) 2011*. Montreal: UIS. Accessible at: <http://uis.unesco.org/sites/default/files/documents/international-standard-classification-of-education-isced-2011-en.pdf>

UNESCO Institute for Statistics (UIS) (2018). Glossary. Accessible at: <http://uis.unesco.org/en/glossary>

Other references

None.

Country examples

To view the latest available data: <http://data.uis.unesco.org>

International Organization(s) for Global Monitoring

This document was prepared based on inputs from United Nations Educational, Scientific and Cultural Organization (UNESCO) Institute for Statistics (UIS).

For focal point information for this indicator, please visit <https://unstats.un.org/sdgs/dataContacts/>

Goal 5

Achieve gender equality and empower all women and girls

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**In this goal:**

United Nations Statistics Division (UNSD) worked in consultation with each indicators' custodian agency(ies) to prepare these chapters. For indicators that do not have chapters here yet, they are currently being prepared and they will be uploaded here as soon as they become available.

If you have any questions on the e-Handbook, do not hesitate to contact Shaswat Sapkota (sapkotas@un.org).

Indicator 5.1.1

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- Data Sources and Collection Method

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- Method of Computation and Other Methodological Considerations
- Data Disaggregation
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Indicator Name, Target and Goal

Indicator 5.1.1: Whether or not legal frameworks are in place to promote, enforce and monitor equality and non-discrimination on the basis of sex

Target 5.1: End all forms of discrimination against all women and girls everywhere

Goal 5: Achieve gender equality and empower all women and girls

Definition and Rationale

Definition:

This indicator measures government efforts to put in place legal frameworks that promote, enforce and monitor gender equality. The legal frameworks are assessed using a questionnaire comprising 44 binary questions under four areas: overarching legal frameworks and public life; violence against women; employment and economic benefits; marriage and family.

Concepts:

The term “legal frameworks” is defined broadly to encompass laws, mechanisms and policies/plans to promote, enforce and monitor gender equality.

Questionnaire

Area 1: Overarching legal frameworks and public life

Promote

1. If customary law is a valid source of law under the constitution, is it invalid if it violates constitutional provisions on equality or nondiscrimination?
2. If personal law is a valid source of law under the constitution, is it invalid if it violates constitutional provisions on equality or nondiscrimination?
3. Is there a discrimination law that prohibits both direct and indirect discrimination against women?
4. Do women and men enjoy equal rights and access to hold public and political office (legislature, executive, judiciary)?
5. Are there quotas for women (reserved seats) in national parliament?
6. Are there quotas for women in candidate lists for national parliament?
7. Do women and men have equal rights to confer citizenship to their spouses and their children?

Enforce and monitor

8. Does the law establish a specialized independent body tasked with receiving complaints of discrimination based on gender (e.g., national human rights institution, women's commission, ombudsperson)?
9. Is legal aid mandated in criminal matters?
10. Is legal aid mandated in civil/family matters?
11. Does a woman's testimony carry the same evidentiary weight in court as a man's?
12. Are there laws that explicitly require the production and/or dissemination of gender statistics?
13. Are there sanctions for noncompliance with mandated quotas for women or incentives to include women on candidate lists for national parliamentary elections?

Area 2: Violence against women

Promote

14. Is there legislation on domestic violence that includes physical violence?
15. Is there legislation on domestic violence that includes sexual violence?

16. Is there legislation on domestic violence that includes psychological/emotional violence?
17. Is there legislation on domestic violence that includes financial/economic violence?
18. Have provisions exempting perpetrators from facing charges for rape if the perpetrator marries the victim after the crime been removed, or never existed in legislation?
19. Have provisions reducing penalties in cases of so called honour crimes been removed, or never existed in legislation?
20. Are laws on rape based on lack of consent, without requiring proof of physical force or penetration?
21. Does legislation explicitly criminalize marital rape
22. Is there legislation that specifically addresses sexual harassment?

Enforce and monitor

23. Are there budgetary commitments provided for by government entities for the implementation of legislation addressing violence against women by creating an obligation on government to provide budget or allocation of funding for the implementation of relevant programmes or activities?
24. Are there budgetary commitments provided for by government entities for the implementation of legislation addressing violence against women by allocating a specific budget, funding and/or incentives to support non-governmental organizations for activities to address violence against women?
25. Is there is a national action plan or policy to address violence against women that is overseen by a national mechanism with the mandate to monitor and review implementation?

Area 3: Employment and economic benefits

Promote

26. Does the law mandate nondiscrimination on the basis of gender in employment?
27. Does the law mandate equal remuneration for work of equal value?
28. Does the law allow women to do the same jobs as men?
29. Does the law allow women to work the same night hours as men?
30. Does the law provide for maternity or parental leave available to mothers in accordance with the ILO standards?
31. Does the law provide for paid paternity or parental leave available to fathers or partners?

Enforce and monitor

32. Is there a public entity that can receive complaints on gender discrimination in employment?
33. Is childcare publicly provided or subsidized?

Area 4: Marriage and family

Promote

34. Is the minimum age of marriage at least 18, with no legal exceptions, for both women and men?
35. Do women and men have equal rights to enter marriage (i.e. consent) and initiate divorce?
36. Do women and men have equal rights to be legal guardian of their children during and after marriage?
37. Do women and men have equal rights to be recognized as head of household or head of family?
38. Do women and men have equal rights to choose where to live?
39. Do women and men have equal rights to choose a profession?
40. Do women and men have equal rights to obtain an identity card?
41. Do women and men have equal rights to apply for passports?
42. Do women and men have equal rights to own, access and control marital property including upon divorce?

Enforce and monitor

43. Is marriage under the legal age void or voidable?
44. Are there dedicated and specialized family courts?

Rationale and Interpretation:

Equality and non-discrimination on the basis of sex are core principles under the international legal and policy framework, including the Convention on the Elimination of All Forms of Discrimination against Women (CEDAW), which has 189 States parties, and the Beijing Platform for Action. This framework sets out the commitments of States to eliminate discrimination against women and promote gender equality, including in the area of legal frameworks.

In the Beijing Platform for Action, States pledged to revoke any remaining laws that discriminate on the basis of sex. The five-year review and appraisal of the Beijing Platform for Action (Beijing + 5) established 2005 as the target date for the repeal of laws that discriminate against women. This deadline has come and gone. While there has been progress in reforming laws to promote gender equality, discrimination against women in the law continues in many countries. Even where legal reforms have taken place, gaps in implementation persist.

Removing discriminatory laws and putting in place legal frameworks that advance gender equality are prerequisites to ending discrimination against women and achieving gender equality (Goal 5, Target 5.1). Indicator 5.1.1 will be crucial in accelerating progress on the implementation of SDG 5 and all other gender-related commitments in the 2030 Agenda for Sustainable Development.

Data Sources and Collection Method

The data for the indicator are derived from an assessment of legal frameworks using primary sources/official government documents, in particular laws, policies/action plans. The assessment is carried out by national counterparts, including National Statistical Offices (NSOs) and/or National Women's Machinery (NWMs), and legal practitioners/researchers on gender equality, using the questionnaire.

Countries are asked to designate a focal point to undertake the coordination at the country level necessary for the collection and validation of the data. Most designated focal points are within the NWMs, a number are within the NSOs and some are within both the NWMs and the NSOs. After verification, the data with relevant laws, policies and other sources included, are sent to the designated focal points/country counterparts to review and validate. Final answers are arrived at after the process of validation with country counterparts.

Method of Computation and Other Methodological Considerations

Computation Method:

The answers to the questions are coded with simple "Yes/No" answers with "1" for "Yes" and "0" for "No". For questions 1 and 2 only, they may be scored "N/A" as well as "1" or "0". In countries where customary or personal law does not apply, these questions are scored as "N/A" and are not included as part of the overall score calculation for the area "overarching legal frameworks and public life".

The scoring methodology is the unweighted average of the questions under *each area* of legal frameworks calculated by:

$$A_i = \frac{q_1 + \dots + q_{m_i}}{m_i}$$

where A_i refers the area of legal frameworks i ; m_i refers to the total number of questions under the area of legal frameworks i ; and $q_j = 1$ if the answer is "Yes" and $q_j = 0$ if the answer is "No".

Results of the four areas are reported as percentages as a dashboard: A_1, A_2, A_3, A_4 . The choice of presenting all four area scores without further aggregation is the result of adopting the posture that high values in one area in a given country need not compensate in any way the country having low values in some other area, and that a comprehensive examination of the value of those four numbers for each country is potentially more informative than trying to summarize all four numbers into a single index.

The score for each area (a number between 0 and 100) represents the percentage of achievement of that country in that area, with 100 being best practice met on all questions in the area.

Comments and limitations:

To avoid duplication, the indicator does not cover areas of legal frameworks that are addressed under indicator 5.a.2, 'Proportion of countries where the legal framework (including customary law) guarantees women's equal rights to land ownership and/or control', and indicator 5.6.2, 'Number of countries with laws and regulations that guarantee full and equal access to women and men aged 15 years and older to sexual and reproductive health care, information and education'. Indicator 5.1.1 complements these other indicators.

Proxy, alternative and additional indicators: N/A

Data Disaggregation

N/A

References

Official SDG Metadata URL

<https://unstats.un.org/sdgs/metadata/files/Metadata-05-01-01.pdf>

Internationally agreed methodology and guideline URL

https://unstats.un.org/sdgs/files/meetings/iaeg-sdgs-meeting-07/Tier%20re-classification%20requests_web.zip (see Tier re-classification requests/5.1.1)

Other references

World Bank Group: <http://wbl.worldbank.org/>

OECD Development Centre: <http://www.genderindex.org/>

UN-Women: <http://data.unwomen.org/en>

International Organization(s) for Global Monitoring

This document was prepared based on inputs from UN-Women, World Bank, and OECD Development Centre.

For focal point information for this indicator, please visit <https://unstats.un.org/sdgs/dataContacts/>.

Indicator 5.2.1

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Indicator Name, Target and Goal

Indicator 5.2.1: Proportion of ever-partnered women and girls aged 15 years and older subjected to physical, sexual or psychological violence by a current or former intimate partner in the previous 12 months, by form of violence and by age

Target 5.2: Eliminate all forms of violence against all women and girls in the public and private spheres, including trafficking and sexual and other types of exploitation

Goal 5: Achieve gender equality and empower all women and girls

Definition and Rationale

Definition:

This indicator is defined as the percentage of ever-partnered women and girls aged 15 years and above who have experienced physical, sexual or psychological violence by a current or former intimate partner, in the past 12 months.

Concepts:

Physical violence consists of acts aimed at physically hurting the victim.

Sexual violence is defined as any sort of harmful or unwanted sexual behaviour that is imposed on someone.

Psychological violence includes a range of behaviours that encompass acts of emotional abuse and.

Intimate partner refers to a current or former partner within the context of marriage, cohabitation or any other formal or informal union.

More detailed definitions and behaviours that can be attributed to each of the three aforementioned forms of violence can be found in the

Guidelines for Producing Statistics on Violence against Women – Statistical Surveys (UN, 2014).

Rationale and Interpretation:

Violence against women and girls is the most common form of gender-based violence. This indicator provides prevalence data that is required to measure the magnitude of this problem, understand the various forms of violence and their consequences, identify high-risk groups, explore the barriers to seeking help, and ensure that appropriate responses are being provided. Tracking this indicator over time allows for monitoring change and assess the effectiveness of interventions.

Data Sources and Collection Method

The primary source of data for this indicator are specialized national surveys dedicated to measuring violence against women, and international household surveys that include a module on experience of violence by women such as the Demographic and Health Survey (DHS). For further information on data sources and collection methods, see: *UN Guidelines for Producing Statistics on Violence Against Women – Statistical Surveys (UN, 2014)*. The module should be administered to all ever-partnered women and not only to currently partnered women.

It is to be noted that, though, administrative data from health, police, courts, justice and social services etc. used by survivors of violence, can provide valuable information about service use, this incidence data is insufficient for producing prevalence data.

Method of Computation and Other Methodological Considerations

Computation Method:

The percentage of ever-partnered women and girls of age group a who experienced one or more types of violence ($P_{v,a}$) in the past 12 months can be calculated using the following formula:

$$P_{v,a} = \frac{W_{v,a}}{W_{Total}} \times 100$$

where,

$W_{v,a}$ is the number of ever-partnered women of age group a who experienced one or more types of violence in the past 12 months;

W_{Total} is the total number of ever-partnered women of age group a in the country; and

v denotes the combination of one or more type of violence experienced by the women.

This indicator should be computed separately for (v) physical violence only, sexual violence only, psychological violence only, any form of physical and/or sexual violence, and any form of physical, sexual and/or psychological violence.

Comments and limitations:

The availability of comparable data remains a challenge in this area due to differences in survey methodologies, different definitions of partner or spousal violence and of the different forms of violence, different survey question formulations, and different age groups. Willingness to discuss experiences of violence and understanding of relevant concepts may also differ according to the cultural context, and may lead to under-reporting of prevalence levels.

Gathering data on violence against women is costly and time-consuming, whether they are collected using dedicated surveys or through added modules of existing household surveys. Furthermore, prevalence is unlikely to change in the short term without major investments at all levels across sectors. Therefore, the periodicity of this indicator need not be every 5 years, or even more, if financial resources are unavailable.

Surveys on violence against women require particular attention to safety and ethical dimensions, including ensuring all interviews are conducted in privacy, the data is treated confidentially and that women provide their informed consent. For more detailed information see *Putting women first. Ethical and safety recommendations for research on domestic violence against women (WHO, 2001)*

Proxy, alternative and additional indicators:

The percentage of women 15-49 who have experienced physical and/or sexual violence by a current or former intimate partner, in the past 12 months can be a proxy indicator. This is because comparable data are currently only available for a subset of girls and women aged 15 to 49 years and the fact that there is no agreement on a standard operational definition for psychological violence. The proxy indicator, for which comparable data are available, is being used while the SDG indicator's definition is being operationalized.

Data Disaggregation

This indicator is required to be disaggregated by the type of violence and age. It can also be disaggregated by income/wealth, education, ethnicity (including indigenous status), disability status, geographic location and frequency of violence.

References

Official SDG Metadata URL

<https://unstats.un.org/sdgs/metadata/files/Metadata-05-02-01.pdf>

Internationally agreed methodology and guideline URL

United Nations (2014). *Guidelines for Producing Statistics on Violence Against Women – Statistical Surveys*. New York. https://unstats.un.org/unsd/gender/docs/Guidelines_Statistics_VAW.pdf

Other references

UNICEF Briefing Notes on SDG Indicators:

UNICEF. *Briefing notes on SDG global indicators related to children*. Available at <https://data.unicef.org/resources/sdg-global-indicators-related-to-children/>

Additional References:

United Nations (2015). *The World's Women 2015 – Trends and Statistics*. New York. Internet site: <https://unstats.un.org/unsd/gender/worldswomen.html>

WHO (2013). *Global and regional estimates of violence against women: prevalence and health effects of intimate partner violence and non-partner sexual violence*. Geneva. Available at: <http://www.who.int/reproductivehealth/publications/violence/9789241564625/en/>

UN Women. *Global Database on Violence against Women*. Internet site: <http://evaw-global-database.unwomen.org/en>

UNICEF. *Data Portal – Child Protection*. Internet site: <http://data.unicef.org/child-protection/violence.html>

UNSD. *Portal on the minimum set of gender indicators*. Internet site: <https://genderstats.un.org/#/home>

UNSD. *Dedicated portal for data and metadata on violence against women*. Internet site: <http://unstats.un.org/unsd/gender/vaw/>

WHO. *Putting women first. Ethical and safety recommendations for research on domestic violence against women* (WHO, 2001)

Country examples

N/A

International Organization(s) for Global Monitoring

This document was prepared based on inputs from United Nations Children's Fund (UNICEF), United Nations Entity for Gender Equality and the Empowerment of Women (UN Women), United Nations Population Fund (UNFPA), World Health Organization (WHO) and United Nations Office on Drugs and Crime (UNODC), United Nations Development Programme (UNDP), and United Nations Statistics Division (UNSD).

For focal point information for this indicator, please visit <https://unstats.un.org/sdgs/dataContacts/>

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Indicator 5.2.2

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Indicator Name, Target and Goal

Indicator 5.2.2: Proportion of women and girls aged 15 years and older subjected to sexual violence by persons other than an intimate partner in the previous 12 months, by age and place of occurrence

Target 5.2: Eliminate all forms of violence against all women and girls in the public and private spheres, including trafficking and sexual and other types of exploitation

Goal 5: Achieve gender equality and empower all women and girls

Definition and Rationale

Definition:

This indicator is defined as the percentage of ever-partnered women and girls aged 15 years and above who have experienced sexual violence by persons other than an intimate partner, in the past 12 months

Concepts:

Intimate partner refers to a current or former partner within the context of marriage, cohabitation or any other formal or informal union.

Sexual violence is defined as any sort of harmful or unwanted sexual behaviour that is imposed on someone.

More detailed definition of sexual violence can be found in the Guidelines for Producing Statistics on Violence against Women—Statistical Surveys (UN, 2014).

Rationale and Interpretation:

Violence against women and girls is one of the most pervasive forms of human rights violations in the world. Evidence has shown that globally, an estimated 7% of women have been sexually assaulted by someone other than a partner at some point in their lives (WHO et al., 2013). Having data on this indicator will help understand the extent and nature of this form of violence and develop appropriate policies and programmes. Tracking this indicator over time allows for monitoring change and assess the effectiveness of interventions.

Data Sources and Collection Method

The primary source of data for this indicator are specialized national surveys dedicated to measuring violence against women, and international household surveys that include a module on experience of violence by women such as the Demographic and Health Survey (DHS). For further information on data sources and collection methods, see: *UN Guidelines for Producing Statistics on Violence Against Women – Statistical Surveys (UN, 2014)*. The module should be administered to all ever-partnered women and not only to currently partnered women.

It is to be noted that, though, administrative data from health, police, courts, justice and social services etc. used by survivors of violence, can provide valuable information about service use, this incidence data is insufficient for producing prevalence data.

Method of Computation and Other Methodological Considerations

Computation Method:

The percentage of women and girls of aged 15 years and above subjected to sexual violence by persons other than an intimate partner (P_{sv}) in the past 12 months can be calculated using the following formula:

$$P_{sv} = \frac{W_{sv}}{W_T} \times 100$$

where,

W_{sv} is the number of women and girls aged 15 years and above who experienced sexual violence by persons other than an intimate partner in the previous 12 months; and

W_T is the total number of women and girls aged 15 years and above in the country.

Comments and limitations:

The availability of comparable data remains a challenge in this area due to differences in survey methodologies, different definitions of partner or spousal violence and of the different forms of violence, different survey question formulations, and different age groups. Willingness to discuss experiences of violence and understanding of relevant concepts may also differ according to the cultural context, and may lead to under-reporting of prevalence levels.

Gathering data on violence against women is costly and time-consuming, whether they are collected using dedicated surveys or through

added modules of existing household surveys. Furthermore, prevalence is unlikely to change in the short term without major investments at all levels and across sectors. Therefore, the periodicity of this indicator need not be more than every 5 years, or even more if financial resources are unavailable.

Surveys on violence against women require particular attention to safety and ethical dimensions, including ensuring all interviews are conducted in privacy, the data is treated confidentially and that women provide their informed consent. For more detailed information see *Putting women first. Ethical and safety recommendations for research on domestic violence against women* (WHO, 2001)

Proxy, alternative and additional indicators: N/A

Data Disaggregation

This indicator requires disaggregation by age group and place of occurrence. No standard definitions and methods have been globally agreed to yet for the collection of data regarding the place where violence occurs. Therefore, it is not yet required.

In addition to age, disaggregation by income/wealth, education, ethnicity (including indigenous status), disability status, geographic location, relationship with perpetrator (including sex of perpetrator) and frequency and type of violence (as proxy to severity), can be beneficial.

References

Official SDG Metadata URL

<https://unstats.un.org/sdgs/metadata/files/Additional-SDG-indicator-metadata-JUL2017.zip>

Internationally agreed methodology and guideline URL

United Nations (2014). *Guidelines for Producing Statistics on Violence Against Women – Statistical Surveys*. New York. https://unstats.un.org/unsd/gender/docs/Guidelines_Statistics_VAW.pdf

Other references

United Nations (2015). *The World's Women 2015 – Trends and Statistics*. New York. Internet site: <https://unstats.un.org/unsd/gender/worldswomen.html>

WHO (2013). *Global and regional estimates of violence against women: prevalence and health effects of intimate partner violence and non-partner sexual violence*. Geneva. Available at: <http://www.who.int/reproductivehealth/publications/violence/9789241564625/en/>

UN Women. *Global Database on Violence against Women*. Internet site: <http://evaw-global-database.unwomen.org/en>

UNICEF. *Data Portal – Child Protection*. Internet site: <http://data.unicef.org/child-protection/violence.html>

UNSD. *Portal on the minimum set of gender indicators*. Internet site: <https://genderstats.un.org/#/home>

UNSD. *Dedicated portal for data and metadata on violence against women*. Internet site: <http://unstats.un.org/unsd/gender/vaw/>

WHO. *Putting women first. Ethical and safety recommendations for research on domestic violence against women* (WHO, 2001)

Country examples

N/A

International Organization(s) for Global Monitoring

This document was prepared based on inputs from United Nations Children's Fund (UNICEF), United Nations Entity for Gender Equality and the Empowerment of Women (UN Women), United Nations Population Fund (UNFPA), World Health Organization (WHO) and United Nations Office on Drugs and Crime (UNODC), United Nations Development Programme (UNDP), and United Nations Statistics Division (UNSD).

For focal point information for this indicator, please visit <https://unstats.un.org/sdgs/dataContacts/>

Indicator 5.3.1

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Indicator Name, Target and Goal

Indicator 5.3.1: Proportion of women aged 20-24 years who were first married or in a union before age 15 and before age 18

Target 5.3: Eliminate all harmful practices, such as child, early and forced marriage and female genital mutilation

Goal 5: Achieve gender equality and empower all women and girls

Definition and Rationale

This indicator is defined as the percentage of women aged 20-24 years who were first married or in a union before age 15 and before age 18.

Concepts:

Unions refers to both formal (i.e. marriage) and informal cohabiting unions.

-Informal union refers to couples living together as if married, but for which there has been no civil or religious ceremony (cohabitation).

Rationale and Interpretation:

Marriage before the age of 18 is a fundamental violation of human rights. Child marriages often compromise a girl's development by resulting in early pregnancy and social isolation, interrupting her schooling, limiting her opportunities for career and vocational advancement and placing her at an increased risk of intimate partner violence. Child marriage is a direct manifestation of gender inequality and against several international conventions and agreements.

The monitoring of this indicator over time would help observe change and assess the effectiveness of policy interventions to eliminate this harmful practice.

Data Sources and Collection Method

This data is collected through national censuses or national household surveys which have modules linked to marital status and age at first union of men and women of reproductive age. These surveys are generally conducted by the ministries of health or national statistical offices. The most commonly available sources of nationally representative and internationally-comparable data are the UNICEF-supported MICS and the USAID-supported DHS.

Method of Computation and Other Methodological Considerations

Computation Method:

The percentage of women aged 20-24 years who were married or in a union (P_{CM}) before the age a can be calculated as:

$$P_{CM} = \frac{W_a}{W_{Total}} \times 100$$

where,

W_a is the number of women aged 20-24 years who were first married or in union before age 15 (or before age 18); and

W_{Total} is the total number of women aged 20-24 years.

Comments and limitations:

The modules used to collect information on marital status and age at first union among women and men of reproductive age (15-49 years) have been fully harmonized between the Demographic and Health Survey (DHS) and Multiple Indicator Cluster Survey (MICS).

Proxy, alternative and additional indicators: N/A

Data Disaggregation

This indicator can be disaggregated by age, income, place of residence, geographic location, education and ethnicity (for some countries).

References

Official SDG Metadata URL

<https://unstats.un.org/sdgs/metadata/files/Metadata-05-03-01.pdf>

Internationally agreed methodology and guideline URL

UNICEF. *MICS6 Tools*. <http://mics.unicef.org/tools>

Other references:

UNICEF Briefing Notes on SDG Indicators:

UNICEF. *Briefing notes on SDG global indicators related to children*. Available at <https://data.unicef.org/resources/sdg-global-indicators-related-to-children/>

Additional References:

UNICEF. *Child Marriage*. New York. Available at: <http://data.unicef.org/topic/child-protection/child-marriage/>

Country examples

N/A

International Organization(s) for Global Monitoring

This document was prepared based on inputs from United Nations Children's Fund (UNICEF).

For focal point information for this indicator, please visit <https://unstats.un.org/sdgs/dataContacts/>

Indicator 5.3.2

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Indicator Name, Target and Goal

Indicator 5.3.2: Proportion of girls and women aged 15-49 years who have undergone female genital mutilation/cutting, by age

Target 5.3: Eliminate all harmful practices, such as child, early and forced marriage and female genital mutilation

Goal 5: Achieve gender equality and empower all women and girls

Definition and Rationale

Definition:

This indicator is defined as the percentage of girls and women aged 15-49 years who have undergone female genital mutilation/cutting.

Concepts:

Female genital mutilation/cutting (FGM/C) refers to all procedures involving partial or total removal of the female external genitalia or other injury to the female genital organs for non-medical reasons.

Rationale and Interpretation:

FGM/C is a violation of girls' and women's human rights. There is a large body of literature documenting the adverse health consequences of FGM/C over both the short and long term. The practice of FGM/C is a direct manifestation of gender inequality.

FGM/C is condemned by a number of international treaties and conventions. Since FGM/C is regarded as a traditional practice prejudicial to the health of children and is, in most cases, performed on minors, it violates the Convention on the Rights of the Child. Existing national legislation in many countries also include explicit bans against FGM/C.

The monitoring of this indicator over time is expected to help observe change in affected countries and assess the effectiveness of policy interventions to eliminate this harmful practice.

Data Sources and Collection Method

This data is collected through national household surveys which have questions in which women aged 15 to 49 self-report their experience of FGM/C, and report on their daughters' experience of the practice (for daughters aged 0-14). These surveys are generally conducted by the ministries of health or national statistical offices. The most commonly available sources of nationally representative and internationally comparable data are the UNICEF-supported MICS and the USAID-supported DHS.

Method of Computation and Other Methodological Considerations**Computation Method:**

The proportion of girls and women aged 15-49 years who have undergone FGM/C ($P_{FGM/C}$) can be calculated as:

$$P_{FGM/C} = \frac{W_{FGM/C}^{15-49}}{W_{Total}^{15-49}} \times 100$$

where,

$$W_{FGM/C}^{15-49}$$

is the number of girls and women aged 15-49 years who have undergone FGM/C; and

$$W_{Total}^{15-49}$$

is the total number of girls and women aged 15-49 years.

The indicator can similarly be calculated for smaller age cohorts, including among girls aged 15-19 years, which represents the most recent estimate of prevalence since this is the age group which has most recently completed exposure to the risk period.

Comments and limitations:

The modules used to collect information on the FGM/C status of girls aged 0-14 years and girls and women aged 15-49 years have been fully harmonized between the Demographic and Health Survey (DHS) and Multiple Indicator Cluster Survey (MICS). Please see the statistical overview reference below for more details on methodological issues.

Proxy, alternative and additional indicators: N/A

Data Disaggregation

This indicator is required to be disaggregated by age, and is typically reported among five-year age cohorts from 15 to 49 years. However, it can also be disaggregated by income, place of residence, geographic location, education and ethnicity (for some countries).

References

Official SDG Metadata URL

<https://unstats.un.org/sdgs/metadata/files/Metadata-05-03-02.pdf>

Internationally agreed methodology and guideline URL

<https://data.unicef.org/topic/child-protection/female-genital-mutilation/>

Other referencesUNICEF Briefing Notes on SDG Indicators:

UNICEF. *Briefing notes on SDG global indicators related to children*. Available at <https://data.unicef.org/resources/sdg-global-indicators-related-to-children/>

Additional References:

UNICEF. *Female Genital Mutilation and Cutting*. New York. Available at: <http://data.unicef.org/topic/child-protection/female-genital-mutilation-and-cutting/>

United Nations Children's Fund, *Female Genital Mutilation/Cutting: A statistical overview and exploration of the dynamics of change*, UNICEF, New York, 2013. Available at: https://data.unicef.org/wp-content/uploads/2015/12/FGMC_Lo_res_Final_26.pdf

WHO. *Eliminating female genital mutilation. An intraagency statement*. Available at: <http://www.who.int/reproductivehealth/publications/fgm/9789241596442/en/>

Country examples

N/A

International Organization(s) for Global Monitoring

This document was prepared based on inputs from United Nations Children's Fund (UNICEF).

For focal point information for this indicator, please visit <https://unstats.un.org/sdgs/dataContacts/>

Indicator 5.4.1

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Indicator Name, Target and Goal

Indicator 5.4.1: Proportion of time spent on unpaid domestic and care work, by sex, age and location

Target 5.4: Recognize and value unpaid care and domestic work through the provision of public services, infrastructure and social protection policies and the promotion of shared responsibility within the household and the family as nationally appropriate

Goal 5: Achieve gender equality and empower all women and girls

Definition and Rationale**Definition:**

This indicator is defined as the proportion of time spent in a day on unpaid domestic and care work by men and women. Unpaid domestic and care work refers to activities related to the provision of services for own final use by household members, or by family members living in other households. These activities are listed in ICATUS 2016 under the major divisions "3. Unpaid domestic services for household and family members" and "4. Unpaid caregiving services for household and family members".

Concepts:

Unpaid domestic and care work refers to activities including food preparation, dishwashing, cleaning and upkeep of the dwelling, laundry, ironing, gardening, caring for pets, shopping, installation, servicing and repair of personal and household goods, childcare, and care of the sick, elderly or disabled household and family members, among others. These activities are listed in ICATUS 2016 under the major divisions “3. Unpaid domestic services for household and family members” and “4. Unpaid caregiving services for household and family members”.

Rationale and Interpretation:

Time use statistics:

- (1) provide a measure of quality of life or general wellbeing of individuals and households;
- (2) offer a more comprehensive measurement of all forms of work, including unpaid household service work;
- (3) produce data relevant for monitoring gender equality and the empowerment of women and girls and are essential inputs for the policy and political dialogue on gender equality.

Data Sources and Collection Method

Most data on time-use are collected through dedicated national time-use surveys or from time-use modules that are integrated into multi-purpose household surveys.

In most countries, national statistical offices are responsible for collecting and compiling this data.

Method of Computation and Other Methodological Considerations

Computation Method:

Proportion of time spent on unpaid domestic and care work () is calculated as:

$$\text{Indicator 5.4.1} = \frac{\text{Daily number of hours spent on domestic work} + \text{Daily number of hours spent on care work}}{24} \times 100$$

where

$$\text{Daily number of hours spent on relevant activities} = \frac{\text{Total number of hours spent by the population on relevant activities}}{\text{Total population (regardless of whether they participated in the activity)}}$$

If data on time spent are weekly, data are averaged over seven days of the week to obtain daily time spent.

Comments and limitations:

International comparability of time-use statistics is limited by the following factors:

- (1) Type of instrument used for time-use data collection. i.e. whether data are collected using a 24-hour diary, a light diary or a stylized questionnaire. The 24-hour time diary yields more granulated data than the stylized questionnaire but it is a more expensive mode of data collection. Data obtained from these two different data collection methods are usually not comparable, and even data collected with different stylized questions might not be comparable given that the level of details asked about activities performed might differ from one instrument to another, thus impacting the total time spent on a given activity;
- (2) Differences in time-use activity classifications used by countries;
- (3) Way of reporting time spent on main and secondary activities. To the extent possible, data presented at the global level refer to the “main activity” only;
- (4) Differences in the target age population and age groups used by countries.

Proxy, alternative and additional indicators: N/A

Data Disaggregation

This indicator should be disaggregated by the following dimensions: sex, age and location.

The categories for disaggregation, by dimension, are as follows:

- Sex: female/male;
- Age: the recommended age groups are: 15+, 15-24, 25-44, 45-54, 55-64 and 65+
- Location: urban/rural (following national definitions given the lack of international definition)

These categories have been recommended by the Inter-Agency and Expert Group on Gender Statistics (IAEG-GS) during its 11th meeting in Rome, Italy on 30-31 October 2017.

References

Official SDG Metadata URL

<https://unstats.un.org/sdgs/metadata/files/Metadata-05-04-01.pdf>

Internationally agreed methodology and guideline URL

UNSD (2005). *Guide to Producing Statistics on Time Use: Measuring Paid and Unpaid Work*. New York. Available at: https://unstats.un.org/unsd/publication/SeriesF/SeriesF_93E.pdf

UNSD (2016). *International Classification of Activities for Time-Use Statistics*. New York. Available at: <https://unstats.un.org/unsd/demographic-social/time-use/icatus-2016/>

Other references

ILO (2013). The Resolution concerning statistics of work, employment and labour underutilization. Geneva. Available at: http://www.ilo.org/global/statistics-and-databases/standards-and-guidelines/resolutions-adopted-by-international-conferences-of-labour-statisticians/WCMS_230304/lang-en/index.htm

Country examples

N/A

International Organization(s) for Global Monitoring

This document was prepared based on inputs from United Nations Entity for Gender Equality and the Empowerment of Women (UN Women) and United Nations Statistics Division (UNSD).

For focal point information for this indicator, please visit <https://unstats.un.org/sdgs/dataContacts/>

Indicator 5.5.1_b

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Indicator Name, Target and Goal

Indicator 5.5.1: Proportion of seats held by women in (a) national parliaments and (b) local governments

Target 5.5: Ensure women's full and effective participation and equal opportunities for leadership at all levels of decision-making in political, economic and public life

Goal 5: Achieve gender equality and empower all women and girls

Definition and Rationale

Definition:

Sub-indicator (b) is defined as the proportion of positions held by women in local government. It is expressed as a percentage of elected positions held by women in legislative/ deliberative bodies of local government.

Concepts:

Local government is one of the sub-national spheres of government and a result of decentralization, a process of transferring political, fiscal, and administrative powers from the central government to sub-national units of government distributed across the territory of a country to regulate and/or run certain government functions or public services on their own.

The definition of local government follows the 2008 System of National Accounts (SNA) distinction between central, state, and local government (para 4.129). Local government consists of local government units, defined in the SNA as "institutional units whose fiscal, legislative and executive authority extends over the smallest geographical areas distinguished for administrative and political purposes" (para 4.145). What constitutes local government of a given country is defined by that country's national legal framework, including national constitutions and local government acts or equivalent legislation.

Each local government unit typically includes a legislative/ deliberative body and an executive body. Legislative/ deliberative bodies, such as councils or assemblies, are formal entities with a prescribed number of members as per national or state legislation. They are usually elected by universal suffrage and have decision-making power, including the ability to issue by-laws, on a range of local aspects of public affairs.

Executive bodies, consisting of an executive committee or a mayor, may be elected, appointed or nominated and they prepare and execute decisions made by the legislative/ deliberative body.

Elected positions are the most common manner of selection of local government members. They are selected in local elections, based on a system of choosing political office holders in which the voters cast ballots for the person, persons or political party that they desire to see elected. The category of elected positions includes both elected persons who competed on openly contested seats and persons selected during the electoral processes on reserved seats or through a candidate quota.

By comparison, members selected on appointed positions (the least common manner of selection of local government members) are nominated, typically by government officials from higher-ranking tiers of government. Appointed members of local government are more frequent among the leadership positions, such as the heads of the executive body, representatives of specific groups (e.g., women, disadvantaged groups, youth); and, temporary committees/delegations/caretakers appointed by government officials when a council has been dissolved.

Rationale and Interpretation:

Women's and men's right to exercise their political rights on an equal basis, and at all levels of decision-making, is recognized in the SDGs and enshrined in many human and political rights declarations, conventions and resolutions agreed to by most countries in the world. Indicator 5.5.1b measures the degree to which gender balance has been achieved in, and women have equal access to, political decision-making in local government.

Indicator 5.5.1b complements the Indicator 5.5.1a on women in national parliaments, and accounts for the representation of women among the millions of members of local governments that influence (or have the potential to influence) the lives of local communities around the world. All tiers of local government are covered by the indicator, consistent with national legal frameworks defining local government.

Data Sources and Collection Method

Administrative data based on electoral records are the main source of data on elected members of local government, and the recommended data source for Indicator 5.5.1b. Electoral records are produced and upheld by Electoral Management Bodies (EMBs) or equivalent bodies tasked with organizing elections at local level. EMBs are part of the National Statistical System, and often specifically mentioned in the national statistics acts as producers of official statistics.

The use of electoral records to measure women's representation in local government and monitoring of Indicator 5.5.1b is cost-effective, straightforward and timely. No adjustments or estimates are necessary to transform the administrative information into statistics for monitoring the indicator. The conceptual framework at the basis of Indicator 5.5.1b is consistent with the conceptual framework at the basis of local elections, as both are provided by national legal framework. The data used to calculate Indicator 5.5.1b refer to information on election winners, disaggregated by sex, and the coverage of the reference population (in this case, the elected officials) should be complete. In countries where the electoral records are electronic and centralized, information on numbers of women and men in elected positions can be made available as soon as the official results of elections are released.

Two other types of sources of data may be used in the few instances where electoral records are not electronic or not centralized. One additional type of source is also administrative, and refers to public administration data available to line ministries overseeing local government. However, its use for statistics may be less straightforward compared to centralized electoral records. The scope of public administration records is beyond the elected positions, and information on women and men in elected positions of local government may be mixed with information on public administration employees, which are not covered by this indicator. Therefore, additional data processing and resources may be required to carefully extract the information needed. In some cases, the forms used as the basis for administrative records may need to be modified to ensure recording of the positions as being elected, in legislative/deliberative bodies, as well as the sex of persons in those positions. In other cases, some elected positions may not be covered in the records maintained, for example, if the administrative records are restricted to only those positions that are on the government payroll.

Another type of data source that may provide information on women and men in local government in the absence of centralized electronic election records, refers to existing surveys or censuses using local government units as units of observation. These surveys or censuses may be undertaken by National Statistical Offices and/or line ministries and may take the form of (a) local government censuses or surveys; (b) establishment survey; and (c) municipality surveys. These surveys/censuses may already include, in the data collection tool dedicated to their main purpose, a few questions on the number of members of local legislative/deliberative and executive bodies by sex and other individual characteristics such as age and education; or may require the integration of such questions. Similar to other censuses and surveys, a low response rate can result in bias of the statistics obtained. Sampling errors may also add to the bias, in ways that cannot be assessed in the absence of a good understanding of distribution of women's and men's representation across different local government units across the territory of a country.

Method of Computation and Other Methodological Considerations

Computation Method:

This indicator is calculated as follows:

$$\text{Proportion of seats held by women in local government} = \frac{(\text{Number of seats held by women}) \times 100}{\text{Total number of seats held by women and men}}$$

Comments and limitations:

Indicator 5.5.1b refers to the representation of women among elected positions of legislative/deliberative bodies of local government. The indicator does not consider other positions in local government. Local government officials holding executive positions who are not simultaneously holding a position within the legislative/deliberative body, or who are appointed and not elected, are not considered in this indicator.

Importantly, the indicator refers to representation among members of local government and not the quality of their participation. Countries may therefore consider assessing political participation through national or subnational studies involving qualitative and/or quantitative methods of research. Additional indicators of political participation may also be monitored at national level, such as women's share among voters and candidates in local elections, to monitor the closing of other gaps on women's political participation.

Proxy, alternative and additional indicators: N/A

Data Disaggregation

Data on elected positions in legislative/deliberative bodies of local government must be disaggregated by sex to enable the calculation of the indicator.

References

Official SDG Metadata URL

<https://unstats.un.org/sdgs/metadata/files/Metadata-05-05-01b.pdf>

Internationally agreed methodology and guideline URL

European Commission, International Monetary Fund, Organization for Economic Co-operation and Development, United Nations and the World Bank, 2009. The 2008 System of National Accounts. <https://unstats.un.org/unsd/nationalaccount/docs/sna2008.pdf>

United Nations, 2012. Using Administrative and Secondary Sources for Official Statistics: A Handbook of Principles and Practices. UNECE. <https://www.unece.org/index.php?id=28898>

UN Women and UNDP, 2015. Inclusive Electoral Processes: A guide for Electoral Management Bodies on Promoting Gender Equality and Women's Participation. http://www.undp.org/content/undp/en/home/librarypage/democratic-governance/electoral_systemsandprocesses/guide-for-electoral-management-bodies-on-promoting-gender-equali.html

Other references

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UNDP, 2014. Gender Equality: Women's participation and leadership in governments at the local level. Asia and the Pacific 2013.

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Country examples N/A

International Organization(s) for Global Monitoring

This document was prepared based on inputs from United Nations Entity for Gender Equality and the Empowerment of Women (UN Women).

For focal point information for this indicator, please visit <https://unstats.un.org/sdgs/dataContacts/>

Indicator 5.5.2

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Indicator Name, Target and Goal

Indicator 5.5.2: Proportion of women in managerial positions

Target 5.5: Ensure women's full and effective participation and equal opportunities for leadership at all levels of decision-making in political, economic and public life

Goal 5: Achieve gender equality and empower all women and girls

Definition and Rationale

Definition:

This indicator refers to the proportion of females in the total number of persons employed in managerial positions. It is recommended to use two different measures jointly for this indicator: the share of females in (total) management and the share of females in senior and middle management (thus excluding junior management). The joint calculation of these two measures provides information on whether women are more represented in junior management than in senior and middle management, thus pointing to an eventual ceiling for women to access higher-level management positions. In these cases, calculating only the share of women in (total) management would be misleading, in that it would suggest that women hold positions with more decision-making power and responsibilities than they actually do.

Concepts:

- Employment comprises all persons of working age who, during a short reference period (one week), were engaged in any activity to produce goods or provide services for pay or profit. For further clarification, see: Resolution concerning statistics of work, employment and labour underutilization (2013).

- Employment in management is determined according to the categories of the latest version of the International Standard Classification of Occupations (ISCO-08), which organizes jobs into a clearly defined set of groups based on the tasks and duties undertaken in the job. For the purposes of this indicator, it is preferable to refer separately to senior and middle management only on one hand, and to total management (including junior management) on the other. Senior and middle management correspond to sub-major groups 11, 12 and 13 in ISCO-08 and sub-major groups 11 and 12 in ISCO-88. If statistics are not available disaggregated at the sub-major group level (two-digit level of ISCO), then major group 1 of ISCO-88 and ISCO-08 can be used as a proxy and the indicator would then refer only to total management (including junior management).

Rationale and Interpretation:

This indicator provides a meaningful measure of the percentage of females who are employed in decision-making and management roles in government, large enterprises and institutions, thus providing some insight into women's power in decision-making and in the economy, relative to men's power.

Data Sources and Collection Method

The data for this indicator is collected through labour force surveys or any other household survey which collects such data through a module on employment. Establishment/firm surveys or administrative records can also provide useful data on female-occupied management positions by ISCO groups. Surveys are conducted by national statistical offices or ministries of labour in countries.

Method of Computation and Other Methodological Considerations**Computation Method:**

The two recommended measures are the percentage of females in senior and middle-management positions (P_{smmgmt}) and the percentage of females in managerial positions (P_{mgmt}). They are calculated as follows:

$$P_{smmgmt} = \frac{W_{smmgmt}}{T_{smmgmt}} \times 100$$

where,

W_{smmgmt} is the number of women employed in jobs of ISCO-08's sub-major groups 11, 12 and 13 (which also corresponds to major group 1 minus sub-major group 14) or ISCO-88's sub-major groups 11 and 12 (which also corresponds to major group 1 minus sub-major group 13); and

T_{smmgmt} is the total number of persons employed in jobs of ISCO-08's sub-major groups 11, 12 and 13 (which also corresponds to major group 1 minus sub-major group 14) or ISCO-88's sub-major groups 11 and 12 (which also corresponds to major group 1 minus sub-major group 13).

$$P_{mgmt} = \frac{W_{mgmt}}{T_{mgmt}} \times 100$$

where,

W_{mgmt} is the number of women employed in ISCO-08's group 1 or ISCO-88's group 1 jobs; and

T_{mgmt} is the total number of persons employed in ISCO-08's group 1 or ISCO-88's group 1 jobs.

Comments and limitations:

The main limitation of this indicator is that it fails to capture the differences in the levels of responsibility of women in their respective managerial position, or the importance of the enterprises and organizations in which they are employed. Its quality is also significantly impacted by the reliability of the employment statistics by occupation at the two-digit level of the ISCO. Whenever data at the two-digit level of the ISCO are not available, data at the one-digit level could be used as a proxy, referring only to major group 1 of ISCO-08 or ISCO-88, rather than to also refer to major group 1 minus category 14 of ISCO-08 or major group 1 minus category 13 of ISCO-88. This implies referring to the female share in total management, rather than also to the female share in senior and middle management exclusively. This proxy should be used only in case of lack of availability of data at the two-digit level of the ISCO, as total management includes junior management, and women tend to be more represented in junior management positions than in senior or middle management positions, and thus, by referring only to total management one may over-estimate women's impact in high-level decision-making roles.

Data Disaggregation

This indicator can be disaggregated by economic activities of the International Standard Industrial Classification (ISIC).

References

Official SDG Metadata URL

<https://unstats.un.org/sdgs/metadata/files/Metadata-05-05-02.pdf>

Internationally agreed methodology and guideline URL

ILO (2013). *Decent Work Indicators: Guidelines for Producers and Users of Statistical and Legal Framework Indicators*. Geneva. Available at: http://www.ilo.org/wcmsp5/groups/public/---dgreports/---stat/documents/publication/wcms_223121.pdf

ILO. *International Standard Classification of Occupations*. Geneva. Internet site: <http://www.ilo.org/public/english/bureau/stat/isco/isco08/>

Other references

ILOSTAT. Geneva. Internet site: <http://www.ilo.org/ilostat>

ILO (2013). *Resolution concerning statistics of work, employment and labour underutilization*. Nineteenth International Conference of Labour Statisticians. Available at: http://ilo.org/global/statistics-and-databases/standards-and-guidelines/resolutions-adopted-by-international-conferences-of-labour-statisticians/WCMS_230304/lang--en/index.htm

ILO (2013). *Decent work indicators - Guidelines for producers and users of statistical and legal framework indicators*. ILO manual. Second version.

Country examples

N/A

International Organization(s) for Global Monitoring

This document was prepared based on inputs from International Labour Organization (ILO).

For focal point information for this indicator, please visit <https://unstats.un.org/sdgs/dataContacts/>

Indicator 5.6.1

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Indicator Name, Target and Goal

Indicator 5.6.1: Proportion of women aged 15-49 years who make their own informed decisions regarding sexual relations, contraceptive use and reproductive health care

Target 5.6: Ensure universal access to sexual and reproductive health and reproductive rights as agreed in accordance with the Programme of Action of the International Conference on Population and Development and the Beijing Platform for Action and the outcome documents of their review conferences.

Goal 5: Achieve gender equality and empower all women and girls

Definition and Rationale

Definition:

This indicator is defined as the percentage of women aged 15-49 years who are married (or in union), who make their own decisions on all three areas – sexual intercourse with their partner, use of contraception, and their healthcare.

Concepts:

Married or in union includes both women who are legally married and in informal unions. An informal union is one in which the man and woman live together at the time of the interview, intending to have a lasting relationship, but have not had a formal civil or religious ceremony.

A woman is considered to *have autonomy* in reproductive health decision making and to be empowered to exercise their reproductive rights if they: (1) can say 'NO' to sex with their husband/partner if they do not want to; (2) decide on use/ non-use of contraception; and (3) decide on health care for themselves.

Autonomy is determined by a 'yes' response to the question on sexual intercourse and 'mainly respondent' or 'jointly' to the questions of contraception and their healthcare, on relevant surveys.

Rationale and Interpretation:

Women's and girls' autonomy in decision making over consensual sexual relations, contraceptive use and access to sexual and reproductive health services is key to their empowerment and the full exercise of their reproductive rights. This is well aligned with the idea of sexual autonomy and women's empowerment. The monitoring of this indicator over time would help observe change and assess the effectiveness of policy interventions.

Data Sources and Collection Method

The data for this indicator can be collected through nationally representative surveys which incorporate the three questions mentioned above. Currently, this data is being collected through the Demographic and Health Survey (DHS), with plans to expand data collection to include Multiple-Indicator Cluster Survey (MICS) and other possible national surveys.

A sample set of three questions is as follows:

- (1) Can you say no to your (husband/partner) if you do not want to have sexual intercourse?
 - a. Yes
 - b. No
 - c. Depends/Not Sure

- (2) Would you say that using contraception is mainly your decision, mainly your husband's/partner's decision, or did you both decide together?
 - a. Mainly Respondent
 - b. Mainly Husband/Partner
 - c. Joint Decision
 - d. Other (Specify) _____

- (3) Who usually makes decisions about health care for yourself?
 - a. You
 - b. Your Husband/Partner
 - c. You and Your Husband/Partner Jointly
 - d. Someone else

Only women who provide the correct answers to all three components are considered as women who "make their own decisions regarding sexual relations, contraceptive use and reproductive health care". These are women who reported that they "can say no to their husband or partner if they do not want to have sexual intercourse", who decide about using contraception either by themselves or jointly with husband or partner, and who decide about their own health care either by themselves or jointly with husband/partner.

Method of Computation and Other Methodological Considerations

Computation Method:

This indicator is computed based on women's responses to survey questions regarding:

- (1) Whether they can say 'NO' to sex with their husband/partner if they do not want to;
- (2) Whether they claim that using contraception is mainly their decision and not solely their husband's/partner's; and
- (3) Whether they usually make decisions about their own health care.

The percentage of women (15-49 years) who make their own decisions regarding sexual relations, contraceptive use and reproductive health care (P_{SCR}) can be calculated as:

$$P_{SCR} = \frac{W_{SCR}}{W_{total}} \times 100$$

where,

W_{SCR} is the number of married (or in union) women (15-49 years) who respond 'yes' to question (1), and 'mainly respondent' or 'jointly' to questions (2) and (3); and

W_{total} is the total number of women (15-49 years) who are married (or in union).

Comments and limitations:

Currently, this indicator is being estimated solely based on the response of women of reproductive age (15-49 years) who are using any type of contraception, for only those that are currently married or in union. However, in the upcoming Demographic and Health Surveys (DHS) this question is being rephrased to ask about the decision to use or not use contraception of all married (or in union) women of reproductive age.

In many national contexts, household surveys, which are the main data source for this indicator, exclude the homeless and are likely to underreport on the statistic.

Data Disaggregation

This indicator can be disaggregated by age, geographic location, place of residence, education level and wealth quintile.

References

Official SDG Metadata URL

<https://unstats.un.org/sdgs/metadata/files/Metadata-05-06-01.pdf>

Internationally agreed methodology and guideline URL

Not available

Other references

Not available

Country examples

N/A

International Organization(s) for Global Monitoring

This document was prepared based on inputs from United Nations Population Fund (UNFPA).

For focal point information for this indicator, please visit <https://unstats.un.org/sdgs/dataContacts/>

Indicator 5.a.1

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- Data Disaggregation
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- International Organization(s) for Global Monitoring

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Indicator Name, Target and Goal

Indicator 5.a.1: Proportion of total agricultural population with ownership or secure rights over agricultural land, by sex; and (b) share of women among owners or rights-bearers of agricultural land, by type of tenure

Target 5.a: Undertake reforms to give women equal rights to economic resources, as well as access to ownership and control over land

and other forms of property, financial services, inheritance and natural resources, in accordance with national laws

Goal 5: Achieve gender equality and empower all women and girls

Definition and Rationale

Definition:

This indicator is divided into two sub-indicators:

Sub-indicator (a) is defined as the prevalence of people in the agricultural population with ownership or tenure rights over agriculture land; and

Sub-indicator (b) is defined as the share of women in the agricultural population with ownership or tenure rights over agricultural land

Concepts:

Agricultural land is defined, according to the World Census of Agriculture 2020 (WCA 2020), as any land that is under either temporary or permanent crops, meadows and pastures or is temporarily fallow. According to the official definition, lands under farm buildings, farmyards, forests, other wooded land, (inland) areas used aquaculture and other areas not elsewhere classified are not considered 'agricultural lands'. However, considering the importance of farmyards to the household economy and food security, and since women frequently hold or control this type of land, it was decided to include 'farmyard' in the definition of agricultural land used for SDG indicator 5.a.1.

Agricultural population refers to adult individuals living in agricultural households, i.e. households that operated land for agricultural purposes and/or raised livestock over the past 12 months, regardless of the final purpose of the production. If household members are engaged in agriculture *only* as farm labourers, the household is not considered an agricultural household and its members will not be assessed on their ownership / tenure status over agricultural land.

Ownership or Tenure rights over agriculture land refer to satisfying three conditions: the presence of legally recognised documents in the name of the individual; the right to sell; and the right to bequeath.

Rationale and Interpretation:

Indicator 5.a.1 aims to monitor the gender balance on ownership / tenure rights over agricultural land. This indicator has two sub-indicators that are based on the same data to monitor ownership/tenure rights from two different angles. While sub-indicator (a) uses the total male/female agricultural population as the reference population, and it gives information on how many male/female own/hold agricultural land, sub-indicator (b) focuses on the agricultural population with land ownership/tenure rights, and it gives information on the share of women among this population. Therefore, to compute these sub-indicators; it is sufficient to have:

- 1) The number of adult individuals in agriculture with ownership or tenure rights over agricultural land by sex; and
- 2) The total adult agricultural population

Data Sources and Collection Method

Indicator 5.a.1 focuses on adult individuals living in agricultural households – i.e. households that have practiced agriculture over the last 12 months. Thus, it can be collected through Agricultural Surveys or National Household Surveys. Generally speaking, surveys are more cost-effective than censuses because they are carried out on a representative sample which is then used to estimate the parameters at the population level.

Agricultural Surveys are a recommended data source for two main reasons:

1. The unit of analysis is agricultural holdings and, in most countries, a one-to-one relationship exists between the household-sector agricultural holdings and the agricultural households. Therefore, agricultural surveys capture well the reference population of indicator 5.a.1 (i.e. agricultural households), and there is no need for any pre-screening questions or oversampling to generate nationally representative estimates.
2. Agricultural surveys can easily accommodate questions on agricultural land tenure rights since these surveys frequently collect data regarding rights on agricultural land and data on agricultural production.

National Household Surveys (NHS) are also recommended data sources for indicator 5.a.1 for several reasons:

1. National Household surveys are the most common data source available in both developed and developing countries.
2. National Household surveys tend to be very broad in scope, and they are normally used to generate social, demographic and economic statistics. Therefore these surveys: i) can accommodate questions needed for the computation of indicator 5.a.1; ii) allow exploring associations between the individual status on indicator 5.a.1 and other individual or household characteristics, such as education, health, income level, etc; iii) can include additional data for a more detailed analysis of the indicator (eg., land size). However, if NHS are used to monitor indicator 5.a.1, it is necessary to identify agricultural households. In addition, especially in countries/regions with a low proportion of households is engaged in agricultural production. Therefore, in the case of NHS, a pre-screening and oversampling may be needed, especially in urban and peri-urban areas.

Alternative sources include Population and Housing Censuses and Agricultural Censuses. In principle, Population and Housing Censuses (PHC) and Agricultural Censuses (ACs) can be considered an alternative data source for indicator 5.a.1 because, like household surveys, these surveys refer to the whole population living in a given area. Nonetheless, censuses present some disadvantages:

1. Low frequency: Censuses are usually conducted every ten years. Therefore they do not allow countries to closely monitor the progress on indicator 5.a.1.
2. Censuses are large scale and costly operations focussing on the structure of the population.
3. Censuses heavily rely on proxy respondents, an approach which is in contrast with the respondents' selection procedure recommended for indicator 5.a.1.

Method of Computation and Other Methodological Considerations

Computation Method:

The following formulas can be used to calculate the two sub-indicators:

$$\text{Sub - indicator (a)} = \frac{\text{No. of people in the agri. population with tenure rights over agri. land}}{\text{Total agri. population}} \times 100$$

and

$$\text{Sub - indicator (b)} = \frac{\text{No. of women in the agri. population with tenure rights over agri. land}}{\text{No. of people in the agri. population with tenure rights over agri. land}} \times 100$$

Comments and limitations:

The data for this indicator needs to be collected through appropriate sampling techniques so as to obtain a representative sample.

When designing the questionnaire, it is critical to customize the list of legally binding documents to consider only those documents that guarantee the individual's tenure rights which are enforceable by law in the country.

Proxy, alternative and additional indicators: N/A

Data Disaggregation

The 'level of required disaggregation for the sub-indicator (a) relates to the sex of the individuals. Moreover, the 'recommended' levels of disaggregation for this indicator are the income level, age groups, ethnicities, geographic location (urban and rural), tenure type, type of legally recognized documents

References

Official SDG Metadata URL

<https://unstats.un.org/sdgs/metadata/files/Additional-SDG-indicator-metadata-JUL2017.zip>

Internationally agreed methodology and guideline URL

FAO: *Measuring SDG Indicator 5.a.1: Background Paper* <http://www.fao.org/3/I8808EN/i8808en.pdf>

FAO. *Sustainable Development Goals: Indicator 5.a.1*. Rome. Internet site: <http://www.fao.org/sustainable-development-goals/indicators/5.a.1/en/>

Other references:

FAO SDG Portal and E-Learning:

FAO. *Sustainable Development Goals Indicators*. Available at <http://www.fao.org/sustainable-development-goals/indicators/en/>

FAO. E-learning Centre. Available at <http://www.fao.org/elearning/>

Additional References:

Guidelines for Producing Statistics on Asset Ownership from a Gender Perspective. United Nations, Department of Economic and Social Affairs, Statistics Division (forthcoming).

Country examples

N/A

International Organization(s) for Global Monitoring

This document was prepared based on inputs from Food and Agriculture Organization of the United Nations (FAO).

For focal point information for this indicator, please visit <https://unstats.un.org/sdgs/dataContacts/>

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Indicator 5.b.1

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Indicator Name, Target and Goal

Indicator 5.b.1: Proportion of individuals who own a mobile telephone, by sex

Target 5.b: Enhance the use of enabling technology, in particular information and communications technology, to promote the empowerment of women

Goal 5: Achieve gender equality and empower all women and girls

Definition and Rationale

Definition:

This indicator is defined as the percentage of individuals who own a mobile telephone.

Concepts:

A *mobile (cellular) telephone* refers to a portable telephone subscribing to a public mobile telephone service using cellular technology, which provides access to the public switched telephone network (PSTN). This includes analogue and digital cellular systems and technologies such as IMT-2000.

An individual *owns a mobile cellular phone* if he/she has a mobile cellular phone device with at least one active SIM card for personal use. Individuals who have only active SIM card(s) and not a mobile phone device are excluded. Mobile cellular phones supplied by employers that can be used for personal reasons (to make personal calls, access the Internet, etc.) are included. Individual who has a mobile phone for personal use that is not registered under his/her name is included. An active SIM card is a SIM card that has been used in the last three months.

Rationale and Interpretation:

Mobile phone networks have spread rapidly over the last decade and the number of mobile-cellular subscriptions is quasi equal to the number of the people living on earth. However, not every person uses, or owns a mobile-cellular telephone. Mobile phone ownership, in particular, is important to track gender equality since the mobile phone is a personal device that, if owned and not just shared, provides women with a degree of independence and autonomy, including for professional purposes. Research shows the link between mobile phone ownership and empowerment, and productivity growth.

Data Sources and Collection Method

The primary source of this data would be the nationally representative household surveys that are conducted by the respective national statistical offices or relevant ministries of countries. This indicator refers to ownership of mobile-cellular phone by individual household members. The suggested reference period is the last three months. Country practices vary, but ideally, reference periods should be aligned in order to obtain comparable data.

Model question is: Do you have a mobile cellular telephone for personal use? (Yes / No)

Optional question is: (If yes), how many lines or SIM cards do you have? Please consider only those that are active.

Method of Computation and Other Methodological Considerations

Computation Method:

Percentage of individuals who own a mobile phone (P_s), of the sex s , can be calculated as:

$$P_s = \frac{N_{mobile}^s}{N_{total}^s} \times 100$$

where,

N_{mobile}^s

is the number of individuals of the sex s who own a mobile phone; and

N_{total}^s

is the number of total individuals of the sex s .

Similarly, the percentage of all individuals who own a mobile phone (P_{mobile}) can be calculated as:

$$P_{mobile} = \frac{N_{mobile}^{\square}}{\text{Total Population of the Country}} \times 100$$

where,

N_{mobile}^{\square}

is the number of individuals who own a mobile phone.

Comments and limitations:

The International Telecommunication Union (ITU) is encouraging countries to collect this data through their national household surveys as this is a relatively new measure. It is expected to be added to the Partnership on Measuring ICT Development's Core List of Indicators.

Proxy, alternative and additional indicators: N/A

Data Disaggregation

This indicator is required to be disaggregated by sex. It can be disaggregated by geographic location (urban/rural), age group, education level, labour force status and occupation.

References

Official SDG Metadata URL

<https://unstats.un.org/sdgs/metadata/files/Metadata-05-0B-01.pdf>

Internationally agreed methodology and guideline URL

The definition and methodology of this indicator will be included in the future revision of the ITU Manual for Measuring ICT Access and Use by Households and Individuals 2014, available at <https://www.itu.int/pub/D-IND-ITCMEAS-2014>.

Other references

UNCTAD (2014). *Measuring ICT and Gender: An Assessment*. Available at: <http://unctad.org/en/pages/PublicationWebflyer.aspx?publicationid=924>

Country examples

N/A

International Organization(s) for Global Monitoring

This document was prepared based on inputs from International Telecommunication Union (ITU).

For focal point information for this indicator, please visit <https://unstats.un.org/sdgs/dataContacts/>

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Indicator Name, Target and Goal

Indicator 5.c.1: Percentage of countries with systems to track and make public allocations for gender equality and women's empowerment

Target 5.c: Adopt and strengthen sound policies and enforceable legislation for the promotion of gender equality and the empowerment of all women and girls at all levels

Goal 5: Achieve gender equality and empower all women and girls

Definition and Rationale**Definition:**

This indicator is defined as percentage of countries that track budget allocations for gender equality and women's empowerment (GEWE) throughout the public finance management cycle and make these allocations publicly available.

The indicator measures three criteria. The first focuses on the intent of a government to address GEWE by identifying if it has programs/policies on GEWE and corresponding resource allocations to support implementation. The second criterion assesses if a government has mechanisms throughout the public financial management cycle to track resource allocations towards these policy goals. The third focuses on transparency of data by assessing existence of provisions to make information about allocations for GEWE publicly available.

While this indicator is monitored at the global level, a country can assess its own status according to the international criteria. It can also track its progress over time and compare its system to those of other countries.

Concepts:

An assessment of a country's status in tracking and making public the budgetary allocations for gender equality and women's empowerment is based on the following questionnaire.

Criterion 1. Which of the following aspects of public expenditure are reflected in your government programs and its resource allocations? (In the last completed fiscal year)

Question 1.1. Are there policies and/or programs of the government designed to address well-identified gender equality goals, including those where gender equality is not the primary objective (such as public services, social protection and infrastructure) but incorporate action to close gender gaps? (Yes=1/No=0)

Question 1.2. Do these policies and/or programs have adequate resources allocated within the budget, sufficient to meet both their general objectives and their gender equality goals? (Yes=1/No=0)

Question 1.3. Are there procedures in place to ensure that these resources are executed according to the budget? (Yes=1/No=0)

Criterion 2. To what extent does your Public Financial Management system promote gender-related or gender-responsive goals? (In the last completed fiscal year)

Question 2.1. Does the Ministry of Finance/budget office issue call circulars, or other such directives, that provide specific guidance on gender-responsive budget allocations? (Yes=1/No=0)

Question 2.2. Are key policies and programs, proposed for inclusion in the budget, subject to an ex ante gender impact assessment? (Yes=1/No=0)

Question 2.3. Are sex-disaggregated statistics and data used across key policies and programs in a way which can inform budget-related policy decisions? (Yes=1/No=0)

Question 2.4. Does the government provide, in the context of the budget, a clear statement of gender-related objectives (i.e. gender budget statement or gender responsive budget legislation)? (Yes=1/No=0)

Question 2.5. Are budgetary allocations subject to “tagging” including by functional classifiers, to identify their linkage to gender-equality objectives? (Yes=1/No=0)

Question 2.6. Are key policies and programs subject to ex post gender impact assessment? (Yes=1/No=0)

Question 2.7. Is the budget as a whole subject to independent audit to assess the extent to which it promotes gender-responsive policies? (Yes=1/No=0)

Criterion 3. Are allocations for gender equality and women’s empowerment made public? (In the last completed fiscal year)

Question 3.1. Is the data on gender equality allocations published? (Yes=1/No=0)

Question 3.2. If published, has this data been published in an accessible manner on the Ministry of Finance (or office responsible for budget) website and/or related official bulletins or public notices? (Yes=1/No=0)

Question 3.3. If so, has the data on gender equality allocations been published in a timely manner? (Yes=1/No=0)

Rationale and Interpretation:

Adequate and effective financing is essential to achieve SDG 5 and the gender related targets across the SDG framework. By tracking resource allocations, governments introduce deliberate measures into the planning and budgeting cycle to meet their gender policy objectives. By making these allocations public, governments commit to higher levels of transparency and accountability in budget decision making.

This is an indicator about the characteristics of the fiscal system, and not about the quantity or quality of financial resources allocated for gender equality and women’s empowerment. It can incentivize governments to put in place a system to track and make public resource allocations which can then inform policy review, better policy formulation and more effective public financial management. The system should be led by the Ministry of Finance in collaboration with the sectoral ministries and National Women’s Machineries and overseen by an appropriate body such as Parliament or Public Auditors.

Data Sources and Collection Method

Globally, the data collection process for the indicator will be undertaken as part of the country-level monitoring conducted through the Global Partnership for Effective Development Cooperation monitoring framework. The Global Partnership monitoring is led by national coordinators appointed by their respective government to coordinate data collection and validation across relevant government ministries, departments and agencies.

An electronic questionnaire with accompanying monitoring guidance is used to collect data on this indicator. These are typically sent to the Ministry of Finance, or agency in charge of the government budget. The national coordinator will liaise with the Ministry of Finance, Ministry of Women and other relevant ministries to complete the questionnaire. This will provide information for a country to assess its own status according to the international criteria.

Method of Computation and Other Methodological Considerations

Computation Method:

Method of computation for global aggregation of the indicator 5.c.1 is defined as follows:

$$\text{Indicator 5.c.1} = \frac{(\text{Number of countries that fully meet requirements}) \times 100}{\text{Total number of countries}}$$

The indicator includes a scoring system structured as a ‘scale’ measure by classifying countries, based on their responses, into one of three categories: ‘fully meets requirements’, ‘approaches requirements’, and ‘does not meet requirements.’ The use of a scaled scoring can incentivize countries to improve tracking systems and to show progress over time.

A country's status for this indicator is calculated based on the table below:

	Requirements per criterion
A country will satisfy Criterion 1	if it answers "Yes" to 2 out of 3 questions in Criterion 1
A country will satisfy Criterion 2	if it answers "Yes" to 4 out of 7 questions in Criterion 2
A country will satisfy Criterion 3	if it answers "Yes" to 2 out of 3 questions in Criterion 3

Each question within each criterion has the same weight. A country would need to satisfy the threshold of "yes" responses per criterion to satisfy each criterion. Countries are then classified as: 'fully meets requirements' if all Criteria are satisfied; 'approaches requirements' if one or two of Criteria are satisfied; and 'does not meet requirements' if no Criteria is satisfied.

Comments and limitations:

The indicator does not measure allocation of resources but the existence of mechanisms to track resource allocations and that make that information available publicly. However, there is an optional question in the questionnaire (not scored) that requests countries to report the percentage of the government budget allocated for gender equality programs. Another limitation is that the indicator, which is process oriented, does not provide data on the adequacy or quality of resource allocations.

Sub-indicator, alternative and additional indicators: N/A

Data Disaggregation

a) The following two country classification global proportions will also be reported:

$$i. \quad \frac{(\text{Number of countries that **do not meet requirements**}) \times 100}{\text{Total number of countries}}$$

$$ii. \quad \frac{(\text{Number of countries that **approach requirements**}) \times 100}{\text{Total number of countries}}$$

a) Additional disaggregation by region as follows:

$$\frac{(\text{Number of countries in **region x** with country classification **y**}) \times 100}{\text{Total number of countries in **region x**}}$$

Where *x* refers to the region of analysis and *y* refers to the country classification based on the questionnaire.

References

Official SDG Metadata URL

<https://unstats.un.org/sdgs/metadata/files/Metadata-05-0c-01.pdf>

Internationally agreed methodology and guideline URL

N/A

Other references

Information on the Global Partnership for Effective Development Corporation can be found here: <http://effectivecooperation.org/about/global-monitoring-framework/>

Other useful technical materials on how to incorporate gender equality in to public finance management systems can be found here: <http://gender-financing.unwomen.org/en>

IMF research on gender responsive budgeting: <https://www.imf.org/external/np/res/dfidimf/topic7.htm> <https://www.imf.org/external/pubs/ft/wp/2016/wp16149.pdf>

Gender budgeting in OECD countries: <https://www.oecd.org/gender/Gender-Budgeting-in-OECD-countries.pdf>

Information on the Public Expenditure and Financial Accountability (PEFA) Program which provides guidance on assessment of public finance management systems can be found here: <http://www.pefa.org/en>

International Organization(s) for Global Monitoring

This document was prepared based on inputs from UN Women and OECD.

For focal point information for this indicator, please visit <https://unstats.un.org/sdgs/dataContacts/>

Goal 6

Ensure availability and sustainable management of water and sanitation for all

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In this goal:

United Nations Statistics Division (UNSD) worked in consultation with each indicators' custodian agency(ies) to prepare these chapters. For indicators that do not have chapters here yet, they are currently being prepared and they will be uploaded here as soon as they become available.

If you have any questions on the e-Handbook, do not hesitate to contact Shaswat Sapkota (sapkotas@un.org).

Indicator 6.1.1

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Indicator Name, Target and Goal

Indicator 6.1.1: Proportion of population using safely managed drinking water services

Target 6.1: By 2030, achieve universal and equitable access to safe and affordable drinking water for all

Goal 6: Ensure availability and sustainable management of water and sanitation for all

Definition and Rationale

Definition:

This indicator is defined as the proportion of population using an improved drinking water source which is accessible on premises, available when needed and free from faecal and priority chemical contamination.

Concepts:

Improved drinking water sources include piped water into dwelling, yard or plot (on premises); public taps or standpipes; boreholes or tube-wells; protected dug wells; protected springs; packaged water; delivered water and rainwater.

A water source is considered to be *accessible on premises* if the point of collection is within the dwelling, yard, or plot.

Available when needed implies that households are able to access sufficient quantities of water when needed.

Free from faecal or chemical contamination refers to the compliance to relevant national and local standards. In cases where such standards do not exist, reference is made to the WHO Guidelines for Drinking Water Quality.

Rationale and Interpretation:

This indicator adds additional normative dimensions of accessibility, availability and quality, interpreted as safely managed drinking water services, to the existing MDG metric that tracked use of 'improved drinking water sources'. It is a proxy for measuring equitable access to safe and affordable drinking water. Improved drinking water sources are not necessarily safe, but are more likely to be protected from external contaminants than unimproved sources either by intervention or through their design and construction. Greater access to safely managed drinking water services is important as it contributes to lowering the incidence of many diseases throughout the world.

Data Sources and Collection Method

The underlying data for this indicator, use of improved drinking water sources, is a core indicator for most household surveys and censuses, and is regularly collected by national statistical offices. Household surveys and censuses currently provide information on types of drinking water sources, and also indicate if sources are on premises. These data sources often have information on the availability of water and increasingly on the quality of water at the household level, through direct testing of drinking water for faecal or chemical contamination. To further strengthen accuracy of water quality data, data obtained from the surveys can be compared against data on availability and compliance with drinking water quality standards (microbiological and chemical) from administrative reporting or regulatory bodies.

Some of the nationally representative household surveys that typically collect information about water and sanitation include Multiple Indicator Cluster Surveys (MICS), Demographic Health Surveys (DHS), World Health Surveys (WHS), Living Standards and Measurement Surveys (LSMS), Core Welfare Indicator Questionnaires (CWIQ), and the Pan Arab Project for Family Health Surveys (PAPFAM). The survey questions and response categories pertaining to drinking water are fully harmonized between MICS and DHS.

In addition, line ministries and water utility companies usually keep records based on the number and type of water supplies constructed or the number of piped household connections maintained. Provider-based data do not include what facilities are actually used, thus, they are only used for countries that have no survey or census data on access to or use of drinking water sources. However, such administrative sources may have much more data on water quality, especially for piped water supplies, than can be gained through household surveys.

The WHO/UNICEF Joint Monitoring Programme for Water Supply, Sanitation and Hygiene (JMP) estimates use of improved drinking water sources, as well as the extent to which such sources are located on premises, available when needed, and free from microbiological and chemical contamination, for each country.

Method of Computation and Other Methodological Considerations

Computation Method:

The percentage of population using safely managed drinking water services (P_{SMDWS}) can be calculated as:

$$P_{SMDWS} = \frac{N_{improved}}{N_{Total}} \times P_{onpremisess,available,freefromcontamination} \times 100$$

where,

$N_{improved}$ is the number of people (or households) that are using improved drinking water sources;

$P_{premisess,available,freefromcontamination}$ is the population-weighted proportion of improved drinking water sources that are located on premises, available when needed, and free from faecal and priority chemical contamination; and

N_{Total} is the total number of people (or households) in the country.

Comments and limitations:

Data on availability and quality of drinking water are increasingly available through a combination of household surveys and administrative sources including regulators, but definitions are not always standardized.

Proxy, alternative and additional indicators: N/A

Data Disaggregation

This indicator can be disaggregated by place of residence (urban/rural), socioeconomic status (wealth, affordability), inequality (subnational, disadvantaged groups, etc.) and service level (including no services, basic, and safely managed services).

References

Official SDG Metadata URL

<https://unstats.un.org/sdgs/metadata/files/Metadata-06-01-01.pdf>

Internationally agreed methodology and guideline URL

<https://washdata.org/>

Other references

UNICEF Briefing Notes on SDG Indicators:

UNICEF. *Briefing notes on SDG global indicators related to children*. Available at <https://data.unicef.org/resources/sdg-global-indicators-related-to-children/>

Additional References:

WHO and UNICEF (2017). *Progress on Drinking Water, Sanitation and Hygiene: 2017 Update and SDG Baselines*. Available at: <https://washdata.org/report/jmp-2017-report-final>

WHO (2017). *Safely Managed Drinking Water – Thematic Report on Drinking Water 2017*. Geneva. Available at: <https://washdata.org/report/jmp-2017-tr-smdw>

WHO (2011). *Guidelines for Drinking Water Quality. Fourth Edition*. Geneva. Available at: http://apps.who.int/iris/bitstream/10665/44584/1/9789241548151_eng.pdf

Country examples

N/A

International Organization(s) for Global Monitoring

This document was prepared based on inputs from World Health Organization (WHO) and United Nations Children's Fund (UNICEF).

For focal point information for this indicator, please visit <https://unstats.un.org/sdgs/dataContacts/>

Indicator 6.2.1

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Indicator Name, Target and Goal

Indicator 6.2.1: Proportion of population using (a) safely managed sanitation services, and (b) a handwashing facility with soap and water

Target 6.2: By 2030, achieve access to adequate and equitable sanitation and hygiene for all and end open defecation, paying special attention to the needs of women and girls and those in vulnerable situations

Goal 6: Ensure availability and sustainable management of water and sanitation for all

Definition and Rationale

Definition:

This indicator includes two sub-indicators: (a) proportion of population using safely managed sanitation services and (b) proportion of population with a handwashing facility with soap and water.

Proportion of population using safely managed sanitation services is currently being measured by the proportion of the population using an improved sanitation facility which is not shared with other households and where excreta are safely treated and disposed of in situ or transported and treated off-site.

Concepts:

Improved sanitation facilities refer to sanitary facilities designed to hygienically separate excreta from human contact. They include flush or pour flush toilets to sewer systems, septic tanks or pit latrines, ventilated improved pit latrines, pit latrines with a slab, and composting toilets.

Hand-washing facilities are devices to contain, transport, or regulate the flow of water to facilitate handwashing. This indicator has been shown to be a better proxy for handwashing practice than self-reports of handwashing practice in surveys.

Safely treated and disposed of in situ refers to non-sewered sanitation systems that store excreta and degrade organic matter through biological processes. Examples of safe treatment and disposal in situ include twin pit latrines, single pit latrines which are abandoned when full, and well-functioning septic tanks.

Transported and treated off-site refers to practices of excreta (faecal sludge) being transported from the household to a different location for treatment and discharge. It includes both transportation via sewers or via other modes where septic tanks and pit latrines are being used. Secondary (biological) or higher treatment processes are counted for safely managed sanitation.

Rationale and Interpretation:

Building upon the MDG target of providing sustainable access to basic sanitation, this indicator adds additional dimensions of accessibility, acceptability and safety. Furthermore, it also considers the safe management of faecal waste, as discharges of untreated wastewater into the environment create public health hazards.

Handwashing with soap is widely agreed to be the top hygiene priority for improving health outcomes. The most widely-accepted and practical proxy for actual handwashing practice is the observation by enumerators in household surveys of the presence of handwashing facilities with soap and water in the household. This proxy has been shown to be a more reliable, valid and efficient measure than self-reported behaviour.

Data Sources and Collection Method

The underlying data for this indicator, use of improved sanitation facilities, is a core indicator for most household surveys and censuses, and is collected by national statistical offices regularly. Additional data on safe management of faecal wastes can be acquired from administrative records. Data on off-site treatment and disposal (e.g. in sewage treatment plants) is combined with data from surveys and censuses about the number of people whose excreta are removed off-site for treatment. Data on on-site treatment and disposal (e.g. in pit latrines or septic tanks) can come from both household surveys and administrative records.

Method of Computation and Other Methodological Considerations

Computation Method:

The percentage of population using safely managed sanitation services (P_{SMS}) can be calculated as:

$$P_{SMS} = \frac{(N_{offsite} + N_{onsite})}{N_{Total}} \times 100$$

The percentage of the population with access to hand-washing facilities with soap and water (P_{HW}) can be calculated as:

$$P_{HW} = \frac{N_{HW}}{N_{Total}} \times 100$$

where,

$N_{offsite}$ is the number of people (or households) using improved sanitation facilities which are not shared and where excreta are transported off-site, treated and disposed of;

N_{onsite} is the number of people (or households) using improved sanitation facilities which are not shared and where excreta are treated and disposed of in situ;

N_{HW} is the number of people (or households) that have access to handwashing facilities with soap and water on premises;

N_{Total} is the total number of people (or households) in the country

Comments and limitations:

Presence of a handwashing facility with soap and water does not guarantee that household members consistently wash hands at key times, but has been accepted as the most suitable proxy.

Proxy, alternative and additional indicators: N/A

Data Disaggregation

Data can be disaggregated by place of residence (urban/rural) and socioeconomic status (wealth, affordability). Disaggregation by other dimensions, such as, inequality (subnational, gender, disadvantaged groups, etc.) and service level (including no services, basic, and safely managed services) are also possible.

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<https://unstats.un.org/sdgs/metadata/files/Metadata-06-02-01.pdf>

Internationally agreed methodology and guideline URL

<https://washdata.org/>

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Country examples

N/A

International Organization(s) for Global Monitoring

This document was prepared based on inputs from World Health Organization (WHO) and United Nations Children's Fund (UNICEF).

For focal point information for this indicator, please visit <https://unstats.un.org/sdgs/dataContacts/>

Indicator 6.4.2

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Indicator Name, Target and Goal

Indicator 6.4.2: Level of water stress: freshwater withdrawal as a proportion of available freshwater resources

Target 6.4: By 2030, substantially increase water-use efficiency across all sectors and ensure sustainable withdrawals and supply of freshwater to address water scarcity and substantially reduce the number of people suffering from water scarcity

Goal 6: Ensure availability and sustainable management of water and sanitation for all

Definition and Rationale

Definition:

This indicator is defined as the ratio of total freshwater withdrawn by all major sectors to total renewable freshwater resources, after taking into account environmental flows requirements. It is expressed as a percentage.

Concepts:

Total freshwater withdrawal (TFWW) is the volume of freshwater extracted from its source (rivers, lakes, aquifers) for the following three main sectors: agriculture, industries and services (including municipalities and domestic water withdrawal). It is estimated at the country level and on an annual basis. The category of freshwater withdrawal includes withdrawals from surface freshwater, groundwater and fossil groundwater. It does not include direct use of non-conventional water, i.e. treated wastewater, agricultural drainage water and desalinated water.

Major sectors refer to agriculture, forestry and fishing (ISIC A), mining and quarrying, manufacturing, construction and energy (ISIC B, C, D and F), and all the services sectors (ISIC E, G-U) including water collection, treatment and supply industry, as defined by the International Standard Industrial Classification (ISIC) – revision 4.

Total renewable freshwater resources (TRWR) is the sum of internal and external renewable freshwater resources. *Internal resources* refer to the long-term average annual flow of rivers and recharge of groundwater, generated from endogenous precipitation, minus the overlap between surface water and groundwater. *External resources* refer to the part of a country's long-term average annual renewable water resources that are not generated in the country, considering the quantity of flows reserved to upstream and downstream countries through agreements or treaties.

Environmental flows requirements (EFR) are quantities and timing of freshwater flows required to sustain freshwater ecosystems and the human livelihood and well-being that depend on them. For the purpose of Indicator 6.4.2, the concept is limited to water volumes and excludes any considerations of water quality and resulting ecosystem services.

Rationale and Interpretation:

This indicator measures the degree to which a country's water resources are being exploited to meet its water demand. It measures the pressure on its water resources and therefore the challenge on the sustainability of its water use. Indicator 6.4.2 tracks progress towards Target 6.4 and addresses the environmental dimension of water scarcity.

A low level of water stress indicates a situation where the combined withdrawal by all sectors is marginal in relation to the resources, and has therefore little potential impact on the sustainability of the resources or on the potential competition between users. A high level of water stress indicates a situation where the combined withdrawal by all sectors represents a substantial share of the total renewable freshwater resources, with potentially larger impacts on the sustainability of the resources and potential situations of conflicts and competition between users.

Water stress occurs when the ratio is above 25 percent, which is the threshold of initial water stress.

Data Sources and Collection Method

Data for this indicator are usually collected by national ministries and institutions having water-related issues in their mandate, such as ministries of water resources, agriculture, or environment. The computation of this indicator requires data from different sectors and sources. It is crucial that national coordination is in place to assure timely and consistent collection of data. However, one national institution should be identified and appointed with the task of compiling the indicator. That institution carries out an in-depth review of all the national, sub-national and basin unit sources of relevant data using available information resources. The most advisable units to be used are river basins, aggregated according to the circumstances of each country. Data are mainly published within national water resources and irrigation master plans, national statistical yearbooks and other reports (such as those from projects, international surveys or results and publications from national and international research centres).

Method of Computation and Other Methodological Considerations

Computation Method:

Water stress indicator is calculated using the following formula:

$$\text{Water Stress} = \frac{TFWW}{TRWR - EFR} \times 100$$

where *TFWW* is the total freshwater withdrawn; *TRWR* is the total renewable freshwater resources; and *EFR* is the environmental flows requirement component. All variables are expressed in km³/year.

Comments and limitations:

Water withdrawal as a percentage of renewable water resources is a good indicator of pressure on limited water resources, one of the most important natural resources. However, it only partially addresses the issues related to sustainable water management. Supplementary indicators that capture the multiple dimensions of water management and combine data on water demand and supply, behavioural changes with regard to water use and the availability of appropriate infrastructure, should be defined or consulted simultaneously.

Other limitations to this indicator might be represented by the difficulty to obtain accurate, complete and up-to-date data; large variations of sub-national data; lack of account of seasonal variations in water resources; lack of consideration to the distribution among water resources; lack of consideration of water quality and its suitability for use.

Some of these issues can be resolved through disaggregation of the index at the level of hydrological units and by distinguishing between different sectors demanding water. However, care needs to be taken to avoid double counting due to the complexity of water flows. Other SDG 6 indicators also provide complementary information.

The data for this indicator should be collected annually. However, a reporting period up to three years can still be considered acceptable.

Proxy, alternative and additional indicators: N/A

Data Disaggregation

This indicator can be disaggregated by sectors, and sectoral demand of water can be used to determine the proportion of contribution of economic sectors to the overall water stress.

Besides sectoral disaggregation, actions to reduce water stress can benefit from temporally and spatially disaggregated data. Spatial disaggregation of the indicator at subnational level is highly advisable wherever possible and is particularly important for larger countries or those with marked differences in climate or population density within their territory. It increases indicator's usefulness for policy purposes.

Data at country level, averaged over one or more years, give an overview of situation of water stress. However, such overview may hide specific situations that only exist for part of the year, part of the country or both. Countries may decide to undertake detailed temporal disaggregation. This is especially relevant for countries with high intra-annual/seasonal variations in water resources and water use patterns.

References**Official SDG Metadata URL**

<https://unstats.un.org/sdgs/metadata/files/Metadata-06-04-02.pdf>

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Country examples

N/A

International Organization(s) for Global Monitoring

This document was prepared based on inputs from Food and Agriculture Organization of the United Nations (FAO).

For focal point information for this indicator, please visit <https://unstats.un.org/sdgs/dataContacts/>

Indicator 6.5.2

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Indicator Name, Target and Goal

Indicator 6.5.2: Proportion of transboundary basin area with an operational arrangement for water cooperation

Target 6.5: By 2030, implement integrated water resources management at all levels, including through transboundary cooperation as appropriate

Goal 6: Ensure availability and sustainable management of water and sanitation for all

Definition and Rationale

Definition:

This indicator is defined as the percentage of transboundary basin area within a country with an operational arrangement for water cooperation with other countries.

Concepts:

Transboundary basins include river and lake basins and aquifers shared between two or more sovereign states. For the purposes of this indicator, the extent of the basin is the catchment area for river and lake basins, and the surface area of transboundary aquifer systems.

An *arrangement for water cooperation* is a bilateral or multilateral treaty, convention, agreement or any other formal arrangement between riparian countries that provides a framework for cooperation on transboundary water management.

For any arrangement for water cooperation to be considered *operational*, all the following criteria need to be met:

- (1) There is a joint body, mechanism or commission for transboundary cooperation;
- (2) There are regular (at least once per year) formal communications between riparian countries in the form of meetings;
- (3) There is a joint or coordinated water management plan(s), or established joint objectives have been set; and
- (4) There is a regular (at least once per year) exchange of data and information between riparian countries.

Rationale and Interpretation:

Most of the world's water resources are shared. A large portion of the global population reside in -- and are directly reliant upon water supplied -- by shared river and lake basins or aquifers. Developments, such as flow regulation or pollution, of these shared water resources may have impacts across sovereign borders. Specific agreements or other arrangements between co-riparian countries are a precondition to ensuring long-term, equitable and sustainable cooperation of these waters.

International customary water law - as reflected in the Convention on the Law of the Non-navigational Uses of International Watercourses (New York, 1997), the Convention on the Protection and Use of Transboundary Watercourses and International Lakes (Helsinki, 1992), and the draft Articles on The Law of Transboundary Aquifers (2008; UN General Assembly resolutions 63/124, 66/104, and 68/118) - and the contemporary practice of watercourse States, points to the need for certain minimum requirements in order to foster transboundary water cooperation. These minimum requirements are captured by the four criteria for operationality that are incorporated into this indicator.

Data Sources and Collection Method

Ministries and agencies responsible for surface water and groundwater resources (most commonly ministry of the environment, water, natural resources, energy or agriculture; foreign affairs, institutes of water resources, hydrology or geology, or geological surveys) typically maintain spatial information about the location and extent of the surface water basin boundaries and aquifer delineations as GIS shapefiles. Information on existing arrangement and their operationality is maintained by the same institutions.

Method of Computation and Other Methodological Considerations

Methodological approach:

A reporting template related to SDG indicator 6.5.2 is communicated to the country by the custodian agencies. The template provides step-wise approach by which countries can calculate the value of the indicator. In order to substantiate the calculation and provide a fuller picture of transboundary water cooperation, countries are invited to complete the full reporting template, which contains a series of questions related to *inter alia* transboundary water cooperation at the national level, basin level agreements and arrangements, joint bodies, data and information exchange, joint monitoring and assessment, and public participation. Countries are also encouraged to consult widely at the national level, and where appropriate other countries sharing transboundary basins, in order to complete the reporting template.

Computation Method:

The calculation of the value of the indicator involves a number of steps:

Step 1: The identification of transboundary river and lake basins and aquifers that are located within a country. If there are no transboundary river or lake basins, or aquifers, reporting is not required.

Step 2: A calculation of the surface area (in km²) *within the territory of the country* of all identified transboundary river and lake basins. If there is more than one transboundary river and lake basin, the surface area with the territory of the country of each basin should be added together to get the total surface area of transboundary river and lake basins within the territory of the country. Then, using the same approach the surface area (in km²) within the territory of the country of any transboundary aquifers should be calculated. The total surface area within the country of transboundary river and lake basins, and transboundary aquifers, should be added together to calculate the total transboundary basin surface area for the country. This can be done conveniently using Geographical Information Systems (GIS) techniques and available national or international databases.

Step 3: Review existing arrangements for transboundary cooperation in water management and verify which transboundary basin areas (transboundary river and lake basins and/or transboundary aquifers or parts thereof) are covered by those arrangements.

Step 4: Check which of the existing arrangements are operational, using the four criteria of operationality.

Step 5: Calculate the percentage of transboundary basin area within a country with an operational arrangement for water cooperation (P_{TAOCA}) using the formula:

$$P_{TAOCA} = \frac{A_{OCA}}{A_{Total}} \times 100$$

where,

A_{OCA} is the surface area of transboundary river and lake basins and aquifers in a country that are covered by an operational arrangement for water cooperation (results from Step 3 and 4); and

A_{Total} is the total area of transboundary river and lake basins and aquifers in a country (results from step 1 and 2).

Comments and limitations:

The spatial information of transboundary river and lake basins and their catchment areas is readily available. However, information on the number and the areal extent of transboundary aquifers is often based on limited knowledge that may evolve over time and updating of the value may be required in each reporting cycle.

The legal basis for cooperation develops slowly and takes several years, as opposed to some of the four criteria that assess the operability of arrangements, which are more dynamic and can evolve over shorter time frames.

The situation of each river, lake and aquifer is assessed for the calculation of the national indicator but the focus of the indicator is at the transboundary scale. Harmonisation of data between countries sharing the same transboundary rivers, lakes and aquifers should therefore be covered.

Data Disaggregation

While it is important to calculate the indicator value for all transboundary waters within a country, the indicator value can be presented separately for river and lake basins, and aquifers.

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Official SDG Metadata URL

<https://unstats.un.org/sdgs/metadata/files/Additional-SDG-indicator-metadata-JUL2017.zip>

Internationally agreed methodology and guideline URL

<http://www.unwater.org/publications/step-step-methodology-monitoring-transboundary-cooperation-6-5-2/>

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International Organization(s) for Global Monitoring

This document was prepared based on inputs from International Hydrological Programme of United Nations Educational, Scientific and Cultural Organization (UNESCO-IHP) and United Nations Economic Commission for Europe (UNECE).

For focal point information for this indicator, please visit <https://unstats.un.org/sdgs/dataContacts/>

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Indicator Name, Target and Goal

Indicator 6.a.1: Amount of water and sanitation-related official development assistance that is part of a government-coordinated spending plan

Target 6.a: By 2030, expand international cooperation and capacity-building support to developing countries in water- and sanitation-related activities and programmes, including water harvesting, desalination, water efficiency, wastewater treatment, recycling and reuse technologies

Goal 6: Ensure availability and sustainable management of water and sanitation for all

Definition and Rationale

Definition:

This indicator is defined as the percentage of total water and sanitation-related Official Development Assistance (ODA) disbursements that are included in the government budget of developing countries.

Concepts:

ODA is defined as those flows to countries and territories on the Development Assistance Committee's (DAC) list of ODA recipients and to multilateral institutions which are

- (1) Provided by official agencies, including state and local governments, or by the executive agencies; and
- (2) Each transaction:
 - a. is administered with the promotion of the economic development and welfare of developing countries as its main objective; and
 - b. is concessional in character and conveys a grant element of at least 25% (calculated at a rate of discount of 10%).

Developing countries refers to those countries that are eligible to receive ODA according to the DAC's list of ODA recipients.

Water and sanitation-related activities and programmes include those for water supply, sanitation and hygiene (WASH) (targets 6.1,6.2), wastewater and water quality (6.3), water efficiency (6.4), water resource management (6.5), and water-related ecosystem (6.6). As per target 6.a, it also includes activities and programmes for water harvesting, desalination, water efficiency, wastewater treatment, recycling and reuse technologies.

A *government coordinated spending plan* is defined as a financing plan/budget, for the water and sanitation sector, which clearly assesses the available sources of financing and strategies for financing future needs.

Rationale and Interpretation:

By measuring the percentage of water and sanitation ODA that is included in the government budget, it is possible to gain a better understanding of whether donors are aligned with national governments while highlighting total water and sanitation-related ODA disbursements over time.

A low value of this indicator (near 0%) would suggest that international donors are investing in water and sanitation-related activities and programmes completely unaligned with the national government. On the contrary, a high value (near 100%) would indicate a stronger alignment of donors with the national government and policies for water and sanitation.

Data Sources and Collection Method

Data for the numerator for this indicator are collected from government report statistics on the amount of donor funds that were included in the government budget. Some countries provide this information to the UN-Water Global Analysis and Assessment of Sanitation and Drinking Water (GLAAS) survey. A draft survey response is compiled by an appointed focal point based on input from stakeholders, and is then finalized through a national multi-stakeholder review. Ministries with responsibilities related to finance, water supply and sanitation, agriculture, water resources development and management, environment, and foreign affairs would contribute to the survey response.

The denominator is computed using OECD's Creditor Reporting System (CRS) purpose codes 14000-series for the water sector and the purpose codes 31140 for agricultural water resources, 41050 for flood prevention and control, and 23220 for hydro-electric power plants.

Method of Computation and Other Methodological Considerations

Computation Method:

The percentage of total water and sanitation-related Official Development Assistance (ODA) disbursements that are included in the government budget of developing countries (P_{ODA-WS}) can be calculated using the following formula:

$$P_{ODA-WS} = \frac{GOV_{ODA-WS}}{TOT_{ODA-WS}} \times 100$$

where,

GOV_{ODA-WS} is the amount of water and sanitation-related ODA that are included in the government budget; and

TOT_{ODA-WS} is the total amount of water and sanitation-related ODA.

Comments and limitations:

As the numerator and denominator come from different sources, there is a possibility of different underlying assumptions regarding what should be included/excluded in the ODA figures. This may lead to errors in the calculating of this indicator. To remedy this issue, countries would provide data for the numerator by matching project-level ODA figures from OECD with their on-budget project data.

The OECD Creditor Reporting System (CRS) currently disaggregates ODA for the water and sanitation among several categories including: sector policy and administration, water resources protection, large and basic water and sanitation systems, river basin infrastructure, waste management, agricultural water resources, and education and training. While these categories do not align directly with the target areas of SDG 6 individually, which limits the disaggregation of ODA among the SDG target areas, the combined ODA from these categories does align with a majority of the reported ODA to the water sector.

ODA represents only one aspect of international cooperation. To capture other dimensions, other indicators such as those from the Collaborative Behaviours identified by the Sanitation and Water for All (SWA) partnership, should also be reviewed. For further information on Collaborative Behaviours see: <http://sanitationandwaterforall.org/about/the-four-swa-collaborative-behaviours/>

Proxy, alternative and additional indicators:

Total amount of water and sanitation-related ODA

The absolute amount of water and sanitation-related ODA (denominator) is reported in constant USD. This will provide an indication of scale and to assess whether absolute levels of ODA are increasing or decreasing over time.

Data Disaggregation

This indicator can be disaggregated by CRS code.

References

Official SDG Metadata URL

<https://unstats.un.org/sdgs/metadata/files/Metadata-06-0A-01.pdf>

Internationally agreed methodology and guideline URL

http://www.unwater.org/app/uploads/2017/05/Methodological-note-6a-and-6b_7-March-2017.pdf (currently being revised)

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Country examples

N/A

International Organization(s) for Global Monitoring

This document was prepared based on inputs from World Health Organization (WHO) and Organization for Economic Co-Operation and Development (OECD).

For focal point information for this indicator, please visit <https://unstats.un.org/sdgs/dataContacts/>

Indicator 6.b.1

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Indicator Name, Target and Goal

Indicator 6.b.1: Proportion of local administrative units with established and operational policies and procedures for participation of local communities in water and sanitation management

Target 6.b: Support and strengthen the participation of local communities in improving water and sanitation management

Goal 6: Ensure availability and sustainable management of water and sanitation for all

Definition and Rationale**Definition:**

This indicator is defined as the percentage of local administrative units (as defined by the national government) that have established and operational policies and procedures by which individuals and communities can participate in decision making on water and sanitation

management.

Concepts:

Local administrative units refer to non-overlapping sub-districts, municipalities, communes, or other local community-level units covering both urban and rural areas as defined by the government.

Policies and procedures for participation of local communities suggest presence of formal/legal mechanisms to ensure participation of users in planning water and sanitation activities.

Formal or legal mechanisms are considered *operational* if they are implemented, with appropriate funding in place, and have means for verifying that participation took place.

Water and sanitation-related activities and programmes include those for water supply, sanitation and hygiene (WASH) (targets 6.1,6.2), wastewater and water quality (6.3), water efficiency (6.4), water resource management (6.5), and water-related ecosystem (6.6).

Rationale and Interpretation:

Participation of local communities is vital to ensure the needs of all the community are met, including the most vulnerable and also encourages ownership of schemes which in turn contributes to their sustainability. Defining the procedures in policy or law indicates a degree of formalization and consistency in the implementation of these procedures.

A low value of this indicator would suggest that participation of local communities in water and sanitation management is low, whereas a high value would indicate high levels of participation, indicating greater ownership and a higher likelihood of sustainable delivery and management of water and sanitation services.

Data Sources and Collection Method

Potential data sources or monitoring mechanisms that could be used by national governments to collect this data include the following:

- Census of municipalities (assuming municipalities cover both urban and rural localities, and the government already conducts or is planning to conduct periodic censuses of municipalities); alternatively through a survey with representative sampling of municipalities.
- Including one or more questions in a community module of a national survey.
- Including this indicator in administrative data or WASH MIS to be collected at the local administrative unit level.
- Using focus groups and/or community dialogues on local participation with key informants, members of the general public (See: UNDP. A user's guide to measuring local governance. Available at <http://www.undp.org/content/dam/aplaws/publication/en/publications/democratic-governance/dg-publications-for-website/a-users-guide-to-measuring-local-governance-LG%20Guide.pdf>), and NGOs active in the community.
- Collecting information through existing projects at local administrative unit level.
- Innovative data collection methods such as crowdsourcing or SMS surveys.

For some countries, data for the numerator and denominator for this indicator are also collected through the [UN-Water Global Analysis and Assessment of Sanitation and Drinking Water \(GLAAS\) survey](#), which collect statistics on of donor funds that were included in the government budget.

A draft survey response is compiled by an appointed focal point based on input from stakeholders, and is then finalized through a national multi-stakeholder review. Ministries with responsibilities related to finance, water supply and sanitation, agriculture, water resources development and management, environment, and foreign affairs would contribute to the survey response.

Method of Computation and Other Methodological Considerations

Computation Method:

The percentage of local administrative units with established and operational policies and procedures for participation of local communities in water and sanitation management (P_{LAP}) is calculated as follows:

$$P_{LAP} = \frac{\text{the number of local administrative units with operational policies and procedures for local participation}}{\text{the total number of local administrative units in the country}} \times 100$$

Comments and limitations:

As the indicator is computed as a percentage of local administrative units, it does not reflect the percentage of the population covered by policies and procedures for community participation.

As local administrative units are defined country-by-country, the population covered by each unit may vary widely within and between countries. There may be large discrepancies within a country on the population per local administrative unit between urban and rural areas. Consequently, the comparability of this indicator between countries is limited.

There is a degree of subjectivity in what constitutes an “established and operational” policy or procedure, as well as on the definition of “participation”. Further study is currently ongoing to better define these concepts regarding community participation.

Policies and procedures are often established at the central level, but operationalization is not always monitored centrally. In addition, established and operational policies and procedures do not necessarily lead to high levels of participation.

The indicator does not necessarily correlate with quality of water and sanitation management: High community participation does not always lead to better water and sanitation management, and low participation does not indicate that water and sanitation management is poor.

The indicator does not capture informal participation procedures, which may be just as effective as those that are formally defined.

Proxy, alternative and additional indicators:

The past several cycles of the [UN-Water Global Analysis and Assessment of Sanitation and Drinking Water \(GLAAS\) survey](#) have included a question on the presence of clearly defined procedures in laws or policies at the national level for local participation in planning programmes, as well as on the extent of participation (low/moderate/high). Responses are disaggregated for urban and rural sanitation, urban and rural drinking water supply, hygiene promotion, and water resources management. The following data are available:

- presence or absence in a country of clearly defined procedures in law or policy for participation by service users/communities in planning program in water, sanitation and hygiene management
- presence or absence in a country of a high level of users/communities participating in planning programs in water, sanitation and hygiene management

The OECD Water Governance Indicator Framework, launched in March 2018, includes indicators on stakeholder engagement to appraise the existence and level of implementation of legal frameworks to engage stakeholders in water-related decision making (Principle 10). The indicator can inform on community participation.

Data Disaggregation

This indicator is not required to be disaggregated but it can be disaggregated by subsector (urban/rural drinking-water and sanitation, water resources management).

References

Official SDG Metadata URL

<https://unstats.un.org/sdgs/metadata/files/Metadata-06-0B-01.pdf>

Internationally agreed methodology and guideline URL

http://www.unwater.org/app/uploads/2017/05/Methodological-note-6a-and-6b_7-March-2017.pdf (currently being revised)

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Country examples

N/A

International Organization(s) for Global Monitoring

This document was prepared based on inputs from World Health Organization (WHO) and Organization for Economic Co-Operation and Development (OECD).

For focal point information for this indicator, please visit <https://unstats.un.org/sdgs/dataContacts/>

Goal 7

Ensure access to affordable, reliable, sustainable and modern energy for all

[e-Handbook Home Page](#)


In this goal:

United Nations Statistics Division (UNSD) worked in consultation with each indicators' custodian agency(ies) to prepare these chapters. For indicators that do not have chapters here yet, they are currently being prepared and they will be uploaded here as soon as they become available.

If you have any questions on the e-Handbook, do not hesitate to contact Shaswat Sapkota (sapkotas@un.org).

Indicator 7.1.2

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Indicator Name, Target and Goal

Indicator 7.1.2: Proportion of population with primary reliance on clean fuels and technology

Target 7.1: By 2030, ensure universal access to affordable, reliable and modern energy services

Goal 7: Ensure access to affordable, reliable, sustainable and modern energy for all

Definition and Rationale

Definition:

This indicator is defined as the number of people using clean fuels and technologies for domestic cooking, heating and lighting divided by total population reporting any cooking, heating or lighting. It is expressed as a percentage.

Concepts:

Clean fuel and technologies is defined by the emission rate targets and specific fuel recommendations that are contained in the 'Guidelines for Indoor Air Quality: Household Fuel Combustion' report by WHO [<http://www.who.int/indoorair/guidelines/hhfc/en/>].

Rationale and Interpretation:

Cooking, lighting and heating represent a large share of household energy use across low and middle income countries. Fuels paired with inefficient technologies (such as open fires, inefficient stoves, space heaters and lamps) are associated with high levels of household (indoor) air pollution, which is, for cooking alone, estimated to cause over 4 million deaths annually. However, these deaths are avoidable with the adoption of clean fuels and technologies. This indicator measures the share of such adoption in the total population.

Countries classified as high-income with a Gross National Income (GNI) of more than US\$ 12,234^[1] per capita are assumed to have made a complete transition to using clean fuels and technologies as the primary domestic energy source. For heating and lighting, the same methodology with the same above-mentioned assumptions will be used.

[1] As defined by the latest World Bank Income classification. <https://blogs.worldbank.org/opendata/new-country-classifications-income-level-2017-2018> or databank.worldbank.org/data/download/site-content/CLASS.xls

Data Sources and Collection Method

Data for this indicator can be routinely collected at the national levels in most countries using censuses and household surveys including: United States Agency for International Development (USAID)-supported Demographic and Health Surveys (DHS); United Nations Children's Fund (UNICEF)-supported Multiple Indicator Cluster Surveys (MICS); WHO-supported World Health Surveys (WHS); World Bank's Living Standard Measurement Surveys (LSMS) and other reliable and nationally representative country surveys.

In addition, the World Health Organization compiles a database of statistics on access to clean and polluting fuels and technologies that it has collected from the full global body of household surveys for cooking, heating and lighting. Currently, the WHO Database covers cooking energy for 157 countries and one territory for the period 1970-2016 and is updated regularly and publicly available.

Method of Computation and Other Methodological Considerations

Computation Method:

The indicator is calculated as follows:

$$\text{Percentage of population with primary reliance on clean fuels and technologies} = \frac{\text{Number of people using clean fuels and technologies for cooking, heating, or lighting}}{\text{Total population of the reporting any cooking, heating or lighting}} \times 100$$

Please note that this indicator is currently calculated by the WHO and reported at the global level based on the main type of fuel for cooking. Currently, clean cooking is defined as primary use of electricity, biogas, alcohol fuels, liquified petroleum gas or piped natural gas. Cooking occupies the largest share of overall household energy needs. Information on main cooking fuel use is widely available on household surveys and serves as surrogate for household energy access. Presently, the limited data collection on the technologies for cooking, heating and lighting is as a constraint for expanding this indicator to include the fuels and technologies used for other household energy end-uses. However in the future, the fuels and technologies used for both lighting and heating, as well as the cooking stove itself will be included in reporting, as country level data are becoming increasingly available with more robust monitoring.

The indicator is currently modelled for the purpose of monitoring trends and providing point estimates for countries and regions in specific years.

Comments and limitations:

Households may use other secondary cooking fuels and stoves that may be harmful, but are not captured by this indicator. Depending on climatic and geographic conditions, heating and lighting with polluting fuels and technology combinations (also not captured by this indicator) can also be a contributor to household air pollution levels (in addition to contribute to outdoor air pollution).

Currently there is a limited amount of available data capturing the type of cookstoves and the fuel and devices used in the home for heating and lighting. Progress is underway towards developing and piloting new methodologies like the World Bank's Multi-tier Tracking Framework to capture the type of fuel and technological devices being used in households for cooking, heating and lighting.

Proxy, alternative and additional indicators: N/A

Data Disaggregation

This indicator can be disaggregated by urban/rural place of residence, by estimates for different end-uses, and by fuel types.

References

Official SDG Metadata URL

<https://unstats.un.org/sdgs/metadata/files/Metadata-07-01-02.pdf>

Internationally agreed methodology and guideline URL

<http://apps.who.int/gho/data/node.wrapper.imr?x-id=318>

Other references

World Bank (2017). *Sustainable Energy for All 2013-2014: Global Tracking Framework*. Washington, D.C. Available at: <http://gtf.esmap.org/downloads>

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WHO. *Global Health Observatory: Population Using Solid Fuels*. Geneva. Internet site: <http://apps.who.int/gho/data/node.wrapper.imr?x-id=318>

Country examples

N/A

International Organization(s) for Global Monitoring

This document was prepared based on inputs from World Health Organization (WHO).

For focal point information for this indicator, please visit <https://unstats.un.org/sdgs/dataContacts/>

Indicator 7.2.1

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Indicator Name, Target and Goal

Indicator 7.2.1: Renewable energy share in the total final energy consumption

Target 7.2: By 2030, increase substantially the share of renewable energy in the global energy mix

Goal 7: Ensure access to affordable, reliable, sustainable and modern energy for all

Definition and Rationale

Definition:

The renewable energy share in total final consumption is the percentage of final consumption of energy that is derived from renewable resources.

Concepts:

Renewable energy consumption includes consumption of energy derived from: hydro, solid biofuels, wind, solar, liquid biofuels, biogas, geothermal, marine and waste. Total final energy consumption is calculated from national balances and statistics as total final consumption minus non-energy use.

Comments with regard to specific renewable energy resources:

- Solar energy consumption includes solar PV and solar thermal
- Liquid biofuel energy consumption includes biogasoline, biodiesels and other liquid biofuels
- Solid biofuel consumption includes fuelwood, animal waste, vegetable waste, black liquor, bagasse and charcoal
- Waste energy covers energy from renewable municipal waste

Rationale and Interpretation:

The target "By 2030, increase substantially the share of renewable energy in the global energy mix" impacts all three dimensions of sustainable development. Renewable energy technologies represent a major element in strategies for greening economies everywhere in the world and for tackling the critical global problem of climate change. A number of definitions of renewable energy exist; what they have in common is highlighting as renewable all forms of energy that their consumption does not deplete their availability in the future. These include solar, wind, ocean, hydropower, geothermal resources, and bioenergy (in the case of bioenergy, which can be depleted, sources of bioenergy can be replaced within a short to medium-term frame). Importantly, this indicator focuses on the amount of renewable energy actually consumed rather than the capacity for renewable energy production, which cannot always be fully utilized. By focusing on consumption by the end user, it avoids the distortions caused by the fact that conventional energy sources are subject to significant energy losses along the production chain.

Data Sources and Collection Method

Specialized industry surveys (e.g. on bioenergy use) or household surveys (in combination with the measurement of other indicators) would be feasible approaches to data collection (e.g. for use of firewood, off-grid solar energy).

Data on renewable energy consumption are also available through national Energy Balances produced by the International Energy Agency and the United Nations Statistics Division (UNSD) for more than 180 countries. The energy balances make it possible to trace all the different sources and uses of energy at the national level.

Method of Computation and Other Methodological Considerations

Computation Method:

The percentage of renewable energy in the total final energy consumption (P_{RE}) is calculated as follows:

$$P_{RE} = \frac{EC_{RE}}{EC_{Total}} \times 100$$

where,

EC_{RE} is the energy consumption from all renewable sources (megajoules); and

EC_{Total} is the total final energy consumption (megajoules).

This indicator is based on the development of comprehensive energy statistics across supply and demand for all energy sources – statistics used to produce a national energy balance. Once a national energy balance is developed, the indicator can be calculated by

dividing consumption of energy from all renewable sources by total final energy consumption. Renewable energy consumption is derived from three tables of the IEA world energy statistics and balances: total final consumption, electricity output and heat output.

Comments and limitations:

A limitation with existing renewable energy statistics is that they are not able to distinguish whether renewable energy is being sustainably produced. For example, a substantial share of today's renewable energy consumption comes from the use of wood and charcoal by households in the developing world, which sometimes may be associated with unsustainable forestry practices. There are efforts underway to improve the ability to measure the sustainability of bio-energy, although this remains a significant challenge.

Off-grid renewables data is limited and not sufficiently captured in the energy statistics

The method of allocation of renewable energy consumption from electricity and heat output assumes that the share of transmission and distribution losses are the same between all technologies. However, this is not always true because renewables are usually located in more remote areas from consumption centers and may incur larger losses.

Likewise, imports and exports of electricity and heat are assumed to follow the share of renewability of electricity and heat generation, respectively. This is a simplification that in many cases will not affect the indicator too much, but that might do so in some cases, for example, when a country only generates electricity from fossil fuels but imports a great share of the electricity it uses from a neighboring country's hydroelectric power plant.

Methodological challenges associated with defining and measuring renewable energy are more fully described the Global Tracking Framework (IEA and World Bank, 2013) Chapter 4, Section 1, page 194-200. Data for traditional use of solid biofuels are generally scarce globally, and developing capacity in tracking such energy use, including developing national level surveys, is essential for sound global energy tracking.

Imports and exports of electricity from neighbouring countries may also have minor implications to the calculation of this indicator.

Proxy, alternative and additional indicators: N/A

Data Disaggregation

disaggregation of data on consumption of renewable energy by resource and end-use sector could provide insights into other dimensions of the goal, such as affordability and reliability. For solar energy, it may also be useful to disaggregate between grid and off-grid capacity.

References

Official SDG Metadata URL

<https://unstats.un.org/sdgs/metadata/files/Metadata-07-02-01.pdf>

Internationally agreed methodology and guideline URL

<https://unstats.un.org/unsd/energy/ires/>.

Other references

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UNSD. *UN Energy Statistics Database*. Internet site: <https://unstats.un.org/unsd/energy/edbase.htm>

IEA. *IEA Energy Balances and Statistics*. Internet site: <http://www.iea.org/statistics/topics/energybalances/>

IRENA. *IRENA Renewable Energy Database*. Internet site: <http://resourceirena.irena.org/gateway/dashboard/>

Country examples

N/A

International Organization(s) for Global Monitoring

This document was prepared based on inputs from UN Statistics Division (UNSD), International Energy Agency (IEA) and International Renewable Energy Agency (IRENA).

For focal point information for this indicator, please visit <https://unstats.un.org/sdgs/dataContacts/>

Indicator 7.3.1

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Indicator Name, Target and Goal

Indicator 7.3.1: Energy intensity measured in terms of primary energy and GDP

Target 7.3: By 2030, double the global rate of improvement in energy efficiency

Goal 7: Ensure access to affordable, reliable, sustainable and modern energy for all

Definition and Rationale

Definition:

Energy intensity is defined as the total energy supplied to the economy per unit value of economic output. It is measured in Megajoules per United States Dollar.

Concepts:

Total energy supply, as defined by the International Recommendations for Energy Statistics (IRES), as made up of production plus net imports minus international marine and aviation bunkers plus-stock changes. Gross Domestic Product (GDP) is the measure of economic output. For international comparison purposes, GDP is measured in constant terms at purchasing power parity

Rationale and Interpretation:

Energy intensity is an indication of how much energy is used to produce one unit of economic output. It is a proxy of the efficiency with which an economy is able to use energy to produce economic output. A lower ratio indicates that less energy is used to produce one unit of output.

Data Sources and Collection Method

Total energy supply is typically calculated in the making of national energy balances, which are maintained by the ministries of energy or national statistical offices in countries. GDP figures are also calculated by national statistical offices or other relevant agencies as part of their macroeconomic data gathering and statistical record keeping.

Method of Computation and Other Methodological Considerations

Computation Method:

Energy intensity (*EI*) can be calculated using the following formula:

$$EI = \frac{\text{Total energy supply (Megajoules)}}{\text{Total GDP (USD)}}$$

This indicator is based on the development of comprehensive energy statistics across supply and demand for all energy sources – statistics used to produce a national energy balance. Internationally agreed methodologies for energy statistics are described in the “International Recommendations for Energy Statistics” (IRES), adopted by the UN Statistical Commission, available at: <https://unstats.un.org/unsd/energy/ires/>.

Comments and limitations:

Energy intensity is only an imperfect proxy for energy efficiency. It can be affected by a number of factors, such as climate, structure of the economy, nature of economic activities etc. that are not necessarily linked to pure efficiency.

Proxy, alternative and additional indicators:

Data Disaggregation

Disaggregation of energy intensity, e.g. by sector, could provide further insights into progress towards energy efficiency. At present it is only feasible to calculate such sector disaggregations for the following sectors – industry, residential, transport, agriculture, households – as reported in the Global Tracking Framework. It would be desirable, over time, to develop more refined sectoral level energy intensity indicators that make it possible to look at energy intensity by industry (e.g. cement, steel) or by type of vehicle (e.g. cars, trucks), for example. Doing so will not be possible without statistical collaboration with the relevant energy consuming sectors.

Decomposition analysis of energy intensity trends seeks to filter out factors that affect energy demand, such as economy wide scale and structure shifts, from more narrowly defined energy intensity shifts. The methodology applies decomposition analysis to isolate a more refined measure of energy intensity, one that sifts out the temporal shift of relative sector weights. This analysis is also reported in the Global Tracking Framework.

References

Official SDG Metadata URL

<https://unstats.un.org/sdgs/metadata/files/Metadata-07-03-01.pdf>

Internationally agreed methodology and guideline URL

International Recommendations on Energy Statistics (IRES) <https://unstats.un.org/unsd/energy/ires/>

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IEA SDG 7 webpage: <http://www.iea.org/sdg7>

Country examples

N/A

International Organization(s) for Global Monitoring

This document was prepared based on inputs from UN Statistics Division (UNSD) and International Energy Agency (IEA).

For focal point information for this indicator, please visit <https://unstats.un.org/sdgs/dataContacts/>

Indicator 7.a.1

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Indicator Name, Target and Goal

Indicator 7.a.1: International financial flows to developing countries in support of clean energy research and development and renewable energy production, including in hybrid systems

Target 7.a: By 2030, enhance international cooperation to facilitate access to clean energy research and technology, including renewable energy, energy efficiency and advanced and cleaner fossil-fuel technology, and promote investment in energy infrastructure and clean energy technology

Goal 7: Ensure access to affordable, reliable, sustainable and modern energy for all

Definition and Rationale

Definition:

This indicator is defined as the total public international financial flows, i.e. ODA and OOF and the IRENA flows, to developing countries in support of clean energy research and development and renewable energy production, including in hybrid systems. They are expressed in current United States Dollars (USD).

Concepts:

Official Development Assistance (ODA) is defined by OECD's Development Assistance Committee (DAC) as those flows to countries and territories on the DAC list of ODA recipients and to multilateral institutions which are:

- (1) Provided by official agencies, including state and local governments, or by their executive agencies; and
- (2) Each transaction if which:
 - (a) is administered with the promotion of the economic development and welfare of developing countries as its main objective; and
 - (b) is concessional in character and conveys a grant element of at least 25 percent (calculated at a rate of discount of 10 percent).

Other Official Flows (OOF) are defined as transactions by the official sector which do not meet the conditions for eligibility as ODA, either because they are not primarily aimed at development, or because they are not sufficiently concessional. They also exclude officially supported export credits.

Clean energy research and development and renewable energy production, including in hybrid systems covers the following sector codes:

23210 Energy generation, renewable sources – multiple technologies - Renewable energy generation programmes that cannot be attributed to one single technology (codes 23220 through 23280 below). Fuelwood/charcoal production should be included under forestry 31261;

23220 Hydro-electric power plants - Including energy generating river barges;

23230 Solar energy - Including photo-voltaic cells, solar thermal applications and solar heating;

23240 Wind energy - Wind energy for water lifting and electric power generation;

23250 Marine energy - Including ocean thermal energy conversion, tidal and wave power;

23260 Geothermal energy - Use of geothermal energy for generating electric power or directly as heat for agriculture, etc.; and

23270 Biofuel-fired power plants Use of solids and liquids produced from biomass for direct power generation. Also includes biogases from anaerobic fermentation (e.g. landfill gas, sewage sludge gas, fermentation of energy crops and manure) and thermal processes (also known as syngas); waste fired power plants making use of biodegradable municipal waste (household waste and waste from companies and public services that resembles household waste, collected at installations specifically designed for their disposal with recovery of combustible liquids, gases or heat). See code 23360 for non-renewable waste-fired power plants.

Research and development of energy efficiency technologies and measures is captured under CRS sector code 23182 on Energy research. The above flows also include technical assistance provided to support production, research and development as defined above.

The IRENA flows are defined as all additional loans, grants and equity investments received by developing countries (defined as countries in developing regions, as listed in the UN M49 composition of regions) from all foreign governments, multilateral agencies and additional development finance institutions (including export credits, where available) for the purpose of clean energy research and development and renewable energy production, including in hybrid systems. These additional flows cover the same technologies and other activities (research and development, technical assistance, etc.) as listed above and exclude all flows extracted from the OECD/DAC Creditor Reporting System (CRS).

Rationale and Interpretation:

Total ODA and OOF flows to developing countries quantify the public financial effort (excluding export credits) that donors provide to developing countries for renewable energies. The additional flows (from the IRENA database) capture the flows to non-ODA Recipients in developing regions, flows from countries and institutions not currently reporting to the DAC and certain other types of flows, such as export credits.

Energy access is a major development constraint in many developing countries and, while starting from a relatively low base, energy demand is expected to grow very rapidly in many of these countries in the future. This presents an opportunity for developing countries to utilize clean and renewable technologies to meet their future energy needs if they can gain access to the appropriate technologies and expertise. This indicator provides a suitable measure of the international support given to developing countries to access these technologies.

Data Sources and Collection Method

The OECD/DAC has been collecting data on official and private resource flows from 1960 at an aggregate level and 1973 at an activity level through the Creditor Reporting System (CRS data are considered complete from 1995 for commitments at an activity level and 2002 for disbursements). Data are reported on an annual calendar year basis by statistical reporters in national administrations (aid agencies, Ministries of Foreign Affairs or Finance, etc).

IRENA's data on financial flows from public sources in support of renewable energy are available in IRENA's Public Renewable Energy Investment Database. IRENA collects this data from a wide range of publicly available sources, including the databases and annual reports of all of the main development finance institutions and 20 other bilateral and multilateral agencies investing in renewable energy. The database is updated annually and (at end-2016) covers public renewable energy investment flowing to 29 developed countries and 104 developing countries, for the period 2009-2015. As new publicly-funded financial institutions start investing in renewable energy, the IRENA database will expand to include these new investors over time.

Method of Computation and Other Methodological Considerations

Computation Method:

ODA and OOF are calculated by taking the total official flows from DAC member countries, multilateral organisations and other providers of development assistance to the sectors listed above.

The IRENA (additional) flows are calculated by taking the total public investment flows from IRENA's Public Renewable Energy Investment Database and excluding: domestic financial flows; international flows to countries outside developing regions; and flows reported by OECD (as described above). The flows are measured in current United States Dollars (USD).

Comments and limitations:

Data in CRS are available from 1973. However, the data coverage is considered complete since 1995 for commitments at an activity level and 2002 for disbursements. At present, flows to clean energy research and development are only partially covered by the database and a few other areas (e.g. off-grid electricity supply, investments in improved cookstove projects) may be covered only partially.

The IRENA database currently only covers financial institutions that have invested a total of USD 400 million or more in renewable energy. The process of continuous improvement of the database includes verifying the data against data produced by the multilateral development banks for climate finance reporting and by comparing the data with other independent reporting by international development finance agencies.

Sub-indicator, alternative and additional indicators: N/A

Data Disaggregation

Data from OECD/DAC can be disaggregated by type of flow (ODA or OOF), by donor, recipient country, type of finance, type of aid (project, agriculture sub-sector, etc.).

Data from IRENA can be disaggregated by technologies (i.e. bioenergy, geothermal energy, hydropower, ocean energy, solar energy, and wind energy) and sub-technologies (e.g. onshore and offshore wind), by geography (both at the country and regional level), by

financial instrument and by type of recipient.

References

Official SDG Metadata URL

<https://unstats.un.org/sdgs/metadata/files/Metadata-07-0a-01.pdf>

Internationally agreed methodology and guideline URL

N/A

Other references

CRS: See all links here: <http://www.oecd.org/dac/stats/methodology.htm>

IRENA Renewable Energy Finance Flows: <http://resourceirena.irena.org/gateway/dashboard/?topic=6&subTopic=8>

Country examples

N/A

International Organization(s) for Global Monitoring

This document was prepared based on inputs from Organisation for Economic Co-operation and Development (OECD) and International Renewable Energy Agency (IRENA).

For focal point information for this indicator, please visit <https://unstats.un.org/sdgs/dataContacts/>

Goal 8

Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all

[e-Handbook Home Page](#)



In this goal:

United Nations Statistics Division (UNSD) worked in consultation with each indicators' custodian agency(ies) to prepare these chapters. For indicators that do not have chapters here yet, they are currently being prepared and they will be uploaded here as soon as they become available.

If you have any questions on the e-Handbook, do not hesitate to contact Shaswat Sapkota (sapkotas@un.org).

Indicator 8.1.1

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Indicator Name, Target and Goal

Indicator 8.1.1: Annual growth rate of real GDP per capita

Target 8.1: Sustain per capita economic growth in accordance with national circumstances and, in particular, at least 7 per cent gross domestic product growth per annum in the least developed countries

Goal 8: Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all

Definition and Rationale

Definition:

This indicator is defined as the percentage change in the real GDP per capita between two consecutive years.

Concepts:

GDP is the measure of the monetary value of final goods and services which are produced in an economic territory/country in a given time period. It is calculated without making deductions for depreciation of produced assets or for depletion and degradation of natural resources. It can be measured either by:

- (1) The expenditure method – the sum of expenditures on final consumption, gross capital formation and net exports; or
- (2) The production method – the value of final outputs minus any intermediate consumption, plus the net taxes (taxes minus subsidies); or
- (3) The income approach – the sum of compensation of employees, gross operating surplus, gross mixed incomes and the net taxes on both production and imports.

Real GDP is GDP adjusted for price changes using the ratio of prices in the current year to the prices in a given base year.

Real GDP per capita is real GDP dividing by the population of a country.

The population of a country may comprise either all usual residents of the country or all persons present in the country at the time of a population census.

Rationale and Interpretation:

Measuring the annual growth rate of real GDP per capita allows for directly tracking target 8.1. It also serves as a proxy for the average standard of living of residents in a country.

A positive percentage change in annual real GDP per capita can be interpreted as an increase in the average standard of living of the residents in a country.

Data Sources and Collection Method

GDP is calculated as part of the compilation of the national accounts data of a country. The national accounts and population data for a country are generally compiled by the statistical authorities of a country (Statistical Office, Central Bank, relevant Ministries etc.) The underlying data for compiling the national accounts and GDP, can come from either statistical surveys or administrative sources. The survey method collects data using nationally representative business/enterprise surveys, household budget surveys and consumer price surveys etc. Administrative data sources are government expenditures and revenues, tax declarations, balance of payments, vehicle registration, employment data etc. The international statistical standard for compiling the national accounts of a country is the System of National Accounts 2008 (2008 SNA), which provides detailed guidance on the calculation of the GDP, see: <https://unstats.un.org/unsd/nationalaccount/sna2008.asp>. Additional guidance is also provided in the following publications: National Accounts: A practical introduction, see: https://unstats.un.org/unsd/publication/SeriesF/seriesF_85.pdf

Understanding National Accounts, see: <http://www.oecd.org/sdd/UNA-2014.pdf>

Essential SNA: Building the basics, see: <http://ec.europa.eu/eurostat/documents/3859598/5937349/KS-GQ-14-008-EN.PDF/dead3c43-51bb-4833-b4c5-f2f0d951bc52>

Population statistics are obtained from censuses and demographic surveys. The Principles and Recommendations for Population and Housing Censuses provide international principles and recommendations for conducting population censuses, see: https://unstats.un.org/unsd/publication/seriesM/Series_M67rev3en.pdf.

The publication World Population Prospects The 2017 Revision, Methodology of the United Nations Population Estimates and Projections provides guidance on population estimates, see: https://esa.un.org/unpd/wpp/Publications/Files/WPP2017_Methodology.pdf

Method of Computation and Other Methodological Considerations

Computation Method:

In order to calculate the annual growth rate of real GDP per capita the following steps need to be taken:

Step 1: Divide the real GDP for year t and $t+1$ with the total population of the country in the respective years to get the real GDP per capita for the two consecutive years.

$$G_t = \frac{\text{Real GDP year } t}{\text{Total population in year } t}$$

$$G_{t+1} = \frac{\text{Real GDP year } (t + 1)}{\text{Total population in year } (t + 1)}$$

where,

G_t is the real GDP per capita for the year t ; and

G_{t+1} is the real GDP per capita for the year $t+1$.

Step 2: The annual growth rate of real GDP per capita is then calculated as follows:

$$= \frac{[G_{t+1} - G_t]}{G_t} \times 100$$

Comments and limitations:

Although countries or areas calculate GDP using the common principles and recommendations in the United Nations System of National Accounts (SNA), there are still issues with the international comparability of GDP estimates due to countries potentially using different versions of the SNA (e.g. 1968, 1993, or 2008) or different degrees of coverage of informal and non-observed economic activities in the GDP estimates.

A frequently cited limitation of GDP is that it does not account for the social and environmental costs of production. It is, however, designated as a measure of the level of overall well-being.

Proxy, alternative and additional indicators: N/A

Data Disaggregation

It is possible to disaggregate the country data by region, economic sectors, if the underlying regional data is available and are consistent with the national accounts.

References

Official SDG Metadata URL

<https://unstats.un.org/sdgs/metadata/files/Metadata-08-01-01.pdf>

Internationally agreed methodology and guideline URL

The 2008 SNA, see: <https://unstats.un.org/unsd/nationalaccount/sna2008.asp>

Other references

UNSD. *National Accounts*, see: <https://unstats.un.org/unsd/nationalaccount/default.asp>

UNSD. *National Accounts Data*, see: <https://unstats.un.org/unsd/nationalaccount/data.asp>

United Nations. *Population Division: World Population Prospects 2017*. see: <https://esa.un.org/unpd/wpp/>

International Organization(s) for Global Monitoring

This document was prepared based on inputs from United Nations Statistics Division (UNSD).

For focal point information for this indicator, please visit <https://unstats.un.org/sdgs/dataContacts/>

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Indicator 8.2.1

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Indicator Name, Target and Goal

Indicator 8.2.1: Annual growth rate of real GDP per employed person

Target 8.2: Achieve higher levels of economic productivity through diversification, technological upgrading and innovation, including through a focus on high-value added and labour-intensive sectors

Goal 8: Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all

Definition and Rationale

Definition:

This indicator conveys the growth rate of real GDP produced by unit of labour input. This indicator is generally defined as the percentage change in the real GDP (at base year constant prices) per employed person—also known as labour productivity—between two consecutive years.

However, labour input more widely refers to all persons who contribute to the production of goods and services within the SNA production boundary, not only the employed. In fact, according to the new standards laid out in the 2013 *Resolution concerning statistics of work, employment and labour underutilization*, the labour input contributing to the GDP comprises not only employment (work done for use by others for pay or profit) but also own-use production of goods, unpaid trainee work and some forms of volunteer work as well.

Concepts:

GDP is the measure of the monetary value of final goods and services that are bought by the final user, which are produced in an economic territory/country in a given time year. It is calculated without making deductions for depreciation of fabricated assets or for depletion and degradation of natural resources. It can be measured either by:

- (1) The expenditure method – the sum of expenditures on final consumption, gross capital formation and net exports; or
- (2) The production method – the value of final outputs minus any intermediate consumption, plus the net taxes (taxes minus subsidies); or
- (3) The income approach – the sum of compensation of employees, gross operating surplus, gross mixed incomes and the net taxes on both production and imports.

Real GDP is the GDP figure adjusted for price changes (i.e. inflation or deflation). It is adjusted using the ratio of prices in the current year to the prices in a given base year.

Employment comprises all persons of working age who during a short reference period (one week), were engaged in any activity to produce goods or provide services for pay or profit. The working-age population is usually defined as persons aged 15 and above.

Rationale and Interpretation:

Real GDP per unit of labour input (in terms of one person contributing to the production of goods and services within the SNA production boundary, or as more generally defined, in terms of one employed person) is a measure of labour productivity. When monitored over time, it offers insight into labour productivity growth, and on the evolution, efficiency and quality of human capital in the production process. Economic growth in a country can be ascribed either to increased labour input or to more effective work by those who are

employed. This indicator casts light on the latter effect, being therefore a key measure of economic performance. Labour productivity (and growth) estimates can support the formulation of labour market policies and monitor their effects. They can also contribute to the understanding of how labour market performance affects living standards.

Data Sources and Collection Method

The data for GDP that is used for indicator is compiled by the national statistical offices, ministries of finance or economy, as part of their national accounting activities.

The employment or labour input data are derived from labour force or other nationally representative household surveys with an appropriate module, which are also conducted by the national statistical offices or the ministries of labour. In the absence of such surveys, establishment/firm surveys, administrative records or other official estimates based on reliable sources such as the population census can be used. It is important to note, however, that establishment surveys only capture the number of jobs, and not the number of persons employed, and may also be limited to the formal sector.

Method of Computation and Other Methodological Considerations

Computation Method:

First, GDP per employed person is obtained by dividing the GDP for that year by the number of employed persons in the country in the same year using the formula:

$$LP_t = \frac{GDP_t}{\text{Total employed persons}}$$

Then, the annual growth rate per employed person of real GDP for the year t

(GEP_t^{GDP})

is calculated as follows:

$$GEP_t^{GDP} = \frac{LP_t - LP_{t-1}}{LP_{t-1}} \times 100$$

where,

LP_t is the real GDP per employed person (labour productivity) at constant base year prices for the year t ; and

LP_{t-1} is the real GDP per employed person (labour productivity) at constant base year prices for the year $t-1$.

Comments and limitations:

GDP is mostly calculated based on the SNA. However, there are still significant problems in international consistency of national accounts estimates due to factors such as differences in the treatment of output in services sectors, differences in methods used to correct output measures for price changes (in particular, the use of different weighting systems to obtain deflators) and differences in the degree of coverage of informal economic activities.

The degree of reliability of the estimates on employment or labour input is also dependent on the degree of coverage of all productive activities, and particularly informal activities, by the statistical source used.

Proxy, alternative and additional indicators: N/A

Data Disaggregation

Disaggregation is not required for this indicator. However, disaggregation by region and economic sectors can be beneficial.

References

Official SDG Metadata URL

<https://unstats.un.org/sdgs/metadata/files/Metadata-08-02-01.pdf>

Internationally agreed methodology and guideline URL

- (1) https://www.ilo.org/global/statistics-and-databases/standards-and-guidelines/resolutions-adopted-by-international-conferences-of-labour-statisticians/WCMS_230304/lang--en/index.htm
- (2) http://www.ilo.org/empelm/projects/WCMS_114246/lang--en/index.htm
- (3) <http://unstats.un.org/unsd/nationalaccount/sna2008.asp>

Other references

ILO (2013). *Decent Work Indicators: Guidelines for Producers and Users of Statistical and Legal Framework Indicators*. Geneva. Available at: http://www.ilo.org/wcmsp5/groups/public/---dgreports/---stat/documents/publication/wcms_223121.pdf

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ILO (2013). *Resolution Concerning Statistics of Work, Employment and Labour Underutilization*. 19th International Conference of Labour Statisticians. Geneva. Available at: http://www.ilo.org/global/statistics-and-databases/standards-and-guidelines/resolutions-adopted-by-international-conferences-of-labour-statisticians/WCMS_230304/lang--en/index.htm

UNSD (2008). *System of National Accounts 2008*. New York. Available at: <https://unstats.un.org/unsd/nationalaccount/sna2008.asp>

ILO (2010). *Trends Econometric Models: A Review of Methodology*. Geneva. Available at: http://www.ilo.org/empelm/pubs/WCMS_120382/lang--en/index.htm

International Organization(s) for Global Monitoring

This document was prepared based on inputs from International Labour Organization (ILO).

For focal point information for this indicator, please visit <https://unstats.un.org/sdgs/dataContacts/>

Indicator 8.3.1

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Indicator Name, Target and Goal

Indicator 8.3.1: Proportion of informal employment in non-agriculture employment, by sex

Target 8.3: Promote development-oriented policies that support productive activities, decent job creation, entrepreneurship, creativity and innovation, and encourage the formalization and growth of micro-, small- and medium-sized enterprises, including through access to financial services

Goal 8: Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all

Definition and Rationale**Definition:**

This indicator is defined as the percentage of non-agricultural employment that is classified as informal employment.

Concepts:

Employment comprises all persons of working age who during a short reference period (one week), were engaged in any activity to produce goods or provide services for pay or profit. The working-age population is usually defined as all persons aged 15 and above.

Informal employment comprises persons who in their main or secondary jobs were in one of the following categories:

- Own-account workers, employers and members of producers' cooperatives employed in their own informal sector enterprises (the characteristics of the enterprise determine the informal nature of their jobs);
- Contributing family workers, regardless of whether they work in formal or informal sector enterprises (they usually do not have explicit, written contracts of employment, and are not subject to labour legislation, social security regulations, collective agreements, etc., which determines the informal nature of their jobs);
- Employees holding informal jobs, whether employed by formal sector enterprises, informal sector enterprises, or as paid domestic workers by households (employees are considered to have informal jobs if their employment relationship is, in law or in practice, not subject to national labour legislation, income taxation, social protection or entitlement to certain employment benefits);^[1] Operational criteria used by countries to define informal jobs of employees include the lack of coverage by the social security system, the lack of entitlement to paid annual or sick leave and the lack of a written employment contract.
- Producers of goods exclusively for own final use by their household (e.g. subsistence farming^[2], fetching water, collecting firewood, etc.). Operational criteria used by countries to define informal jobs of employees include the lack of coverage by the social security system, the lack of entitlement to paid annual or sick leave and the lack of a written employment contract.

An enterprise belongs to the informal sector if it fulfils the three following conditions:

- It is an unincorporated enterprise (it is not constituted as a legal entity separate from its owners, and it is owned and controlled by one or more members of one or more households, and it is not a quasi-corporation: it does not have a complete set of accounts, including balance sheets);
- It is a market enterprise (it sells at least some of the goods or services it produces);
- The enterprise is not registered or the employees of the enterprise are not registered or the number of persons engaged on a continuous basis is below a threshold determined by the country.

Non-agricultural activities are defined according to the latest revision of the International Standard Industrial Classification of All Economic Activities (ISIC Rev.4). They correspond to sections B to U of the ISIC Rev. 4, that is, all sections except section A. Agriculture, forestry and fishing.

For more detailed information on informality definitions, please refer to the Resolution concerning statistics of employment in the informal sector, adopted by the Fifteenth International Conference of Labour Statisticians (January 1993), available at http://ilo.org/global/statistics-and-databases/standards-and-guidelines/resolutions-adopted-by-international-conferences-of-labour-statisticians/WCMS_087484/lang--en/index.htm, the Guidelines concerning a statistical definition of informal employment, adopted by the Seventieth International Conference of Labour Statisticians (November-December 2003) available at http://ilo.org/global/statistics-and-databases/standards-and-guidelines/guidelines-adopted-by-international-conferences-of-labour-statisticians/WCMS_087622/lang--en/index.htm and the ILO manual Measuring informality: A statistical manual on the informal sector and informal employment available at http://www.ilo.org/wcmsp5/groups/public/---dgreports/---dcomm/---publ/documents/publication/wcms_222979.pdf.

Rationale and Interpretation:

Informal employment offers a necessary survival strategy in countries that lack social safety nets, such as unemployment insurance, or where wages and pensions are low, especially in the public sector. In these situations, indicators such as the unemployment rate and time-related underemployment are not sufficient to describe the labour market completely. Statistics on the informal economy are key to assessing the quality of employment in an economy, and are relevant to developing and developed countries alike.

ILOSTAT indicator description for informality is available at: http://www.ilo.org/ilostat-files/Documents/description_IFL_EN.pdf

Data Sources and Collection Method

The data for this indicator can be collected through labour force surveys or other nationally representative household surveys with a module on employment. These surveys should have sufficient questions to determine whether the respondent's job is of formal or informal nature, or the formal or informal nature of the employing establishment. These surveys are conducted by the national statistical offices of countries or the ministries or bureaus of labour.

For information on national practices in terms of questions used to capture data on informality, refer to the ILO report *Women and Men in the Informal Economy: A Statistical Picture* (Third Edition, 2018).

Method of Computation and Other Methodological Considerations

Computation Method:

The percentage of non-agricultural employment that is informal is calculated as follows:

$$\frac{\text{Informal employment in non – agricultural activities}}{\text{Total employment in non – agricultural activities}} \times 100$$

Comments and limitations:

The variety of concepts, definitions and operational criteria used by countries to measure informal employment greatly hinders the

international comparability of the resulting statistics. The ILO makes an effort to derive harmonized statistics on informal employment from national household surveys following standard definitions and criteria for as many countries as possible (available on ILOSTAT).

The scope of this indicator is limited to non-agricultural activities. However, to have a more comprehensive picture of the informal economy, statistics on informal employment that incorporates both agricultural and non-agricultural activities can be helpful.

Proxy, alternative and additional indicators: N/A

Data Disaggregation

In order to produce this indicator, employment statistics need to be disaggregated by formal/informal employment and by economic activity (agriculture/industry/services etc.). Beyond this, the indicator is required to be disaggregated by sex.

References

Official SDG Metadata URL

<https://unstats.un.org/sdgs/metadata/files/Metadata-08-03-01.pdf>

Internationally agreed methodology and guideline URL

http://www.ilo.org/wcmsp5/groups/public/---dgreports/---dcomm/---publ/documents/publication/wcms_222979.pdf

Other references

ILO (1993). *Resolution concerning statistics of employment in the informal sector*. Fifteenth International Conference of Labour Statisticians. Available at: http://ilo.org/global/statistics-and-databases/standards-and-guidelines/resolutions-adopted-byinternational-conferences-of-labour-statisticians/WCMS_087484/lang--en/index.htm

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ILO. *ILOSTAT's indicator description on informality*. Available at: http://www.ilo.org/ilostatfiles/Documents/description_IFL_EN.pdf

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UNSD (2008). *International Standard Industrial Classification Revision 4 (ISIC Rev.4)*. New York. Available at: <https://unstats.un.org/unsd/cr/registry/isic-4.asp>

Country examples

N/A

International Organization(s) for Global Monitoring

This document was prepared based on inputs from International Labour Organization (ILO).

For focal point information for this indicator, please visit <https://unstats.un.org/sdgs/dataContacts/>

Indicator 8.4.2

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- International Organization(s) for Global Monitoring

Indicator Name, Target and Goal

Indicator 8.4.2: Domestic material consumption, domestic material consumption per capita, and domestic material consumption per GDP

Target 8.4: Improve progressively, through 2030, global resource efficiency in consumption and production and endeavour to decouple economic growth from environmental degradation, in accordance with the 10Year Framework of Programmes on Sustainable Consumption and Production, with developed countries taking the lead

Goal 8: Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all

Definition and Rationale

Definition:

Domestic Material Consumption (DMC) is a standard material flow accounting (MFA) indicator and reports the apparent annual consumption of materials in a national economy. The indicator can also be expressed per capita and per GDP.

Concepts:

Economy-wide *material flow accounts* (EW-MFA) provide an aggregate overview, in thousand tonnes per year, of the material flows into and out of an economy. EW-MFA cover solid, gaseous, and liquid materials, except for bulk flows of water and air.

DMC measures the total amount of material directly used in an economy (i.e. excluding indirect flows). DMC is defined in the same way as other key physical indicators such as gross inland energy consumption. DMC equals Domestic Extraction plus imports minus exports.

Rationale and Interpretation:

As a territorial and production-side indicator, DMC refers to the amount of material used in the production processes within an economy. DMC describes the physical dimension of economic processes and interactions. Per-capita DMC describes the average level of material use in an economy – an environmental pressure indicator – and is also referred to as metabolic profile.

Data Sources and Collection Method

Data for the calculation of the DMC is compiled by the relevant national agency such as the ministry of commerce, trade or industry, or the national statistical office.

For Europe, Eurostat compiles Economy-wide material flow account data from countries. For other countries, DMC is based on official statistics and then standard rates are used to convert data into tonnes of extraction, imports and exports. This is done by type of material based on the following: the International Energy Agency (IEA) has detailed information on fossil fuels; for biomass, major crops and crop products, livestock and animal products, forestry products and fish are available from the Food and Agriculture Organization (FAO) and for components that are difficult to measure directly, e.g. grazed biomass, the FAO will typically not have direct data, however data reported to the FAO for animal products or herd numbers is used as input data for making an estimate; for metal ores, the United States Geological Survey (USGS) and the British Geological Survey (BGS) collect data on metal production, and in some cases ore production with trade of metal ores from United Nations Comtrade database; and for non-metallic minerals the USGS and BGS have some data and where data is missing then it is based on data published by countries or in some cases a standard estimation of per capita consumption for countries with different per capita incomes.

Method of Computation and Other Methodological Considerations

Computation Method:

It is calculated as direct imports (IM) of material plus domestic extraction (DE) of materials minus direct exports (EX) of materials measured in metric tonnes.

$$DMC = IM + DE - EX$$

UN Environment is publishing a global manual which should be released by July 2018. This global manual is based largely on the EUROSTAT Economy Wide Material Flow Accounting compilation guide 2013. MFA accounting is also part of the central framework of the System of integrated Environmental-Economic Accounts (SEEA). More information on data sources and compilation is provided in the below section.

DMC should be divided by the GDP and the population of the country to get standardized measures such as DMC per capita and DMC per GDP.

Comments and limitations:

DMC cannot be disaggregated to economic sectors due to the fact that there is no way to link the consumption of materials to a particular economic sector.

DMC and Material Footprint (MF) (*indicator 12.2.1*) need to be looked at in combination as they cover the two aspects of the economy: production and consumption. The DMC and MF reports the virtual amount required across the whole supply chain to service final demand. A country can, for instance have a very high DMC because it has a large primary production sector for export or a very low DMC because it has outsourced most of the material intensive industrial process to other countries. Analysing both of these production and consumption side indicators together gives a better understanding of the overall resource use patterns of a country.

Proxy, alternative and additional indicators: No proxy is needed due to the excellent coverage. However, there is a need for additional country validation.

Data Disaggregation

DMC can be disaggregated by type of material and for the purpose of the SDGs, there are four proposed disaggregations of DMC: Biomass, Fossil Fuels, Metal Ores and Non-metallic minerals.

References

Official SDG Metadata URL

<https://unstats.un.org/sdgs/metadata/files/Metadata-08-04-02.pdf>

Internationally agreed methodology and guideline URL

to be published in 2018

Other references

EUROSTAT (2013). *Economy-wide material flow accounts*. Compilation guide 2013. Available at: <http://ec.europa.eu/eurostat/document/s/1798247/6191533/2013-EW-MFA-Guide-10Sep2013.pdf/>

Wiedmann, T., H. Schandl, M. Lenzen, D. Moran, S. Suh, J. West, K. Kanemoto, (2013) *The Material Footprint of Nations*, Proc. Nat. Acad. Sci. Available at: <http://www.pnas.org/content/112/20/6271.abstract>

Lenzen, M., Moran, D., Kanemoto, K., Geschke, A. (2013) *Building Eora: A global Multi-Regional Input/output Database at High Country and Sector Resolution*, Economic Systems Research, 25:1, 20-49. Available at: http://folk.ntnu.no/daniemor/pdf/ESR_BuildingEora.pdf

Country examples

N/A

International Organization(s) for Global Monitoring

This document was prepared based on inputs from United Nations Environment Programme (UNEP).

For focal point information for this indicator, please visit <https://unstats.un.org/sdgs/dataContacts/>

Indicator 8.5.1

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Indicator Name, Target and Goal

Indicator 8.5.1: Average hourly earnings of female and male employees, by occupation, age and persons with disabilities

Target 8.5: By 2030, achieve full and productive employment and decent work for all women and men, including for young people and persons with disabilities, and equal pay for work of equal value

Goal 8: Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all

Definition and Rationale

Definition:

This indicator is defined as the mean hourly earnings of employees from paid employment, disaggregated by sex, occupation, age and disability status.

Concepts:

Earnings refer to the gross remuneration in cash or in kind paid to employed persons, as a rule at regular intervals, for time worked or work done, along with remuneration for time not worked (i.e. annual vacation, paid time off or holidays). Earnings exclude employers' contributions towards social security and pension schemes or any benefits received by employees under these schemes.

Employees are those persons in employment holding the type of job defined as paid employment jobs (jobs where the incumbents hold explicit or implicit employment contracts which give them a basic remuneration not directly dependent upon the revenue of the unit for which they work). Employment comprises all persons of working age who during a short reference period (one week), were engaged in any activity to produce goods or provide services for pay or profit. The working-age population is usually defined as persons aged 15 and above.

Rationale and Interpretation:

Earnings are a key aspect of quality of productive employment and living conditions. Information on hourly earnings disaggregated by various classifications (sex, age, occupation, disability status) provides some indication of the extent to which pay equality is respected or achieved.

Data Sources and Collection Method

There are several sources for earnings data. Establishment surveys conducted by the national statistical offices are generally the most reliable due to the high level of accuracy of earnings figures derived from the payroll. This is why establishment surveys are the preferred source of earnings statistics. However, the scope of data is limited to the coverage of the survey, which often excludes smaller establishments, agricultural establishments and the informal sector.

Household labour force surveys, or other surveys with an employment module can provide earnings statistics covering all economic activities, establishment types and sizes. But the quality of data is very dependent on the accuracy of respondents' answers.

Earnings data can also be derived from a variety of administrative records. The quality of the data would depend on the robustness of methods underlying the registration processes, and the record's coverage and scope.

Method of Computation and Other Methodological Considerations

Computation Method:

Average hourly earnings of employees ($AHE_{x,i}$) can be calculated using the following formula:

$$AHE_{x,i} = \frac{\sum \text{Total earnings of employee group } x \text{ in industry } i}{\sum \text{Total worker hours for employee group } x \text{ in industry } i}$$

Where,

x is the relevant employee group such as, total, men, women, in different age grounds or person with disabilities etc.; and

i is the relevant industry.

Or

$$AHE_{x,i} = \frac{\sum \text{Total hourly earnings of employee group } x \text{ in industry } i}{\sum \text{Total number of employees in group } x \text{ in industry } i}$$

This indicator's disaggregation is used to calculate the gender pay gap (*GPG*) as follows:

$$GPG = \frac{(AHE_{men} - AHE_{women})}{AHE_{men}} \times 100$$

Where AHE_{men} and AHE_{women} are the average hourly earnings of men and women respectively in a given country.

Comments and limitations:

Statistics on earnings can come from a variety of sources, including establishment surveys, household surveys and administrative records, each type of source having a specific coverage, scope and characteristics. This makes international comparability difficult.

The use of non-standard definitions and the heterogeneity of operational criteria applied further hamper cross-country comparisons.

Proxy, alternative and additional indicators: N/A

Data Disaggregation

This indicator is required to be disaggregated by sex, occupation, age and disability status.

It may be useful to also disaggregate it by region, economic activity and level of educational attainment.

References

Official SDG Metadata URL

<https://unstats.un.org/sdgs/metadata/files/Metadata-08-05-01.pdf>

Internationally agreed methodology and guideline URL

http://www.ilo.org/wcmsp5/groups/public/---dgreports/---stat/documents/presentation/wcms_315657.pdf

Other references

ILO (1998). *Resolution concerning the measurement of employment-related income*. 16th International Conference of Labour Statisticians. Available at: http://www.ilo.org/global/statistics-and-databases/standards-and-guidelines/resolutions-adopted-by-international-conferences-of-labour-statisticians/WCMS_087490/lang-en/index.htm

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ILO (1979). *An integrated system of Wages Statistics: A manual on methods*. Geneva. Available at: http://www.ilo.org/wcmsp5/groups/public/---dgreports/---stat/documents/presentation/wcms_315657.pdf

ILO. *ILOSTAT's indicator description on earnings and labour cost*. Available at: http://www.ilo.org/ilostat-files/Documents/description_EAR_EN.pdf

ILO. *International Standard Classification of Occupations (ISCO-08)*. Internet site: <http://www.ilo.org/public/english/bureau/stat/isco/isco08/>

Country examples

N/A

International Organization(s) for Global Monitoring

This document was prepared based on inputs from International Labour Organization (ILO).

For focal point information for this indicator, please visit <https://unstats.un.org/sdgs/dataContacts/>

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Indicator 8.5.2

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Indicator Name, Target and Goal

Indicator 8.5.2: Unemployment rate, by sex, age and persons with disabilities

Target 8.5: By 2030, achieve full and productive employment and decent work for all women and men, including for young people and persons with disabilities, and equal pay for work of equal value

Goal 8: Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all

Definition and Rationale

Definition:

This indicator is defined as the percentage of persons in the labour force who are unemployed, disaggregated by sex, age and disability status.

Concepts:

Persons in unemployment are defined as all those of working age who were not in employment, carried out activities to seek employment during a specified recent period and were currently available to take up employment given a job opportunity, where:

- “not in employment” is assessed with respect to the short reference period for the measurement of employment;
- to “seek employment” refers to any activity when carried out, during a specified recent period comprising the last four weeks or one month, for the purpose of finding a job or setting up a business or agricultural undertaking. This includes also part-time, informal, temporary, seasonal or casual employment, within the national territory or abroad;
- the point when the enterprise starts to exist should be used to distinguish between search activities aimed at setting up a business and the work activity itself, as evidenced by the enterprise’s registration to operate or by when financial resources become available, the necessary infrastructure or materials are in place or the first client or order is received, depending on the context;
- “currently available” serves as a test of readiness to start a job in the present, assessed with respect to a short reference period comprising that used to measure employment. Depending on national circumstances, the reference period may be extended to include a short subsequent period not exceeding two weeks in total, so as to ensure adequate coverage of unemployment situations among different population groups.

Employment comprises all persons of working age who during a short reference period (one week), were engaged in any activity to produce goods or provide services for pay or profit.

The labour force corresponds to the sum of all persons employed and all persons unemployed.

Rationale and Interpretation:

The unemployment rate is a useful (although insufficient) measure of the underutilization of the labour supply. It reflects the inability of an economy to generate employment for those persons who are actively seeking work. It is an indicator of the efficiency and effectiveness of an economy to absorb its labour force, and of the performance of the labour market.

Short-term time series of the unemployment rate can be used to signal changes in the business cycle; upward movements in the indicator often coincide with recessionary periods or in some cases with the beginning of an expansionary period as persons previously not in the labour market begin to test conditions through an active job search.

Data Sources and Collection Method

The data for this indicator is collected through household-based labour force surveys, population census, and any other nationally representative household surveys with an appropriate employment module. Such surveys are generally conducted by the ministries or bureaus of labour or national statistical offices.

Unemployment registers, under social insurance administrative systems, can also serve as instruments to collect data on unemployment levels, and used to supplement the information obtained by household surveys.

Method of Computation and Other Methodological Considerations

Computation Method:

The unemployment rate (U) is calculated using the following formula:

$$U = \frac{\text{Number of unemployed persons}}{\text{Persons employed} + \text{Persons unemployed}} \times 100$$

Comments and limitations:

The significance of the unemployment rate depends on context. It is not to be interpreted the same way universally. In the absence of unemployment insurance systems or social safety nets, persons of working age must avoid unemployment, resorting to engaging in some form of economic activity, however insignificant or inadequate. Thus, in this context, other measures should supplement the unemployment rate to comprehensively assess labour underutilization, such as the time-related underemployment rate or measures of the potential labour force. In this regard, the 2013 *Resolution concerning statistics of work, employment and labour underutilization* recommends that more than one headline indicator of labour underutilization be used, among the following: LU1 (unemployment rate), LU2 (combined rate of time-related underemployment and unemployment), LU3 (combined rate of unemployment and potential labour force) and LU4 (composite measure of labour underutilization).

Statistics for any given year can also differ depending on the number of observations – monthly, quarterly, once or twice a year, and so on. Among other things, a considerable degree of seasonality can influence the results when the full year is not covered.

Lastly, the geographic coverage of the survey used as a source of unemployment data also has an impact on the comparability of results. A less than national coverage – urban areas, city, regional – has obvious limitations to comparability to the extent that coverage is not representative of the country. Unemployment in urban areas may tend to be higher than total unemployment because of the exclusion of the rural areas where workers are likely to work, although they may be underemployed or unpaid family workers, rather than seek work in a non-existent or small formal sector.

Proxy, alternative and additional indicators: N/A

Data Disaggregation

This indicator is required to be disaggregated by sex, age, geographic location (urban/rural), and disability status.

References

Official SDG Metadata URL

<https://unstats.un.org/sdgs/metadata/files/Metadata-08-05-02.pdf>

Internationally agreed methodology and guideline URL

http://www.ilo.org/wcmsp5/groups/public/---dgreports/---stat/documents/publication/wcms_223121.pdf

Other references

ILO (2013). *Resolution concerning statistics of work, employment and labour underutilization*. 19th International Conference of Labour Statisticians. Available at: http://www.ilo.org/global/statistics-and-databases/standards-and-guidelines/resolutions-adopted-by-international-conferences-of-labour-statisticians/WCMS_230304/lang-en/index.htm

ILO (2013). *Decent Work Indicators: Guidelines for Producers and Users of Statistical and Legal Framework Indicators*. Geneva. Available at: http://www.ilo.org/wcmsp5/groups/public/---dgreports/---stat/documents/publication/wcms_223121.pdf

ILO (2010). *Trends Econometric Models: A Review of Methodology*. Geneva. Available at: http://www.ilo.org/empelm/pubs/WCMS_120382/lang-en/index.htm

ILO (2010). *Trends Econometric Models: A Review of Methodology*. Geneva. Available at: http://www.ilo.org/empelm/pubs/WCMS_120382/lang-en/index.htm

Country examples

N/A

International Organization(s) for Global Monitoring

This document was prepared based on inputs from International Labour Organization (ILO).

For focal point information for this indicator, please visit <https://unstats.un.org/sdgs/dataContacts/>

Indicator 8.6.1

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Indicator Name, Target and Goal

Indicator 8.6.1: Proportion of youth (aged 15-24 years) not in education, employment or training

Target 8.6: By 2020, substantially reduce the proportion of youth not in employment, education or training

Goal 8: Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all

Definition and Rationale

Definition:

This indicator is defined as the percentage of young persons (aged 15-24 years) not in education, employment or training, out of the total youth population. It is also called the 'youth NEET rate'.

Concepts:

Education, according to the International Standard Classification of Education (ISCED), is defined as organized and sustained communication designed to bring about learning. It comprises the following:

- (1) Formal education - education that is institutionalized, intentional, and planned through public organizations and recognized private bodies and, in their totality, make up the formal education system of a country.
- (2) Non-formal education - education that is institutionalized, intentional and planned by an education provider but is considered an addition, alternative and/or a complement to formal education. It may be short in duration and/or low in intensity and it is typically provided in the form of short courses, workshops or seminars.

Employment comprises all persons of working age who during a short reference period (one week), were engaged in any activity to produce goods or provide services for pay or profit.

Training is defined as a non-academic learning activity through which students acquire specific skills intended for vocational or technical jobs. Vocational training prepares trainees for jobs that are based on manual or practical activities, and for skilled operative jobs, both blue and white collar related to a specific trade, occupation or vocation.

Rationale and Interpretation:

The youth NEET rate provides a broader measure of youth disengaged from productive activities than measured by only youth unemployment. It includes young discouraged jobseekers, i.e. those who are not actively seeking employment, as well as those who are outside the labour force due to other reasons such as engagement in household chores or disability.

It is a direct measure of progress towards target 8.6.

Data Sources and Collection Method

The data for this indicator is collected through household-based labour force surveys, population census, and any other nationally representative household surveys with an appropriate employment module. Such surveys are generally conducted by the ministries or bureaus of labour or national statistical offices.

Method of Computation and Other Methodological Considerations

Computation Method:

This indicator can be calculated using the following formula:

$$NEET\ rate = \frac{Y - Y_{Emp} - Y_{UET}}{Y} \times 100$$

where,

Y is the total number of youth;

Y_{Emp} is the number of youth in employment; and

Y_{UET} is the number of youth not in employment but in education or training.

Comments and limitations:

The computation of this indicator requires reliable data on both the labour market status and the participation in education or training of young persons. The quality of such information is heavily reliant on the questionnaire design, sample size and the accuracy of respondents' answers.

In terms of the analysis of the indicator, in order to avoid misinterpreting it, it is important to bear in mind that it is composed of two different sub-groups (unemployed youth not in education or training and youth outside the labour force not in education or training). The prevalence and composition of each sub-group would have policy implications, and thus, should also be considered when analysing the NEET rate.

Proxy, alternative and additional indicators: N/A

Data Disaggregation

This indicator can be disaggregated by sex, urban/rural, age (within the youth age band) and level of educational attainment.

References

Official SDG Metadata URL

<https://unstats.un.org/sdgs/metadata/files/Metadata-08-06-01.pdf>

Internationally agreed methodology and guideline URL

http://www.ilo.org/wcmsp5/groups/public/---dgreports/---stat/documents/publication/wcms_223121.pdf

Other references

ILO (2013). *Decent Work Indicators: Guidelines for Producers and Users of Statistical and Legal Framework Indicators*. Geneva. Available at: http://www.ilo.org/wcmsp5/groups/public/---dgreports/---stat/documents/publication/wcms_223121.pdf

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Country examples

N/A

International Organization(s) for Global Monitoring

This document was prepared based on inputs from International Labour Organization (ILO).

For focal point information for this indicator, please visit <https://unstats.un.org/sdgs/dataContacts/>

Indicator 8.7.1

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Indicator Name, Target and Goal

Indicator 8.7.1: Proportion and number of children aged 5-17 years engaged in child labour, by sex and age

Target 8.7: Take immediate and effective measures to eradicate forced labour, end modern slavery and human trafficking and secure the prohibition and elimination of the worst forms of child labour, including recruitment and use of child soldiers, and by 2025 end child labour in all its forms

Goal 8: Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all

Definition and Rationale

Definition:

This indicator is defined as the number of children (aged 5-17 years) reported to be in child labour during the reference period (usually a week prior to the survey).

Concepts:

Child labour refers to the subset of children's activities that is injurious, negative or undesirable to children and that should be targeted for elimination. Child labour is legally interpreted as per the ILO convention no. 138 (minimum age), ILO convention no. 182 (worst forms), and the UN convention on the rights of the child (CRC). For further information, see: Resolution concerning statistics of child labour^[1], adopted by the Eighteenth International Conference of Labour Statisticians (2008).

For measurement purposes, child labour is defined to include all persons aged 5 to 17 years who are engaged in one or more of the following activities during a specified time period:

- (1) Hazardous work, i.e. work which, by its nature or the circumstances in which it is carried out, is likely to harm the health, safety or morals of children, as defined by national law (18th ICLS paragraphs 20-31);
- (2) Worst forms of child labour other than hazardous work, i.e. all forms of slavery or practices similar to slavery, commercial sexual exploitation of children and children in illicit activities., as defined by national law (18th ICLS paragraph 19); and
- (3) Employment below the minimum working age, as defined by national law, excluding "light work" performed by children aged not less than 12 or 13 years (18th ICLS paragraph 32 to 35).

Rationale and Interpretation:

Engaging and trapping children in labour compromises their future. Tracking statistics on child labour enables development of appropriate regulatory frameworks and policies that are required to curtail child labour practices. This indicator is a direct measure of progress on target 8.7.

[1] http://www.ilo.org/wcmsp5/groups/public/---dgreports/---stat/documents/normativeinstrument/wcms_112458.pdf

Data Sources and Collection Method

Household surveys such as National Labour Force Surveys, National Multipurpose Household Surveys, UNICEF supported Multiple Indicator Cluster Surveys (MICS), Demographic and Health Surveys (DHS), ILO-supported Statistical Information and Monitoring Programme on Child Labour (SIMPOC), and World bank Living Standard Measurement surveys (LSMS) are among the most important instruments for generating information on child labour in developing countries.

Method of Computation and Other Methodological Considerations**Computation Method:**

The proportion of children of the age group a that are engaged in child labour (PCL_a) is calculated as follows:

$$PCL_a = \frac{NCL_a}{TNC_a} \times 100$$

where,

NCL_a is the number of children in the age group a that are engaged in child labour;

TNC_a is the total number of children in the age group a ; and

a can be any desired age group (i.e. 5-14 years, 5-17 years etc.)

The measurement methodology used by the ILO in its global estimates on child labour[1], building on the 18th ICLS statistical definition, classifies child labour on the basis of the following criteria:

- Hazardous work for all children aged 5-17 years old
- Children aged 5-11 years old performing at least one hour of economic activities during the reference week;
- Children aged 12-14 years old performing more than 14 hours of economic activities during the reference week
- Worst forms of child labour other than hazardous work (forced labour, commercial sexual exploitation of children, children in illicit activities, etc.).

Comments and limitations:

Child labour estimates based on the standards set out in the ICLS are useful benchmarks but are not necessarily consistent with estimates based on national child labour legislation. ILO Minimum Age Convention, 1973 (No.138) contains a number of flexibility clauses that leave determination of child labour thresholds (e.g. minimum ages, scope of application) to the discretion of competent national authorities. Moreover, the Worst Forms of Child Labour Convention, 1999 (No. 182) explicitly leaves the responsibility to establish the types of work considered as hazardous to the national authorities. Therefore, there is no single legal definition of child labour across countries and thus, no single statistical measure of child labour consistent with national legislation across countries.

Proxy, alternative and additional indicators:

If, depending upon national policies and circumstances, the general production boundary rather than the SNA production boundary is used for measuring productive activities by children, child labour will include, in addition to the three categories specified under the section titled 'Concepts', hazardous unpaid household services. For the sake of clarity, child labour estimated on this basis should be called "child labour (general production boundary basis)" (18th ICLS paragraphs 36-37).

[1] ILO-IPEC. Marking progress against child labour - Global estimates and trends 2000-2012 / International Labour Office, International Programme on the Elimination of Child Labour (IPEC) - Geneva: ILO, 2013.

Data Disaggregation

It is required to disaggregate this indicator by sex and age.

For reporting at national level, it is recommended to disaggregate this indicator by area of residence, other relevant geographic disaggregation, school attendance, measures of household income, industry and hours of work.

References

Official SDG Metadata URL

<https://unstats.un.org/sdgs/metadata/files/Metadata-08-07-01.pdf>

Internationally agreed methodology and guideline URL

ILO, Manual for child labour data analysis and statistical reports, available at <http://www.ilo.org/ipecinfo/product/download.do?type=document&id=3079>

ILO, Child Labour Statistics: Manual on methodologies for data collection through surveys, AVAILABLE AT https://www.ilo.org/ipec/Informationresources/WCMS_IPEC_PUB_141/lang--en/index.htm

Other references

UNICEF Briefing Notes on SDG Indicators:

UNICEF. *Briefing notes on SDG global indicators related to children*. Available at <https://data.unicef.org/resources/sdg-global-indicators-related-to-children/>

Additional References:

ILO (2008). *18th International Conference of Labour Statisticians: Report of the Conference*. Geneva. Available at: http://www.ilo.org/wcmsmsp5/groups/public/---dgreports/---stat/documents/meetingdocument/wcms_101467.pdf

ILO. *National child labour survey reports*. Available at: <http://www.ilo.org/ipec/ChildlabourstatisticsSIMPOC/Questionnairesurveysandreports/lang--en/index.htm>

UNICEF. *Understanding Children's Work*. Internet site: <http://www.ucw-project.org/>

UNICEF. *Data: Monitoring the Situation of Children and Women*. Internet site: <http://data.unicef.org/topic/child-protection/child-labour/>

ILO. *Child labour statistics*. Internet site: <http://www.ilo.org/ipec/ChildlabourstatisticsSIMPOC/lang--en/index.htm>

Country examples

N/A

International Organization(s) for Global Monitoring

This document was prepared based on inputs from United Nations Children's Fund (UNICEF) and International Labour Organization (ILO).

For focal point information for this indicator, please visit <https://unstats.un.org/sdgs/dataContacts/>

Indicator 8.8.1

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Indicator Name, Target and Goal

Indicator 8.8.1: Frequency rates of fatal and non-fatal occupational injuries, by sex and migrant status

Target 8.8: Protect labour rights and promote safe and secure working environments for all workers, including migrant workers, in particular women migrants, and those in precarious employment

Goal 8: Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all

Definition and Rationale

Definition:

This indicator is defined as the number of cases of fatal and non-fatal occupational injury per hour worked by the reference population during a given period. However, the most common practice in terms of calculation of occupational injuries indicators is the number of cases of fatal and non-fatal occupational injury per 100'000 workers in the reference group.

Concepts:

Occupational injury is defined as any personal injury, disease or death resulting from an occupational accident. An occupational injury is different from an occupational disease, which comes as a result of an exposure over a period of time to risk factors linked to the work activity. Diseases are included only in cases where the disease arose as a direct result of an accident.

Occupational accident is defined as an unexpected and unplanned occurrence, including acts of violence, arising out of or in connection with work which results in one or more workers incurring a personal injury, disease or death. It includes travel, transport or road traffic accidents which arise out of or during work.

For additional clarifications on occupational accidents and injury, please see Resolution concerning statistics of occupational injuries from the 16th International Conference on Labour Statistics (ICLS 1998).

According to the UN *Recommendations on Statistics of International Migration*, an international migrant is defined as any person who changes his or her country of usual residence. However, in practice, due to the difficulties of applying this definition for measurement, many countries choose to define individuals' migrant status based on their country of citizenship or their country of birth.

Rationale and Interpretation:

This indicator provides to monitor and identify trends in workplace safety. It helps:

- (1) to inform employers, employers' organizations, workers and workers' organizations of the risks associated with their work and workplaces, so that they can take an active part in their own safety;
- (2) to evaluate the effectiveness of preventive measures; to estimate the consequences of occupational injuries, particularly in terms of days lost or costs; and
- (3) to provide a basis for policymaking aimed at encouraging employers, employers' organizations, workers and workers' organizations to introduce accident prevention measures.

Data Sources and Collection Method

Statistics on occupational injuries can come from a variety of sources, including different types of administrative records, such as records of national systems for the notification of occupational injuries (labour inspection records and annual reports; insurance and compensation records, death registers), household surveys (allowing to cover informal sector enterprises and the self-employed) and establishment surveys. A combination of these sources can be used to improve data quality and coverage. These data are generally compiled by labour ministries, national insurance companies, and national statistical office.

Method of Computation and Other Methodological Considerations

Computation Method:

Fatal and non-fatal occupational injury rates are calculated separately as follows:

$$(i) \text{ Fatal occupational injury rate} = \frac{\text{number of fatal occupational injuries in the reference population}}{\text{total number of hours worked by the reference population}}$$

$$(ii) \text{ Non - fatal occupational injury rate} \\ = \frac{\text{number of non - fatal occupational injuries in the reference population}}{\text{total number of hours worked by the reference population}}$$

If data on the number of hours worked is unavailable, then the number of workers in the reference population can be used instead to calculate the rate of *fatal and non-fatal occupational injury per 100'000 workers in the reference group*, as follows:

(i) Fatal occupational injury rate

$$= \frac{\text{number of fatal occupational injuries in the reference population}}{\text{number of workers in the reference group}} \times 100'000$$

(ii) Non – fatal occupational injury rate

$$= \frac{\text{number of non – fatal occupational injuries in the reference population}}{\text{number of workers in the reference group}} \times 100'000$$

Comments and limitations:

Occupational injuries are often underreported, which means that occupational injuries statistics from administrative records or registry systems may be less than comprehensive. Proper systems are required to ensure best reporting and data quality. Double counting of cases of occupational injury can also occur when several registries (records from different agencies) are consolidated to have more comprehensive data.

This indicator is very volatile, as major accidents or national calamities can significantly impact the derived estimates at a given point in time. Thus, it may be better to analyse the trends in the indicator, rather than the levels.

Proxy, alternative and additional indicators: N/A

Data Disaggregation

This indicator is required to be disaggregated by sex and migrant status. It can also be disaggregated by economic activity and occupation.

References**Official SDG Metadata URL**

<https://unstats.un.org/sdgs/metadata/files/Metadata-08-08-01.pdf>

Internationally agreed methodology and guideline URL

http://www.ilo.org/wcmsp5/groups/public/---dgreports/---stat/documents/publication/wcms_223121.pdf

Other references

ILO (2013). *Decent Work Indicators: Guidelines for Producers and Users of Statistical and Legal Framework Indicators*. Geneva. Available at: http://www.ilo.org/wcmsp5/groups/public/---dgreports/---stat/documents/publication/wcms_223121.pdf

ILO (2013). *Resolution concerning statistics of work, employment and labour underutilization*. 16th International Conference of Labour Statisticians. Available at: http://www.ilo.org/global/statistics-and-databases/standards-and-guidelines/resolutions-adopted-by-international-conferences-of-labour-statisticians/WCMS_087528/lang-en/index.htm

Country examples

N/A

International Organization(s) for Global Monitoring

This document was prepared based on inputs from International Labour Organization (ILO).

For focal point information for this indicator, please visit <https://unstats.un.org/sdgs/dataContacts/>

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- International Organization(s) for Global Monitoring

Indicator Name, Target and Goal

Indicator 8.10.1: Number of commercial bank branches per 100,000 adults (b) number of automated teller machines (ATMs) per 100,000 adults

Target 8.10: Strengthen the capacity of domestic financial institutions to encourage and expand access to banking, insurance and financial services for all.

Goal 8: Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all

Definition and Rationale

Definition:

This indicator has two components. They are defined as the number of (a) commercial bank branches per 100,000 adults, and (b) number of automated teller machines (ATMs) per 100,000 adults in a country.

Concepts:

The first component of the indicator refers to the number of commercial banks branches as reported by the Central Bank or the main financial regulator. To make the indicator meaningful for cross-country comparison, the number of commercial banks branches are scaled per 100,000 adults.

The second component of the indicators refers to the number of ATMs in the country for all types of financial institutions including commercial banks, non-deposit taking microfinance institutions, deposit taking micro finance institutions, credit union and financial cooperatives as reported by the Central Bank or the main financial regulator. To make the indicator meaningful for cross-country comparison, the number of ATMs are scaled per 100,000 adults.

The adult population is defined as those aged 15 and above.

Rationale and Interpretation:

Access to and use of formal financial services is essential. Services such as savings, insurance, payments, credit and remittances allow people to manage their lives, plan and pay expenses, grow their businesses and improve their overall welfare. As banks remain one of the key institutions for access to formal financial services, having an accessible bank branch is an important initial point of access to financial services and therefore use of them. Bank branches are complemented by other important points of access such as automated teller machines of all formal financial institutions, which can extend financial services to remote locations. Therefore, this indicator is a direct measure of progress on access to financial services and banking.

Data Sources and Collection Method

The Central Bank or the main financial regulator collects data from the financial institutions and service providers in the country and reports aggregates.

Method of Computation and Other Methodological Considerations

Computation Method:

The two sub-indicators are calculated as follows:

$$(a) \text{ No. of commercial bank branches per 100,000 adults} = \frac{\text{Total number of commercial bank branches in the country}}{\text{Total adult population of the country}} \times 100,000$$

$$(a) \text{ No. of ATMs per 100,000 adults} = \frac{\text{Total number of ATMs in the country}}{\text{Total adult population of the country}} \times 100,000$$

Comments and limitations: N/A

Proxy, alternative and additional indicators: N/A

Data Disaggregation

Disaggregation at the urban/rural level would be useful.

References

Official SDG Metadata URL

<https://unstats.un.org/sdgs/metadata/files/Metadata-08-10-01.pdf>

Internationally agreed methodology and guideline URL

IMF (2016). *Monetary and Financial Statistics Manual and Compilation Guide*. Available from <https://www.imf.org/en/Publications/Manual-s-Guides/Issues/2016/12/31/Monetary-and-Financial-Statistics-Compilation-Guide-Compilation-Guide-19460>

Other references

IMF. *Financial Access Survey Portal*. Washington, D.C. Internet site: <http://data.imf.org/?sk=E5DCAB7E-A5CA-4892-A6EA-598B5463A34C>

Country examples

N/A

International Organization(s) for Global Monitoring

This document was prepared based on inputs from International Monetary Fund (IMF).

For focal point information for this indicator, please visit <https://unstats.un.org/sdgs/dataContacts/>

Indicator 8.a.1

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Indicator Name, Target and Goal

Indicator 8.a.1: Aid for Trade commitments and disbursements

Target 8.a: Increase Aid for Trade support for developing countries, in particular least developed countries, including through the Enhanced Integrated Framework for Trade-related Technical Assistance to Least Developed Countries

Goal 8: Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all

Definition and Rationale

Definition:

This indicator is defined as gross disbursements and commitments of total Official Development Assistance (ODA) from all donors for aid for trade.

Concepts:

The Development Assistance Committee (DAC) defines *ODA* as those flows to countries and territories on the DAC list of ODA recipients and multilateral institutions which are:

- (1) Provided by official agencies, including state and local governments, or by their executive agencies; and
- (2) Each transaction of which:
 - a. is administered with the promotion of the economic development and welfare of developing countries as its main objective; and
 - b. is concessional in character and conveys a grant element of at least 25 percent (calculated at a rate of discount of 10%).

All donors refer to DAC donors, other bilateral providers of development cooperation and multilateral organizations.

Aid for Trade is captured in the OECD's Creditor Reporting System (CRS) as follows:

Economic infrastructure (transport and storage (CRS codes 210xx), communications (CRS codes 220xx) and energy (CRS codes 230xx)),

Trade policy and regulations and trade-related adjustment (CRS codes 331xx)

The trade development policy marker, which identifies trade development/activities which have trade development as an explicit objective within the "building productive capacity" category which is defined as banking and financial services (CRS codes 240xx), business and other services (CRS codes 250xx), agriculture, forestry, fishing (CRS codes 31xxxx), industry (CRS codes 321xx), mineral resources and mining (CRS codes 322xx), and tourism (CRS codes 332xx)),

See for reference: <http://www.oecd.org/dac/financing-sustainable-development/development-finance-standards/dacandcrscodelists.htm>

Rationale and Interpretation:

ODA for aid for trade to developing countries quantify the public effort that donors provide to developing countries for aid for trade.

Data Sources and Collection Method

A statistical reporter is responsible for the collection of DAC statistics in each providing country/agency. This reporter is usually located in the national aid agency, the Ministry of Foreign Affairs or Finance etc.

The OECD/DAC has been collecting data on official and private resource flows from 1960 at an aggregate level and 1973 at an activity level through the CRS (CRS data are considered complete from 1995 for commitments at an activity level and 2002 for disbursements). The Rio marker for biodiversity was introduced in 2002.

The OECD/DAC Secretariat prepares and submits an annual questionnaire (at an aggregate level and at an activity level) to national statistical reporters, and they are responsible for collecting, validating and publishing these data.

Method of Computation and Other Methodological Considerations**Computation Method:**

This indicator is calculated as the sum of all ODA flows from all donors to developing countries are marked by the aid for trade marker under the 331 series.

Comments and limitations:

Data in the CRS are available from 1973. However, the data coverage, at an activity level, is considered complete from 1995 for commitments and 2002 for disbursements.

Proxy, alternative and additional indicators: N/A

Data Disaggregation

This indicator can be disaggregated by donor, type of finance, type of aid, trade policy and regulations and trade related adjustment sub-sectors, etc.

References

Official SDG Metadata URL

<https://unstats.un.org/sdgs/metadata/files/Metadata-08-0A-01.pdf>

Internationally agreed methodology and guideline URL

<http://www.oecd.org/dac/stats/methodology.htm>

Other references

OECD. *Development Finance Standards*. Paris. Internet site: <http://www.oecd.org/dac/financing-sustainable-development/development-finance-standards/>

Country examples

N/A

International Organization(s) for Global Monitoring

This document was prepared based on inputs from Organization for Economic Co-operation and Development (OECD).

For focal point information for this indicator, please visit <https://unstats.un.org/sdgs/dataContacts/>

Goal 9

Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation

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In this goal:

United Nations Statistics Division (UNSD) worked in consultation with each indicators' custodian agency(ies) to prepare these chapters. For indicators that do not have chapters here yet, they are currently being prepared and they will be uploaded here as soon as they become available.

If you have any questions on the e-Handbook, do not hesitate to contact Shaswat Sapkota (sapkotas@un.org).

Indicator 9.1.2

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Indicator Name, Target and Goal

Indicator 9.1.2: Passenger and freight volumes, by mode of transport

Target 9.1: Develop quality, reliable, sustainable and resilient infrastructure, including regional and trans-border infrastructure, to support economic development and human well-being, with a focus on affordable and equitable access for all

Goal 9: Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation

Definition and Rationale

Definition:

This indicator is defined as the sum of the passenger and freight volumes reported for road, rail and air carriers in terms of number of people and metric tonnes of cargo respectively. These are reported as separate series for each mode of transport and for passenger and freight volume.

Concepts:

The International Civil Aviation Organization (ICAO) through its Statistics Division have established standard methodologies and definitions to collect and report traffic (passenger and freight volume) data related to air transport. These standards and methodologies have been adopted by the 191 Member States of ICAO and also by the Industry stakeholders, i.e. air carriers and airports. The precise definition of all concepts and metadata related to air transport reporting can be found at

<http://www.icao.int/sustainability/pages/eap-sta-excel.aspx/>

The International Transport Forum (ITF) collects data on transport (rail and road) statistics on annual basis from all its Member countries. Data are collected from Transport Ministries, statistical offices and other institution designated as official data source. Although there are clear definitions for all the terms used in this survey, countries might have different methodologies to calculate tonne-kilometres and passenger-kilometres. Methods could be based on traffic or mobility surveys, use very different sampling methods and estimating techniques which could affect the comparability of their statistics.

Rationale and Interpretation:

Passenger and freight volumes moved by member states and regions is a robust proxy for measuring regional and trans-border infrastructure development. Any increases in volumes can be directly associated with improvements in such infrastructure, and resulting socio-economic benefits.

Air transport is particularly important not only for the economic and job benefits, but also because it is one of the few modes of transport that could be relied upon during emergencies, such as natural disasters and disease outbreaks, for food, medicine, medical personnel, vaccine and other supplies to the affected areas and people.

Data Sources and Collection Method

Data are collected from Transport Ministries, statistical offices and other institution designated as official data source. Although there are clear definitions for all the terms used in this survey, countries might have different methodologies to calculate tonne-kilometres and passenger-kilometres. Methods could be based on traffic or mobility surveys, use very different sampling methods and estimating techniques which could affect the comparability of their statistics.

Method of Computation and Other Methodological Considerations

Computation Method:

This indicator consists of six components (sum of the volume for respective components):

- (1) Freight volume (tonne kilometres), by road transport;
- (2) Passenger volume (passenger kilometres), by road transport;
- (3) Freight volume (tonne kilometres), by rail transport;
- (4) Passenger volume (passenger kilometres), by rail transport;
- (5) Freight volume (tonne kilometres), by air transport; and
- (6) Passenger volume (passenger kilometres), by air transport.

Comments and limitations: N/A

Proxy, alternative and additional indicators: N/A

Data Disaggregation

This indicator is required to be disaggregated by mode of transport (road, rail and train).

References

Official SDG Metadata URL

<https://unstats.un.org/sdgs/metadata/files/Metadata-09-01-02.pdf>

Internationally agreed methodology and guideline URL

<https://www.icao.int/sustainability/pages/eap-sta-excel.aspx/>

Other references

N/A

Country examples

N/A

International Organization(s) for Global Monitoring

This document was prepared based on inputs from International Civil Aviation Organization (ICAO) and International Transport Forum (ITF)-Organisation for Economic Co-operation and Development(OECD).

For focal point information for this indicator, please visit <https://unstats.un.org/sdgs/dataContacts/>

Indicator 9.2.1

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Indicator Name, Target and Goal

Indicator 9.2.1: Manufacturing value added as a proportion of GDP and per capita

Target 9.2: Promote inclusive and sustainable industrialization and, by 2030, significantly raise industry's share of employment and gross domestic product, in line with national circumstances, and double its share in least developed countries

Goal 9: Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation

Definition and Rationale

Definition:

This indicator is defined as the ratio between manufacturing value added (MVA) and the gross domestic product (GDP), where both are reported in constant US dollars. It is represented as a percentage.

MVA per capita is the total MVA divided by the total population of the country.

Concepts:

Gross value added is a productivity metric that measures contributions to the economy. It is calculated using the system of national accounts (SNA) as the sum of all employee compensation, gross operating surplus of government and corporations, gross mixed income of unincorporated enterprises and taxes, minus any subsidies on production and imports, except for net taxes on products.

MVA is the total value added to the economy by the manufacturing sector. *Manufacturing sector* is defined according to the International Standard Industrial Classification of all Economic Activities (ISIC) revision 3 (1990) or revision 4 (2008). It refers to industries belonging to sector D in revision 3 or sector C in revision 4.

GDP is the sum of gross values added by all sectors that are a part of the economy.

Rationale and Interpretation:

MVA is a well-recognized and widely used indicator by researchers and policy-makers to assess the level of industrialization of a country. The share of MVA in GDP reflects the role of manufacturing in the economy and a country's national development in general.

MVA per capita is an indicator of a country's level of industrialization, adjusted to the size of its economy. It is widely used to classify country groups according to the stage of industrial development. Adjusted MVA per capita expressed in terms of an implicit estimate of MVA per capita at purchasing power parity (PPP) is used as the basic measure underlying the country groups in UNIDO statistics (UNIDO, 2013).

Data Sources and Collection Method

The data for this indicator is compiled by the national statistical offices, ministries of finance or economy, as part of their national accounting activities.

Method of Computation and Other Methodological Considerations**Computation Method:**

The percentage value addition to GDP from the manufacturing sector (P_{Manuf}) can be calculated as:

$$P_{Manuf} = \frac{MVA}{GDP} \times 100$$

MVA per capita can be calculated as:

$$MVA \text{ per capita} = \frac{MVA}{\text{Total Population of the Country}}$$

Comments and limitations:

Issues with comparability may arise due to the use of different versions of the SNA or the International Standard Industrial Classification (ISIC) that are used by countries.

There may also be differences due to the use of exchange rate conversions to USD, different base years used for constant price data, and methods for recent period estimation.

Proxy, alternative and additional indicators: N/A

Data Disaggregation

This indicator is not required to be disaggregated, but it can be disaggregated by various sectors within manufacturing.

References**Official SDG Metadata URL**

<https://unstats.un.org/sdgs/metadata/files/Metadata-09-02-01.pdf>

Internationally agreed methodology and guideline URL

<https://www.unido.org/resources/publications/cross-cutting-services/industrial-statistics-guidelines-and-methodology>

Other references

UNIDO (2010). *Industrial Statistics: Guidelines and Methodology*. Vienna. Available at: <https://www.unido.org/resources/publications/cross-cutting-services/industrial-statistics-guidelines-and-methodology>

UN-DESA (2015). *World Population Prospects: Methodology of the United Nations Population Estimates and Projections*. New York. Available at: https://esa.un.org/unpd/wpp/Publications/Files/WPP2015_Methodology.pdf www.unido.org/statistics

UNSD (2008). *Methodology for the National Accounts Main Aggregates Database*. New York. Available at: https://unstats.un.org/unsd/sn_aama/methodology.pdf

UNIDO. *International Yearbooks of Industrial Statistics*. Internet site: <https://www.unido.org/resources/publications/flagship-publications/international-yearbook-industrial-statistics>

UNSD (2008). *International Standard Industrial Classification of All Economic Activities (ISIC), Rev. 4*. New York. Available at: https://unstats.un.org/unsd/publication/seriesm/seriesm_4rev4e.pdf

UNIDO (2013). *Country groupings in UNIDO statistics*. Vienna. Available at: https://www.unido.org/sites/default/files/files/2018-03/Country_Grouping_in_UNIDO_Statistics_2013.pdf

Country examples

N/A

International Organization(s) for Global Monitoring

This document was prepared based on inputs from United Nations Industrial Development Organization (UNIDO).

For focal point information for this indicator, please visit <https://unstats.un.org/sdgs/dataContacts/>

Indicator 9.2.2

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Indicator Name, Target and Goal

Indicator 9.2.2: Manufacturing employment as a proportion of total employment

Target 9.2: Promote inclusive and sustainable industrialization and, by 2030, significantly raise industry's share of employment and gross domestic product, in line with national circumstances, and double its share in least developed countries

Goal 9: Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation

Definition and Rationale**Definition:**

This indicator is defined as the percentage of manufacturing employment in the total employment of a country.

Concepts:

Employment comprises all persons of working age who during a short reference period (one week), were engaged in any activity to produce goods or provide services for pay or profit. The working-age population is usually defined as all persons aged 15 and above. For

further clarification, see: Resolution concerning statistics of work, employment and labour underutilization (2013), available from http://ilo.org/global/statistics-and-databases/standards-and-guidelines/resolutions-adopted-by-international-conferences-of-labour-statisticians/WCMS_230304/lang--en/index.htm.

Manufacturing sector is defined according to the International Standard Industrial Classification of all Economic Activities (ISIC) revision 4 (2008, the latest) or revision 3 (1990). It refers to industries belonging to sector C in revision 4 or sector D in revision 3.

Rationale and Interpretation:

This indicator conveys the contribution of manufacturing in total employment. It measures the ability of the manufacturing sector to absorb surplus labour forces from agricultural and other traditional sectors towards production labour with higher wages, when monitored over time. However, in developed countries an opposite trend is expected where emphasis has shifted to reduction in labor in manufacturing as part of cost-cutting measures, to promote more capital-intensive industries.

Data Sources and Collection Method

Data on the share of manufacturing employment can be obtained from a variety of sources, including labour force surveys and other similar types of household surveys, establishment surveys and administrative records. Labour force surveys are the preferred source of data for this indicator as they have the widest coverage: they cover all economic activities within its scope, all status in employment, all establishment sizes, formal and informal employment, etc.

Method of Computation and Other Methodological Considerations

Computation Method:

The percentage of manufacturing employment in total employment (P_{MEmp}) is calculated as:

$$P_{MEmp} = \frac{\text{Total employment in manufacturing activities}}{\text{Total employment in all economic activities}} \times 100$$

Comments and limitations:

The characteristics of the data source impact the international comparability of the data, especially in cases where the coverage of the source is less than comprehensive (either in terms of country territory or economic activities). In the absence of a labour force survey (the preferred source of data for this indicator), some countries may use an establishment survey to derive this indicator, but these usually have a cut-off points such that small units which are not officially registered (whether in manufacturing or not) are not included in the survey and consequently, employment data may be underestimated. Discrepancies can also be caused by differences in the definition of employment or working age.

Proxy, alternative and additional indicators: N/A

Data Disaggregation

This indicator can be disaggregated by sex, occupation, and/or country region.

References

Official SDG Metadata URL

<https://unstats.un.org/sdgs/metadata/files/Metadata-09-02-02.pdf>

Internationally agreed methodology and guideline URL

http://www.ilo.org/ilostat-files/Documents/description_ECO_EN.pdf

Other references

ILO. *Key Indicators of the Labour Market (KILM)*. Geneva. Internet site: <http://www.ilo.org/ilostat>

ILO (2013). *Resolution concerning statistics of work, employment and labour underutilization*. Nineteenth International Conference of Labour Statisticians. Available at: http://ilo.org/global/statistics-and-databases/standards-and-guidelines/resolutions-adopted-by-international-conferences-of-labour-statisticians/WCMS_230304/lang--en/index.htm

UNSD (2008). *International Standard Industrial Classification of All Economic Activities (ISIC), Rev. 4*. New York. Available at: <https://unstats.un.org/unsd/classifications/ISIC/>

tats.un.org/unsd/publication/seriesm/seriesm_4rev4e.pdf

UNIDO. *Industrial Statistics*. Internet site: www.unido.org/statistics

Country examples

N/A

International Organization(s) for Global Monitoring

This document was prepared based on inputs from United Nations Industrial Development Organization (UNIDO).

For focal point information for this indicator, please visit <https://unstats.un.org/sdgs/dataContacts/>

Indicator 9.3.1

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Indicator Name, Target and Goal

Indicator 9.3.1: Proportion of small-scale industries in total industry value added

Target 9.3: Increase the access of small-scale industrial and other enterprises, in particular in developing countries, to financial services, including affordable credit, and their integration into value chains and markets.

Goal 9: Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation

Definition and Rationale

Definition:

This indicator is defined as the share of manufacturing value added of small-scale manufacturing enterprises in the total manufacturing value added.

Concepts:

An *Enterprise* is defined, in International recommendations for industrial statistics 2008 (IRIS 2008) (United Nations, 2011), as the smallest legal unit that constitutes an organizational unit producing goods or services. The enterprise is the basic statistical unit at which all information relating to its production activities and transactions, including financial and balance-sheet accounts, are maintained. It is also used for institutional sector classification in the 2008 System of National Accounts.

In case of the large enterprises a distinction is made between an enterprise and establishment. An enterprise, especially those of larger size may own more than one establishment having different physical locations or kinds-of-activity. For this reason IRIS 2008 recommends establishment as a statistical unit for data collection purpose. However, small enterprises are pre-dominantly single-establishment enterprise. Therefore no distinction between enterprise and establishment is made in definition of this indicator.

Small-scale industrial enterprises, in the SDG framework also called “small-scale industries”, refer to statistical units, generally enterprises, engaged in production of goods and services for market below a designated size class. The definition of size class in many countries is tied up with the legal and policy framework of the country. The size of a statistical unit based on employment should be defined primarily in terms of the average number of persons employed in that unit during the reference period. If the average number of persons employed is not available, the total number of persons employed in a single period may be used as the size criterion. The size classification should consist of the following classes of the average number of persons employed: 1-9, 10-19, 20-49, 50-249, 250 and more. This should be considered a minimum division of the overall range; more detailed classifications, where required, should be developed within this framework.

Total numbers of persons employed is defined as the total number of persons who work in or for the statistical unit, whether full-time or

part-time, including:

- Working proprietors
- Active business partners
- Unpaid family workers
- Paid employees

Value added is derived as the difference between gross output and intermediate consumption or (United Nations, 2011), and cannot be directly observed from the accounting records of the units. The value added at basic prices is calculated as the difference between the gross output at basic prices and the intermediate consumption at purchasers' prices. The valuation of value added closely corresponds to the valuation of gross output. If the output is valued at basic prices, then the valuation of value added is also at basic prices (the valuation of intermediate consumption is always at purchasers' prices).

All above mentioned terms are introduced to be in line with IRIS 2008 (United Nations, 2011).

Rationale and Interpretation:

Industrial enterprises are classified to small compared to large or medium for their distinct nature of economic organization, production capability, scale of investment and other economic characteristics. "Small-scale industries" can be run with a small amount of capital, relatively unskilled labor and using local materials. Despite their small contribution to total industrial output, their role in job creation, especially in developing countries is recognized to be significant where the scope of absorbing surplus labour force from traditional sectors such as agriculture or fishery is very high. "Small-scale industries" are capable of meeting domestic demand of basic consumer goods such as food, clothes, furniture, etc.

Data Sources and Collection Method

Data are collected primary from annual industrial surveys, where value added is disaggregated by size classes given in terms of number of employees and from surveys focusing particularly on small enterprises, or small and medium enterprises in general. Data are collected from national statistical offices through questionnaire or directly from national publications or online data platforms.

Method of Computation and Other Methodological Considerations

Computation Method:

The proportion of "small-scale industries" in total value added is an indicator calculated as a share of value added for small-scale manufacturing enterprises in total manufacturing value added:

$$\frac{\text{Manufacturing value added of "small – scale industries"}}{\text{Total Manufacturing value added}} \times 100$$

"Small industry" here refers to an enterprise with less than 20 persons employed. The indicator is recommended to calculate separately for each ISIC section such as manufacturing, trade or service activities as far as possible.

Comments and limitations:

The main limitation of existing national data is varying size classes by country indicating that data are obtained from different target populations. Data of one country are not comparable to another.

The definition of size class in many countries is tied up with the legal and policy framework of the country. It has implications on registration procedure, taxation and different waivers aimed to promote "small-scale industries". For the sole purpose of SDG monitoring IAEG-SDG has recommended that the indicator is calculated for enterprises with less than 20 persons employed.

Sub-indicator, alternative and additional indicators: N/A

Data Disaggregation

Data could be disaggregated by sectors according to the International Standard Industrial Classification of All Economic Activities (ISIC).

References

Official SDG Metadata URL

<https://unstats.un.org/sdgs/metadata/files/Metadata-09-03-01.pdf>

Internationally agreed methodology and guideline URL

N/A

Other references

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OECD. (2017). Structural and Demographic Business Statistics (SDBS). Paris: OECD. <http://www.oecd.org/std/business-stats/structural-and-demographic-business-statistics-sdbsoecd.htm>

Country examples

N/A

International Organization(s) for Global Monitoring

This document was prepared based on inputs from United Nations Industrial Development Organization (UNIDO)

For focal point information for this indicator, please visit <https://unstats.un.org/sdgs/dataContacts/>

Indicator 9.3.2

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Indicator Name, Target and Goal

Indicator 9.3.2: Proportion of small-scale industries with a loan or line of credit

Target 9.3: Increase the access of small-scale industrial and other enterprises, in particular in developing countries, to financial services, including affordable credit, and their integration into value chains and markets.

Goal 9: Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation

Definition and Rationale**Definition:**

This indicator is defined as the number of “small-scale industries” with an active line of credit or a loan from a financial institution in the reference year in percentage to the total number of such enterprises.

Concepts:

An *Enterprise* is defined, in International recommendations for industrial statistics 2008 (IRIS 2008) (United Nations, 2011), as the smallest legal unit that constitutes an organizational unit producing goods or services. The enterprise is the basic statistical unit at which all information relating to its production activities and transactions, including financial and balance-sheet accounts, are maintained. It is also used for institutional sector classification in the 2008 System of National Accounts.

In case of the large enterprises a distinction is made between an enterprise and establishment. An enterprise, especially those of larger

size may own more than one establishment having different physical locations or kinds-of-activity. For this reason IRIS 2008 recommends establishment as a statistical unit for data collection purpose. However, small enterprises are pre-dominantly single-establishment enterprise. Therefore no distinction between enterprise and establishment is made in definition of this indicator.

Small-scale industrial enterprises, in the SDG framework also called “small-scale industries”, refer to statistical units, generally enterprises, engaged in production of goods and services for market below a designated size class. The definition of size class in many countries is tied up with the legal and policy framework of the country. The size of a statistical unit based on employment should be defined primarily in terms of the average number of persons employed in that unit during the reference period. If the average number of persons employed is not available, the total number of persons employed in a single period may be used as the size criterion. The size classification should consist of the following classes of the average number of persons employed: 1-9, 10-19, 20-49, 50-249, 250 and more. This should be considered a minimum division of the overall range; more detailed classifications, where required, should be developed within this framework.

A *loan* is a financial instrument that is created when a creditor lends funds directly to a debtor and receives a non-negotiable document as evidence of the asset. This category includes overdrafts, mortgage loans, loans to finance trade credit and advances, repurchase agreements, financial assets and liabilities created by financial leases, and claims on or liabilities to the International Monetary Fund (IMF) in the form of loans. Trade credit and advances and similar accounts payable/receivable are not loans. Loans that have become marketable in secondary markets should be reclassified under debt securities. However, if only traded occasionally, the loan is not reclassified under debt securities (IMF, 2011).

Lines of credit and loan commitments provide a guarantee that undrawn funds will be available in the future, but no financial liability/asset exists until such funds are actually provided. Undrawn lines of credit and undisbursed loan commitments are contingent liabilities of the issuing institutions— generally, banks (IMF, 2011). A loan or line of credit refers to regulated financial institutions only.

Rationale and Interpretation:

Industrial enterprises are classified to small compared to large or medium for their distinct nature of economic organization, production capability, scale of investment and other economic characteristics. “Small-scale industries” can be run with a small amount of capital, relatively unskilled labor and using local materials. Despite their small contribution to total industrial output, their role in job creation, especially in developing countries is recognized to be significant where the scope of absorbing surplus labor force from traditional sectors such as agriculture or fishery is very high. “Small-scale industries” are capable of meeting domestic demand of basic consumer goods such as food, clothes, furniture, etc.

Thus “small-scale industries” play an important role in the economy. However, it has quite limited access to financial services, especially in developing countries. In order to improve the skill of workers and technology for production, small-scale industrial enterprises require financial support in the form of preferential loan, credit etc. This indicator shows how widely financial institutions are serving the “small-scale industries”. Together with the indicator SDG 9.3.1, this indicator reflects the main message of the target 9.3 which promotes to increase the access of “small-scale industries” to financial services.

Data Sources and Collection Method

Data for this indicator are generally collected from small industrial establishment survey, credit survey or economic census. The central bank or similar institutions may also conduct the survey. In compilation of data it is important to consider that the statistical unit (respondent) of the survey should be an enterprise of borrower of the loan.

Method of Computation and Other Methodological Considerations

Computation Method:

The proportion of “small-scale industries” with a loan or line of credit is calculated as the number of “small-scale industries” with an active line of credit or a loan from a financial institution in the reference year in percentage to the total number of such enterprises:

$$\frac{\text{The number of "small – scale industries" with loan or line of credit}}{\text{Total number of "small – scale industries"}} \times 100$$

“Small industry” here refers to an enterprise with less than 20 persons employed. The indicator is recommended to calculate separately for each ISIC section such as manufacturing, trade...or service activities as far as possible.

Comments and limitations:

The main limitation of existing national data is varying size classes by country indicating that data are obtained from different target populations. Data of one country are not comparable to another.

The definition of size class in many countries is tied up with the legal and policy framework of the country. It has implications on registration procedure, taxation and different waivers aimed to promote “small-scale industries”. For the sole purpose of SDG monitoring IAEG-SDG has recommended that the indicator is calculated for enterprises with less than 20 persons employed.

Sub-indicator, alternative and additional indicators: N/A

Data Disaggregation

Data could be disaggregated by ISIC and urban/rural.

References

Official SDG Metadata URL

<https://unstats.un.org/sdgs/metadata/files/Metadata-09-03-02.pdf>

Internationally agreed methodology and guideline URL

N/A

Other references

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OECD. (2017). Structural and Demographic Business Statistics (SDBS). Paris: OECD. <http://www.oecd.org/std/business-stats/structural-and-demographic-business-statistics-sdbsoecd.htm>

Country examples

N/A

International Organization(s) for Global Monitoring

This document was prepared based on inputs from United Nations Industrial Development Organization (UNIDO)

For focal point information for this indicator, please visit <https://unstats.un.org/sdgs/dataContacts/>

Indicator 9.4.1

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Indicator Name, Target and Goal

Indicator 9.4.1: CO₂ emissions per unit of value added

Target 9.4: By 2030, upgrade infrastructure and retrofit industries to make them sustainable, with increased resource-use efficiency and greater adoption of clean and environmentally sound technologies and industrial processes, with all countries taking action in accordance with their respective capabilities

Goal 9: Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation

Definition and Rationale

Definition:

This indicator is defined as the ratio between CO₂ emissions from fuel combustion and the value added of associated economic activities. It can be calculated either for the whole economy (GDP) or for particular sectors such as manufacturing (manufacturing value added).

CO₂ emissions per unit of GDP is expressed in kilogrammes of CO₂ per USD (in constant prices).

Concepts:

Gross value added is a productivity metric that measures contributions to the economy. It is calculated using the system of national accounts (SNA 2008) as the sum of all employee compensation, gross operating surplus of government and corporations, gross mixed income of unincorporated enterprises and taxes, minus any subsidies on production and imports, except for net taxes on products.

CO₂ emissions for an economy are estimated based on energy consumption data for all sectors. For the manufacturing sector, the following subsectors are considered beyond the total manufacturing sector (energy used for transport by industry is reported under transport):

- (1) Iron and steel industry [ISIC Group 241 and Class 2431];
- (2) Chemical and petrochemical industry [ISIC Divisions 20 and 21] excluding petrochemical feedstocks;
- (3) Non-ferrous metals basic industries [ISIC Group 242 and Class 2432];
- (4) Non-metallic minerals such as glass, ceramic, cement, etc. [ISIC Division 23];
- (5) Transport equipment [ISIC Divisions 29 and 30];
- (6) Machinery comprises fabricated metal products, machinery and equipment other than transport equipment [ISIC Divisions 25 to 28];
- (7) Food and tobacco [ISIC Divisions 10 to 12];
- (8) Paper, pulp and printing [ISIC Divisions 17 and 18];
- (9) Wood and wood products (other than pulp and paper) [ISIC Division 16];
- (10) Textile and leather [ISIC Divisions 13 to 15]; and
- (11) Non-specified (any manufacturing industry not included above) [ISIC Divisions 22, 31 and 32]

Rationale and Interpretation:

This indicator measures the amount of CO₂ emissions from fuel consumption produced by an economic activity, per unit of economic output. When computed for the whole economy, it is a measure of the combined effects of: (1) the average carbon intensity of the energy mix (linked to the shares of the various fossil fuels in the total); (2) the structure of an economy (linked to the relative weight of more or less energy-intensive sectors); and (3) of the average efficiency in the use of energy.

When computed for the manufacturing sector (CO₂ emissions per unit MVA), it measures the combined effect of: (1) the carbon intensity of the manufacturing economic output (average carbon intensity of energy mix used); (2) the structure of the manufacturing sector (the energy efficiency of production technologies in each sub-sector); and (3) the economic value of the various output.

Manufacturing industries are generally improving their emission intensity as countries move to higher levels of industrialization, but it should be noted that emission intensities can also be reduced through structural changes and product diversification in manufacturing. Lower values of CO₂ per unit MVA could be interpreted as more efficient manufacturing structures.

CO₂ emissions account for roughly 80% of all greenhouse gas emissions from the manufacturing processes.

Data Sources and Collection Method

Countries estimate CO₂ emissions from fuel combustion based on energy consumption data and on the IPCC Guidelines for Greenhouse Gas Inventories. Energy consumption data by fuel are collected through national surveys across consumption sectors as a part of national energy statistics.

Energy data are compiled according to harmonised international definitions and questionnaires, as described in the UN International Recommendations for Energy Statistics. For further information, see: <https://unstats.un.org/unsd/energy/ires/>

For further information on methodology on this indicator, see: http://wds.iea.org/wds/pdf/Worldco2_Documentation.pdf

Method of Computation and Other Methodological Considerations

Computation Method:

This indicator can be calculated using the following formula for each sector:

$$CO_2 \text{ emissions per unit of GDP} = \frac{CO_2 \text{ emissions for all sectors (in kg)}}{GDP \text{ (constant USD)}}$$

This indicator can be calculated for each sector.

Comments and limitations:

Estimation of CO₂ data is not systematized in many countries, although it is performed internationally based on harmonized energy data collected at the national level. There are possibilities of differences in different energy accounting systems followed by different countries.

Energy consumption data and value-added data often come from different sources, which may raise some consistency issues.

Proxy, alternative and additional indicators: N/A

Data Disaggregation

This indicator is not required to be disaggregated. However, it can be disaggregated by manufacturing sub-sector.

References

Official SDG Metadata URL

<https://unstats.un.org/sdgs/metadata/files/Metadata-09-04-01.pdf>

Internationally agreed methodology and guideline URL

http://wds.iea.org/wds/pdf/Worldco2_Documentation.pdf

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Country examples

N/A

International Organization(s) for Global Monitoring

This document was prepared based on inputs from United Nations Industrial Development Organization (UNIDO) and International Energy Agency (IEA).

For focal point information for this indicator, please visit <https://unstats.un.org/sdgs/dataContacts/>

Indicator 9.5.1

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Indicator Name, Target and Goal

Indicator 9.5.1: Research and development expenditure as a proportion of GDP

Target 9.5: Enhance scientific research, upgrade the technological capabilities of industrial sectors in all countries, in particular developing countries, including, by 2030, encouraging innovation and substantially increasing the number of research and development workers per 1 million people and public and private research and development spending

Goal 9: Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation

Definition and Rationale

Definition:

This indicator is defined as the total intramural expenditure on research and experimental development (R&D) performed in the national territory during a specific reference period expressed as a percentage of national gross domestic product (GDP).

Concepts:

Research and experimental development (R&D) comprise creative and systematic work undertaken in order to increase the stock of knowledge – including knowledge of humankind, culture and society – and to devise new applications of available knowledge.

The term *R&D* covers three types of activity: basic research, applied research and experimental development. *Basic research* is experimental or theoretical work undertaken primarily to acquire new knowledge of the underlying foundations of phenomena and observable facts, without any particular application or use in view. *Applied research* is original investigation undertaken in order to acquire new knowledge. It is, however, directed primarily towards a specific, practical aim or objective. *Experimental development* is systematic work, drawing on knowledge gained from research and practical experience and producing additional knowledge, which is directed to producing new products or processes or to improving existing products or processes.

R&D expenditure or in other words *Gross domestic expenditure on R&D (GERD)* is total intramural expenditure on R&D performed in the national territory during a specific reference period. It covers all expenditure for R&D performed in the economy, including both current costs and capital expenditures for R&D.

For further information on above definitions, see: OECD (2015). *Frascati Manual*. 7th Edition.

GDP is the sum of gross value added by all resident producers in the economy plus any product taxes and minus any subsidies not included in the value of the products.

Rationale and Interpretation:

This indicator is a direct measure of the R&D spending, which is to be increased as per target 9.5.

Data Sources and Collection Method

Data for this indicator is primarily collected through nationally representative R&D surveys, which are conducted by the national statistical offices or relevant line ministries such as the ministry of science and technology. The direct collection of R&D data through dedicated

surveys has a distinct advantage in that the concepts and definitions used can align completely with those contained in the *Frascati Manual*. Administrative data sources (which may include both financial data from revenue agencies as well as other types of administrative sources, such as company records) may be used as another source of information for compilation of R&D data, if the concepts, definitions and coverage used by administrative data sources are sufficiently close to those contained in the *Frascati Manual*.

The OECD *Frascati Manual* (please find the link in the reference section below) provides standard guidelines and recommendations for collecting and reporting internationally comparable statistics on the financial and human resources devoted to R&D. The information on the coverage and contents of the different chapters of the *Frascati Manual (2015)* are summarized below as a guide to readers. Chapter 1 introduces the manual and the twelve subsequent chapters provide guidance on specific topics. The five chapters (2-6) that follow contain general guidance on defining and measuring R&D in all sectors of R&D performance: concepts and definitions, institutional sectors, R&D expenditures, R&D personnel, and statistical methodologies and procedures. The next five chapters (7-11) address particular methodological and classification issues specific to each performing sector (Business enterprise, Government, Higher education and Private non-profit). The fifth sector, the Rest of the world (formerly referred to as Abroad) is discussed in Chapter 11 on R&D globalisation, which addresses the performance and funding of R&D in the Rest of the world. In addition, there is guidance on data collection on multinational enterprises (MNEs) and R&D services trade. The sector chapters are followed by two chapters (12-13) that approach the measurement of government support for R&D from a funder perspective: government budget allocations for R&D and measurements of tax relief for R&D.

The UNESCO Institute for Statistics (UIS) provides a guide to conducting an R&D survey for countries starting to measure R&D (please find the link in the reference section below). In addition to summarizing main concepts and definitions from the *Frascati Manual*, this guide presents the relevant R&D indicators, addresses common issues encountered in data collection, provides a simple project management template, and proposes generic model questionnaires for the Government, Higher education, Business enterprise and Private non-profit sectors.

Method of Computation and Other Methodological Considerations

Computation Method:

Research and development expenditure as a proportion of GDP ($R\&D_{Intensity}$) is calculated as:

$$R\&D_{Intensity} = \frac{\text{The total intramural expenditure on R\&D (GERD)}}{GDP} \times 100$$

Comments and limitations:

R&D data can be collected directly through surveys, through administrative data sources, or by combination of the two. The direct collection of R&D data has a distinct advantage in that the concepts and definitions used can align completely with those contained in the *Frascati Manual*, though this may have some cost implications. Furthermore, R&D data are not collected on a regular basis in many developing countries and that not all sectors of performance (Business enterprise, Government, Higher education, and Private non-profit) are covered. In particular, the Business enterprise sector often goes uncovered.

Proxy, alternative and additional indicators: N/A

Data Disaggregation

R&D expenditure can be disaggregated by sector of performance, source of funds, field of R&D, type of research and type of cost. The *Frascati Manual* provides more details related to these breakdowns (what these breakdowns/classifications are, the purposes, including user needs, the main criteria that are applied, etc).

References

Official SDG Metadata URL

<https://unstats.un.org/sdgs/metadata/files/Metadata-09-05-01.pdf>

Internationally agreed methodology and guideline URL

http://www.oecd-ilibrary.org/science-and-technology/frascati-manual-2015_9789264239012-en

Other references

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UNESCO-UIS. *UIS Data Centre – Science, Technology and Innovation*. Internet site: http://data.uis.unesco.org/Index.aspx?DataSetCode=SCN_DS&popupcustomise=true&lang=en

UNESCO-UIS (2014). *Guide to Conducting an R&D Survey: For Countries Starting to Measure Research and Experimental Development, Technical Paper No. 11, UIS, Montreal*. Available at: <http://uis.unesco.org/sites/default/files/documents/guide-to-conducting-an-rd-survey-for-countries-starting-to-measure-research-and-experimental-development-2014-en.pdf>

Country examples

N/A

International Organization(s) for Global Monitoring

This document was prepared based on inputs from UNESCO Institute for Statistics (UIS).

For focal point information for this indicator, please visit <https://unstats.un.org/sdgs/dataContacts/>

Indicator 9.5.2

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Indicator Name, Target and Goal

Indicator 9.5.2: Researchers (in full-time equivalent) per million inhabitants

Target 9.5: Enhance scientific research, upgrade the technological capabilities of industrial sectors in all countries, in particular developing countries, including, by 2030, encouraging innovation and substantially increasing the number of research and development workers per 1 million people and public and private research and development spending

Goal 9: Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation

Definition and Rationale

Definition:

This indicator is defined as the number of researchers (in full-time equivalent) in the national territory during a specific reference period expressed as a proportion of a population of one million.

Concepts:

Research and experimental development (R&D) comprise creative and systematic work undertaken in order to increase the stock of knowledge – including knowledge of humankind, culture and society – and to devise new applications of available knowledge.

The term *R&D* covers three types of activity: basic research, applied research and experimental development. *Basic research* is experimental or theoretical work undertaken primarily to acquire new knowledge of the underlying foundations of phenomena and observable facts, without any particular application or use in view. *Applied research* is original investigation undertaken in order to acquire new knowledge. It is, however, directed primarily towards a specific, practical aim or objective. *Experimental development* is systematic work, drawing on knowledge gained from research and practical experience and producing additional knowledge, which is directed to producing new products or processes or to improving existing products or processes.

R&D personnel are all persons engaged directly in R&D, as well as those providing direct services for the R&D activities. They are classified according to their R&D function: researchers, technicians and other supporting staff. Out of these, researchers play an essential role in the conduct of R&D projects or activities, by generally leading such projects (as contrasted with other R&D personnel).

Researchers are professionals engaged in the conception or creation of new knowledge. They conduct research and improve or develop concepts, theories, models, techniques, instrumentation, software or operational methods.

Full-time equivalent (FTE) of R&D personnel (researchers) is defined as the ratio of working hours actually spent on R&D during a specific reference period (usually a calendar year) divided by the total number of hours conventionally worked in the same period by an

individual or a group. Accordingly, one FTE of R&D personnel (researchers) is equivalent to one individual working full-time on R&D. Thus, an individual who normally spends 30% of his/her time on R&D and the rest on other activities (such as teaching, university administration and student counselling) should be considered as 0.3 FTE. Similarly, if a full-time R&D worker is employed at an R&D unit for only six months, this results in an FTE of 0.5. It is measured by combining two variables: actual involvement in R&D activities and formal engagement on the basis of normative or statutory working hours.

For further information on above definitions, see: OECD (2015). *Frascati Manual*. 7th Edition.

Rationale and Interpretation:

This indicator is a direct measure of the number of R&D workers per million people, which is to be increased as per target 9.5.

Data Sources and Collection Method

Data for this indicator is primarily collected through nationally representative R&D surveys, which are conducted by the national statistical offices or relevant line ministries such as the ministry of science and technology. The direct collection of R&D data through dedicated surveys has a distinct advantage in that the concepts and definitions used can align completely with those contained in the *Frascati Manual*. Administrative data sources (which may include both financial data from revenue agencies as well as other types of administrative sources, such as company records) may be used as another source of information for compilation of R&D data, if the concepts, definitions and coverage used by administrative data sources are sufficiently close to those contained in the *Frascati Manual*.

The OECD *Frascati Manual* (please find the link in the reference section below) provides standard guidelines and recommendations for collecting and reporting internationally comparable statistics on the financial and human resources devoted to R&D. The information on the coverage and contents of the different chapters of the *Frascati Manual (2015)* are summarized below as a guide to readers. Chapter 1 introduces the manual and the twelve subsequent chapters provide guidance on specific topics. The five chapters (2-6) that follow contain general guidance on defining and measuring R&D in all sectors of R&D performance: concepts and definitions, institutional sectors, R&D expenditures, R&D personnel, and statistical methodologies and procedures. The next five chapters (7-11) address particular methodological and classification issues specific to each performing sector (Business enterprise, Government, Higher education and Private non-profit). The fifth sector, the Rest of the world (formerly referred to as Abroad) is discussed in Chapter 11 on R&D globalisation, which addresses the performance and funding of R&D in the Rest of the world. In addition, there is guidance on data collection on multinational enterprises (MNEs) and R&D services trade. The sector chapters are followed by two chapters (12-13) that approach the measurement of government support for R&D from a funder perspective: government budget allocations for R&D and measurements of tax relief for R&D.

The UNESCO Institute for Statistics (UIS) provides a guide to conducting an R&D survey for countries starting to measure R&D (please find the link in the reference section below). In addition to summarizing main concepts and definitions from the *Frascati Manual*, this guide presents the relevant R&D indicators, addresses common issues encountered in data collection, provides a simple project management template, and proposes generic model questionnaires for the Government, Higher education, Business enterprise and Private non-profit sectors.

Method of Computation and Other Methodological Considerations

Computation Method:

The number researchers (in full-time equivalent) per million inhabitants ($RES_{Density}$) is calculated as:

$$RES_{Density} = \frac{\text{Total researchers (FTE)}}{\text{Total population of the country}} \times 1,000,000$$

where 'Total researchers (FTE)' is calculated as:

$$\begin{aligned} \text{Total researchers (FTE)} &= \text{Number of full – time researchers} \\ &+ \left[\frac{\text{Number of working hours spent on R\&D by part – time researchers}}{\text{Number of normative or statutory working hours of a full – time researcher}} \right] \end{aligned}$$

Comments and limitations:

R&D data can be collected directly through surveys, through administrative data sources, or by combination of the two. The direct collection of R&D data has a distinct advantage in that the concepts and definitions used can align completely with those contained in the *Frascati Manual*, though this may have some cost implications. Furthermore, R&D data are not collected on a regular basis in many developing countries and that not all sectors of performance (Business enterprise, Government, Higher education, and Private non-profit) are covered. In particular, the Business sector often goes uncovered.

Proxy, alternative and additional indicators: N/A

Data Disaggregation

Researchers can be disaggregated by sector of employment, field of R&D, sex, level of qualification and age. The *Frascati Manual* provides more details related to these breakdowns (what these breakdowns/classifications are, the purposes, including user needs, the main criteria that are applied, etc).

References

Official SDG Metadata URL

<https://unstats.un.org/sdgs/metadata/files/Metadata-09-05-02.pdf>

Internationally agreed methodology and guideline URL

http://www.oecd-ilibrary.org/science-and-technology/frascati-manual-2015_9789264239012-en

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OECD (2015). *Frascati Manual 2015: Guidelines for Collecting and Reporting Data on Research and Experimental Development, the Measurement of Scientific, Technological and Innovation Activities*. OECD Publishing. Paris. Available at: http://www.oecd-ilibrary.org/science-and-technology/frascati-manual-2015_9789264239012-en

UNESCO-UIS. *UIS Data Centre – Science, Technology and Innovation*. Internet site: http://data.uis.unesco.org/Index.aspx?DataSetCode=SCN_DS&popupcustomise=true&lang=en

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Country examples

N/A

International Organization(s) for Global Monitoring

This document was prepared based on inputs from UNESCO Institute for Statistics (UIS).

For focal point information for this indicator, please visit <https://unstats.un.org/sdgs/dataContacts/>

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Indicator Name, Target and Goal

Indicator 9.a.1: Total official international support (official development assistance plus other official flows) to infrastructure

Target 9.a: Facilitate sustainable and resilient infrastructure development in developing countries through enhanced financial, technological and technical support to African countries, least developed countries, landlocked developing countries and small island developing States

Goal 9: Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation

Definition and Rationale

Definition:

This indicator is defined as the sum of all gross disbursements of Official Development Assistance (ODA) and Other Official Flows (OOF) from all donors in support of infrastructure development.

Concepts:

The Development Assistance Committee (DAC) defines *ODA* as those flows to countries and territories on the DAC list of ODA recipients and multilateral institutions which are:

- (1) Provided by official agencies, including state and local governments, or by their executive agencies; and
- (2) Each transaction of which:
 - a. is administered with the promotion of the economic development and welfare of developing countries as its main objective; and
 - b. is concessional in character and conveys a grant element of at least 25 percent (calculated at a rate of discount of 10%).

OOF refer to all other official sector transactions that do not meet the ODA criteria, and are not export credits.

Infrastructure support refers to all OECD Creditor Reporting System (CRS) purpose codes in the 200 series (see <http://www.oecd.org/dac/financing-sustainable-development/development-finance-standards/purposecodessectorclassification.htm>).

Rationale and Interpretation:

Total resource flows to developing countries quantify the public effort (excluding export credits) that donors provide to developing countries for infrastructure.

Data Sources and Collection Method

Data is received from national focal points (statistical reporter) within national aid agencies, ministries of foreign affairs or finance etc.

Method of Computation and Other Methodological Considerations

Computation Method:

This indicator is calculated as the sum of all ODA and OOF from donors to developing countries for infrastructure (CRS codes in the 200 series).

Comments and limitations:

The CRS data are available from 1973. However, the data coverage, at an activity level, is considered complete from 1995 for commitments and 2002 for disbursements.

Proxy, alternative and additional indicators: N/A

Data Disaggregation

This indicator can be disaggregated by type of flow (ODA or OOF), by donor, recipient country, type of finance, type of aid, sub-sector etc.

References

Official SDG Metadata URL

<https://unstats.un.org/sdgs/metadata/files/Metadata-09-0A-01.pdf>

Internationally agreed methodology and guideline URL

<http://www.oecd.org/dac/stats/methodology.htm>

Other references

OECD. *Development Finance Standards*. Paris. Internet site: <http://www.oecd.org/dac/financing-sustainable-development/development-f>

inance-standards/

Country examples

N/A

International Organization(s) for Global Monitoring

This document was prepared based on inputs from Organization for Economic Co-operation and Development (OECD).

For focal point information for this indicator, please visit <https://unstats.un.org/sdgs/dataContacts/>

Indicator 9.b.1

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Indicator Name, Target and Goal

Indicator 9.b.1: Proportion of medium and high-tech industry value added in total value added

Target 9.b: Support domestic technology development, research and innovation in developing countries, including by ensuring a conducive policy environment for, inter alia, industrial diversification and value addition to commodities

Goal 9: Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation

Definition and Rationale

Definition:

This indicator is defined as the percentage of medium-high and high technology (MHT) industries to the total value added of all manufacturing industries

Concepts:

The value added of an industry (industry value added) is a survey concept that refers to the given industry's net output derived from the difference of gross output and intermediate consumption. Manufacturing sector is defined according to the International Standard Industrial Classification of all Economic Activities (ISIC) revision 3 (1990) or revision 4 (2008). It refers to industries belonging to sector D in revision 3 or sector C in revision 4.

Technology classification is based on research and development (R&D) expenditure relative to value added otherwise referred as R&D intensity. Data for R&D intensity are presented in a report (Galindo-Rueda and Verger, 2016) published by the OECD in 2016, which also proposes a taxonomy for industry groups with different ranges of R&D expenditure relative to their gross value added. MHT industries have traditionally been defined exclusively to manufacturing industries. However, there have been recent efforts (Galindo-Rueda and Verger, 2016) to extend the definition to non-manufacturing industries as well. Nevertheless, medium-high and high technology sectors also in new paper are primarily represented by manufacturing industries.

MHT manufacturing industries refer to all sub-codes within the following ISIC codes:

- (1) ISIC Rev. 4 – 20, 21, 252, 26, 27, 28, 29, 30 (excluding 301), 325; or
- (2) ISIC Rev. 3 – 24, 29, 30, 31, 32, 33, 34, 35 (excluding 351).

Rationale and Interpretation:

Industrial development generally entails structural transition from resource-based and low technology activities to MHT activities. Modern, highly complex production structures offer better opportunities for skills development and technological innovation. MHT activities are considered high-value addition industries with higher technological intensity and labour productivity. By tracking this

indicator, the level of domestic technology, as well as that of research and innovation can be observed.

An increasing share of MHT reflects domestic technological advancement through higher impacts of innovation.

Data Sources and Collection Method

The data for this indicator is compiled by the national statistical offices, ministries of finance or economy, as part of their national accounting activities. It is strongly recommended to use the system of national accounts (2008) and to track economic activity at least at 3-digit ISIC.

Method of Computation and Other Methodological Considerations

Computation Method:

The percentage contribution of MHT to total MVA (P_{MHT}) can be calculated as:

$$P_{MHT} = \frac{\text{Sum of value added in MHT economic activities}}{MVA} \times 100$$

Comments and limitations:

Value added by economic activity should be reported at least at 3-digit ISIC for compiling MHT values.

Proxy, alternative and additional indicators: N/A

Data Disaggregation

No disaggregation is available for this indicator.

References

Official SDG Metadata URL

<https://unstats.un.org/sdgs/metadata/files/Metadata-09-0B-01.pdf>

Internationally agreed methodology and guideline URL

<https://www.unido.org/resources/publications/cross-cutting-services/industrial-statistics-guidelines-and-methodology>

Other references

UNIDO (2010). *Industrial Statistics: Guidelines and Methodology*. Vienna. Available at: <https://www.unido.org/resources/publications/cross-cutting-services/industrial-statistics-guidelines-and-methodology>

UNIDO (2013). *The Industrial Competitiveness of Nations: Looking Back, Forging Ahead*. Vienna. Available at: https://www.unido.org/sites/default/files/2013-07/Competitive_Industrial_Performance_Report_UNIDO_2012_2013_0.PDF

UNIDO (2016). *Industrial Development Report 2016: The Role of Technology and Innovation in Inclusive and Sustainable Industrial Development*. Vienna. Available at: https://www.unido.org/sites/default/files/2015-12/EBOOK_IDR2016_FULLREPORT_0.pdf

UNIDO (2018). *Industrial Statistics*. www.unido.org/statistics

UNSD (2008). *International Standard Industrial Classification of All Economic Activities (ISIC), Rev. 4*. New York. Available at: https://unstats.un.org/unsd/publication/seriesm/seriesm_4rev4e.pdf

UNSD (2008). *Methodology for the National Accounts Main Aggregates Database*. New York. Available at: https://unstats.un.org/unsd/sn_aama/methodology.pdf

Galindo-Rueda, F. and F. Verger (2016). OECD Taxonomy of Economic Activities Based on R&D Intensity, OECD Science, Technology and Industry Working Papers, 2016/04, OECD Publishing, Paris. Available at: <http://dx.doi.org/10.1787/5jlv73sqqp8r-en>

Country examples

N/A

International Organization(s) for Global Monitoring

This document was prepared based on inputs from United Nations Industrial Development Organization (UNIDO).

For focal point information for this indicator, please visit <https://unstats.un.org/sdgs/dataContacts/>

Indicator 9.c.1

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Indicator Name, Target and Goal

Indicator 9.c.1: Proportion of population covered by a mobile network, by technology

Target 9.c: Significantly increase access to information and communications technology and strive to provide universal and affordable access to the Internet in least developed countries by 2020

Goal 9: Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation

Definition and Rationale

Definition:

This indicator is defined as the percentage of inhabitants living within range of a mobile-cellular signal (2G, 3G or LTE), irrespective of whether or not they are mobile phone subscribers or users.

Concepts:

2G population coverage refers to population with access only to mobile networks with data communications at downstream speeds below 256Kbit/s. This includes mobile-cellular technologies such as GPRS, CDMA2000 1x and most EDGE implementations.

3G population coverage refers to population with access to 3G mobile-cellular signals. This includes mobile-cellular technologies such as HSPA, UMTS and EV-DO. It excludes people covered only by GPRS, EDGE or CDMA 1xRTT.

LTE population coverage refers to population with access to LTE/LTE-Advanced, mobile WiMAX/WirelessMAN or other more advanced mobile-cellular networks. It excludes people covered only by HSPA, UMTS, EV-DO and previous 3G technologies, and also excludes fixed WiMAX coverage.

Rationale and Interpretation:

Percentage of population covered by a mobile network can be considered as a baseline indicator for ICT access, as it measures the possibility to subscribe and use cellular services for communication. As mobile networks expand, more people have such subscription opportunities, thus overcoming basic infrastructure barriers exhibited by fixed-telephone (landline) networks. Disaggregation by technology (2G, 3G and LTE) offers proxy measures of access to different kinds of cellular services, such as voice only (for 2G) and increasingly high-speed access to the internet and other data-based services (for 3G and LTE). This indicator is, therefore, a direct insight into the level of digital divide prevalent in a country, and would help design targeted policies to overcome remaining infrastructure barriers.

Data Sources and Collection Method

This data can be collected from licensed mobile-cellular operators. In cases where operators have different levels and locations of coverage, they should be requested to provide each operator's coverage maps, which can be overlaid with maps showing the population of the country.

Method of Computation and Other Methodological Considerations

Computation Method:

The percentage of inhabitants living within range of a mobile-cellular signal (2G, 3G or LTE) (P_{mob}) is calculated as:

$$P_{mob} = \frac{\text{number of inhabitants living within range of a mobile – cellular signal}}{\text{total population of the country}} \times 100$$

Comments and limitations:

The indicator is based on where the population lives, and not where they work or go to school, etc. When there are multiple operators offering the service, the maximum population number covered should be reported.

In some countries, data only refers to the operator with the largest coverage. In such cases, coverage could be understated.

Proxy, alternative and additional indicators: N/A

Data Disaggregation

This indicator is required to be disaggregated by technology (2G, 3G and LTE). It can be disaggregated by location (rural/urban).

References

Official SDG Metadata URL

<https://unstats.un.org/sdgs/metadata/files/Metadata-09-0C-01.pdf>

Internationally agreed methodology and guideline URL

https://www.itu.int/dms_pub/itu-d/opb/ind/D-IND-ITC_IND_HBK-2011-PDF-E.pdf

Other references

ITU (2011). *Handbook for the Collection of Administrative Data on Telecommunications/ICT*. Geneva. Available at: https://www.itu.int/dms_pub/itu-d/opb/ind/D-IND-ITC_IND_HBK-2011-PDF-E.pdf

ITU. *ICT Statistics Portal*. Geneva. Internet site: <https://www.itu.int/en/ITU-D/Statistics/Pages/default.aspx>

Country examples

N/A

International Organization(s) for Global Monitoring

This document was prepared based on inputs from International Telecommunications Union (ITU).

For focal point information for this indicator, please visit <https://unstats.un.org/sdgs/dataContacts/>

Goal 10

Reduce inequality within and among countries

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In this goal:

United Nations Statistics Division (UNSD) worked in consultation with each indicators' custodian agency(ies) to prepare these chapters. For indicators that do not have chapters here yet, they are currently being prepared and they will be uploaded here as soon as they become available.

If you have any questions on the e-Handbook, do not hesitate to contact Shaswat Sapkota (sapkotas@un.org).

Indicator 10.4.1

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Indicator Name, Target and Goal

Indicator 10.4.1: Labour share of GDP, comprising wages and social protection transfers

Target 10.4: Adopt policies, especially fiscal, wage and social protection policies, and progressively achieve greater equality

Goal 10: Reduce inequality within and among countries

Definition and Rationale

Definition:

This indicator is defined as the total compensation of all employees within a country as a share of its GDP.

Concepts:

Compensation of employees is the total in-cash or in-kind remuneration payable to the employee by the enterprise for the work performed by the employee during the accounting period. It includes wages and salaries (in cash or in kind) and social insurance contributions payable by employers. Any unpaid or volunteer work is counted as zero compensation for the purposes of this indicator. Moreover, it does not include taxes payable by employers on the wage and salary bill, such as payroll tax.

Gross domestic product (GDP) is the measure of the monetary value of final goods and services that are bought by the final user, which are produced in an economic territory/country in a given time. It is calculated without making deductions for depreciation of fabricated assets or for depletion and degradation of natural resources. It can be measured either by:

- (1) The expenditure method – the sum of expenditures on final consumption, gross capital formation and net exports; or
- (2) The production method – the value of final outputs minus any intermediate consumption, plus the net taxes (taxes minus subsidies); or
- (3) The income approach – the sum of compensation of employees, gross operating surplus, gross mixed incomes and the net taxes on both production and imports.

Employees are all individuals who hold explicit or implicit employment contracts, based on which they receive basic remuneration not directly dependent on the revenue of the firm for which they work. This indicator does not include the labour income of self-employed

workers.

Rationale and Interpretation:

This indicator measures the relative share of GDP which accrues to employees as compared to the share which accrues to capital in any given year. It reflects the extent to which economic growth translates into higher incomes for employees over time. Increased production and GDP often lead to improved living standards of individuals in the economy, but this will depend on the distribution of real income and public policy among other factors. This indicator is therefore important to understand progress a country is making towards achieving greater equality.

Data Sources and Collection Method

The recommended primary data source for this indicator is the national accounts estimates of GDP and compensation of employees. These are produced by the national statistical offices of countries and preferably should follow the System of National Accounts' 2008 revision (SNA 2008).

Method of Computation and Other Methodological Considerations

Computation Method:

This indicator can be calculated using the following formula:

$$\text{Labour share of GDP} = \frac{\text{Total compensation of employees (wages and social protection contributions)}}{\text{GDP}}$$

Comments and limitations:

Labour share of GDP underestimates the proportion of GDP accrued to total employment as it covers only the compensation of employees and does not include the labour income of the self-employed. Therefore, for countries that see larger proportions of self-employment, this indicator may need to be adjusted.

While using national accounts for calculating this indicator, the concept definition of compensation of employees that is used should be specified. Alternately, if another wage or labour income concept is used, it should be clearly indicated.

Proxy, alternative and additional indicators: N/A

Data Disaggregation

N/A

References

Official SDG Metadata URL

<https://unstats.un.org/sdgs/metadata/files/Metadata-10-04-01.pdf>

Internationally agreed methodology and guideline URL

N/A

Other references

ILO. *ILO's Social Protection Data and Indicators*. Geneva. Internet site: <http://www.social-protection.org/gimi/gess/ShowTheme.action?themeld=10&lang=EN>

United Nations (2008). *System of National Accounts*. New York. Available at: <https://unstats.un.org/unsd/nationalaccount/sna.asp>

ILO. *Decent Work Indicators – Guidelines for Producers and Users of Statistical and Legal Framework Indicators*. Geneva. Available at: http://www.ilo.org/stat/Publications/WCMS_223121/lang--en/index.htm

Country examples

N/A

International Organization(s) for Global Monitoring

This document was prepared based on inputs from International Labour Organization (ILO).

For focal point information for this indicator, please visit <https://unstats.un.org/sdgs/dataContacts/>

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Indicator 10.a.1

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Indicator Name, Target and Goal

Indicator 10.a.1: Proportion of tariff lines applied to imports from least developed countries and developing countries with zero-tariff

Target 10.a: Implement the principle of special and differential treatment for developing countries, in particular least developed countries, in accordance with World Trade Organization agreements

Goal 10: Reduce inequality within and among countries

Definition and Rationale

Definition:

This indicator is defined as the percentage of tariff lines that correspond to a 0% tariff rate on products imported from least developed and developing countries.

Concepts:

Tariff line or National Tariff lines (NTL) code are classification codes that are applied to merchandise goods that are imported/exported. They follow the Harmonized Commodity Description and Coding Systems (HS). Countries can customize the HS code to their needs by adding additional digits (separated by a decimal) after the six digits of the HS. For example, 010120.10 is the US national tariff line for live purebred breeding asses.

The country groups used refer to the Standard country or area codes for statistical use (M49) adopted by UNSD

<https://unstats.un.org/unsd/methodology/m49/>.

Rationale and Interpretation:

This indicator measures the extent of differential treatment for developing and least developed countries (LDC) that have been implemented, by observing the level of free access they have to international markets. Over time, this indicator will show progress on the phasing out of tariff rates on goods coming from developing countries and LDCs.

Data Sources and Collection Method

Tariff data for the calculation of this indicator are retrieved from the International Trade Centre (ITC), UN Conference on Trade and Development (UNCTAD), and the World Trade Organization (WTO) databases. Data at tariff line level are collected directly from the national statistical offices, permanent missions of countries to the UN, regional organizations or focal points within the customs or ministries in charge of customs revenues (e.g. ministry of economy or finance etc.).

Trade data used to establish whether trade is occurring at the tariff line level are retrieved from the consultation of data provided through the following trade databases: ITC Trade Map (www.trademap.org), WTO IDB and UNSD COMTRADE.

Method of Computation and Other Methodological Considerations

Computation Method:

The calculation of this indicator is a straightforward ratio of the total number of products imported that can benefit duty free imports from developing countries or least developed countries and the total number of products imported from developing countries or least developed countries. The number of products is represented by the number of tariff lines. The indicator is calculated excluding arms and oil. The percentage of tariff lines that correspond to a 0% tariff rate on products imported from least developed and developing countries (P_{zero}) is then calculated as:

$$P_{zero} = \frac{\sum_{i=1}^n \sum_{j=1}^m \sum_{k=1}^l 1(v_{ijk} > 0) \times 1(t_{ijk} = 0)}{\sum_{i=1}^n \sum_{j=1}^m \sum_{k=1}^l 1(v_{ijk} > 0)} \times 100$$

where n is the number of kinds of goods classified by Harmonized System (HS), m is the number of developed countries in the world, l is the number of developing and least developed countries, v_{ijk} is the total value of a good i imported by the country j from the country k , t_{ijk} is the ad valorem tariff of a good i levied by the country j from the country k , and $1()$ is an indicator function that takes on the value 1 if the bracketed expression is true, and 0 otherwise.

Comments and limitations:

Tariff-based measures of differential treatment are not accurate, but better measures are unavailable. These are only part of the trade limitation factors, especially when looking at exports of developing or least developed countries under non-reciprocal preferential treatment that set criteria for eligibility.

Preferential treatment may not be used by exporters from developing and LDC for reasons such as the inability to meet eligibility criteria (i.e. complying with rules of origin). As there is no accurate statistical information on the extent of the actual utilization of these benefits, it is assumed that they are fully utilized.

Duty free treatment is an indicator of market access, but is not always synonymous with preferential treatment for beneficiary countries. This is because the Most Favored Nations (MFN) tariffs are already at near zero levels, especially for fuels and minerals, and IT products.

Proxy, alternative and additional indicators:

(alternative) *Proportion of import values from developing countries and from LDCs, admitted free of duty.* A similar indicator was calculated for the MDGs (indicator 8.6) but is not currently calculated for the SDG process. In this case, the value of imports that can access duty free is calculated instead of counting the number of tariff lines that can be imported duty free.

Data Disaggregation

This indicator can be disaggregated by product sector, geographical locations and country income level.

References

Official SDG Metadata URL

<https://unstats.un.org/sdgs/metadata/files/Metadata-10-0A-01.pdf>

Internationally agreed methodology and guideline URL

N/A

Other references

ITC. *Market Access Map*. Internet site: <http://www.macmap.org/>

WTO. *Tariff Analysis Online facility*. Internet site: <https://tao.wto.org/welcome.aspx?ReturnUrl=%2f>

UNCTAD. *Trade Analysis Information System (TRAINS)*. Internet site: <http://unctad.org/en/Pages/DITC/Trade-Analysis/Non-Tariff-Measures/NTMs-trains.aspx>

Country examples

N/A

International Organization(s) for Global Monitoring

This document was prepared based on inputs from International Trade Center (ITC), World Trade Organization (WTO) and United Nations Conference on Trade and Development (UNCTAD).

For focal point information for this indicator, please visit <https://unstats.un.org/sdgs/dataContacts/>

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Indicator 10.b.1

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Indicator Name, Target and Goal

Indicator 10.b.1: Total resource flows for development, by recipient and donor countries and type of flow (e.g., official development assistance, foreign direct investment and other flows)

Target 10.b: Encourage official development assistance and financial flows, including foreign direct investment, to States where the need is greatest, in particular least developed countries, African countries, small island developing States and landlocked developing countries, in accordance with their national plans and programmes

Goal 10: Reduce inequality within and among countries

Definition and Rationale

Definition:

This indicator is defined as the sum of all resource flows for development.

Concepts:

Resource flows for development comprises Official Development Assistance (ODA), other official flows (OOF) and private flows, in the form of foreign direct investments (FDI), which are at market terms.

The Development Assistance Committee (DAC) defines *ODA* as those flows to countries and territories on the DAC list of ODA recipients and multilateral institutions which are:

- (1) Provided by official agencies, including state and local governments, or by their executive agencies; and
- (2) Each transaction of which:
 - a) is administered with the promotion of the economic development and welfare of developing countries as its main objective; and
 - b) is concessional in character and conveys a grant element of at least 25 percent (calculated at a rate of discount of 10%).

OOF are defined as transactions by the official sector which do not meet the conditions for eligibility as ODA, either because they are not primarily aimed at development, or because they are not sufficiently concessional. They also exclude officially supported export credits.

Rationale and Interpretation:

Total resource flows to developing countries provide the most complete record of resources and quantify the overall expenditures that donors provide to developing countries.

Data Sources and Collection Method

This data are derived from the OECD DAC's aggregate database on official and private resource flows. Data on flows are reported according to the same standards and methodologies by national focal points (statistical reporters) within national aid agencies, ministries of foreign affairs or finance etc. on the financial flows provided by their country or institution.

Method of Computation and Other Methodological Considerations

Computation Method:

This indicator is calculated as the sum of all ODA, OOF and private flows from all donors to developing countries.

Comments and limitations: N/A

Proxy, alternative and additional indicators: N/A

Data Disaggregation

The data can be disaggregated by donor, recipient, type of flow, type of finance, type of aid etc.

References

Official SDG Metadata URL

<https://unstats.un.org/sdgs/metadata/files/Metadata-10-0B-01.pdf>

Internationally agreed methodology and guideline URL

<http://www.oecd.org/dac/stats/methodology.htm>

Other references:

OECD. *Development Finance Standards*. Paris. Internet site: <http://www.oecd.org/dac/financing-sustainable-development/development-finance-standards/>

Country examples

N/A

International Organization(s) for Global Monitoring

This document was prepared based on inputs from Organization for Economic Co-operation and Development (OECD).

For focal point information for this indicator, please visit <https://unstats.un.org/sdgs/dataContacts/>

Goal 11

Make cities and human settlements inclusive, safe, resilient and sustainable

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In this goal:

United Nations Statistics Division (UNSD) worked in consultation with each indicators' custodian agency(ies) to prepare these chapters.

For indicators that do not have chapters here yet, they are currently being prepared and they will be uploaded here as soon as they become available.

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Indicator 11.5.1

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Indicator Name, Target and Goal

Indicator 11.5.1: Number of deaths, missing persons and directly affected persons attributed to disasters per 100,000 population

Target 11.5: By 2030, significantly reduce the number of deaths and the number of people affected and substantially decrease the direct economic losses relative to global gross domestic product caused by disasters, including water-related disasters, with a focus on protecting the poor and people in vulnerable situations

Goal 11: Make cities and human settlements inclusive, safe, resilient and sustainable

Definition and Rationale

Definition:

This indicator measures the number of people who died, went missing or were directly affected by disasters per 100,000 population.

Concepts:

Death: The number of people who died during the disaster, or directly after, as a direct result of the hazardous event.

Missing: The number of people whose whereabouts is unknown since the hazardous event. It includes people who are presumed dead, for whom there is no physical evidence such as a body, and for which an official/legal report has been filed with competent authorities.

Directly affected: The number of people who have suffered injury, illness or other health effects; who were evacuated, displaced, relocated or have suffered direct damage to their livelihoods, economic, physical, social, cultural and environmental assets. Indirectly affected are people who have suffered consequences, other than or in addition to direct effects, over time, due to disruption or changes in economy, critical infrastructure, basic services, commerce or work, or social, health and psychological consequences.

Rationale and Interpretation:

The Sendai Framework for Disaster Risk Reduction 2015-2030 was adopted by UN Member States in March 2015 as a global policy of disaster risk reduction. Among the global targets, "Target A: Substantially reduce global disaster mortality by 2030, aiming to lower average per 100,000 global mortality between 2020-2030 compared with 2005-2015" and "Target B: Substantially reduce the number of affected people globally by 2030, aiming to lower the average global figure per 100,000 between 2020-2030 compared with 2005-2015" will contribute to sustainable development and strengthen economic, social, health and environmental resilience. The economic, environmental and social perspectives would include poverty eradication, urban resilience, and climate change adaptation.

The open-ended intergovernmental expert working group on indicators and terminology relating to disaster risk reduction (OIEWG) established by the General Assembly (resolution 69/284) has developed a set of indicators to measure global progress in the implementation of the Sendai Framework, which was endorsed by the UNGA (OIEWG [report A/71/644](#)). The relevant global indicators for the Sendai Framework will be used to report for this indicator.

Disaster loss data is greatly influenced by large-scale catastrophic events, which represent important outliers. UNISDR recommends countries report the data by event, so that complementary analysis can be undertaken to obtain trends and patterns in which such catastrophic events (that can represent outliers) can be included or excluded.

Data Sources and Collection Method

Data provider at national level is appointed Sendai Framework Focal Points. In most countries disaster data are collected by line ministries and national disaster loss databases are established and managed by special purpose agencies including national disaster management agencies, civil protection agencies, and meteorological agencies. The Sendai Framework Focal Points in each country are responsible of data reporting through the Sendai Framework Monitoring System.

Method of Computation and Other Methodological Considerations

Computation Method:

This indicator, X , is calculated as a simple summation of related indicators (death, missing people, and affected people) from national disaster loss databases divided by the national population data (from national censuses, World Bank or UN Statistical Commission information).

$$X = \frac{(A_2 + A_3 + B_1)}{\text{National Population}} \times 100,000$$

Where:

A_2 Number of deaths attributed to disasters;

A_3 Number of missing persons attributed to disasters; and

B_1 Number of directly affected people attributed to disasters.

* Detailed methodologies can be found in the Technical Guidance (see below the Reference section)

Comments and limitations:

The Sendai Framework Monitoring System has been developed to measure the progress in the implementation of the Sendai Framework by UNGA endorsed indicators. Member States will be able to report through the System from March 2018. The data for SDG indicators will be compiled and reported by UNISDR.

Proxy, alternative and additional indicators:

In most cases international data sources only record events that surpass some threshold of impact and use secondary data sources which usually have non uniform or even inconsistent methodologies, producing heterogeneous datasets.

Data Disaggregation

This indicator can be disaggregated by number of deaths attributed to disasters; number of missing persons attributed to disasters; and number of directly affected people attributed to disasters. Possible desirable disaggregation dimensions include: hazard, geography (administrative unit), sex, age (3 categories), disability and income.

References

Official SDG Metadata URL

<https://unstats.un.org/sdgs/metadata/files/Metadata-01-05-01.pdf>

Internationally agreed methodology and guideline URL

Technical guidance for monitoring and reporting on progress in achieving the global targets of the Sendai Framework for Disaster Risk Reduction (UNISDR 2017) https://www.preventionweb.net/files/54970_collectionoftechnicalguidancenotes.pdf

Other references:

Report of the open-ended intergovernmental expert working group on indicators and terminology relating to disaster risk reduction (OEIWG). *Endorsed by UNGA on 2nd February 2017*. Available at: <https://www.preventionweb.net/publications/view/51748>

Country examples

N/A

International Organization(s) for Global Monitoring

This document was prepared based on inputs from United Nations Office for Disaster Risk Reduction (UNISDR).

For focal point information for this indicator, please visit <https://unstats.un.org/sdgs/dataContacts/>

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Indicator 11.5.2

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Indicator Name, Target and Goal

Indicator 11.5.2: Direct economic loss in relation to global GDP, damage to critical infrastructure and number of disruptions to basic services, attributed to disasters

Target 11.5: By 2030, significantly reduce the number of deaths and the number of people affected and substantially decrease the direct economic losses relative to global gross domestic product caused by disasters, including water-related disasters, with a focus on protecting the poor and people in vulnerable situations

Goal 11: Make cities and human settlements inclusive, safe, resilient and sustainable

Definition and Rationale

Definition:

This indicator measures the ratio of direct economic loss attributed to disasters in relation to GDP, damage to critical infrastructure and number of disruptions to basic services, attributed to disasters.

This indicator has 3 components and they are described below.

Concepts:

- Direct economic loss: the monetary value of total or partial destruction of physical assets existing in the affected area. Direct economic loss is nearly equivalent to physical damage.

**Annotations: Examples of physical assets that are the basis for calculating direct economic loss include homes, schools, hospitals, commercial and governmental buildings, transport, energy, telecommunications infrastructures and other infrastructure; business assets and industrial plants; and production such as crops, livestock and production infrastructure. They may also encompass environmental assets and cultural heritage. Direct economic losses usually happen during the event or within the first few hours after the event and are often assessed soon after the event to estimate recovery cost and claim insurance payments. These are tangible and relatively easy to measure.*

- Critical infrastructure: The physical structures, facilities, networks and other assets which provide services that are essential to the social and economic functioning of a community or society.
- Basic services: Services that are needed for all of society to function appropriately.

**Annotation: Examples of basic services include water supply, sanitation, health care and education. They also include services provided by critical infrastructure such as electricity, telecommunications, transport or waste management that are needed for all of society to function.*

For this indicator, disruption, interruption or lower quality of basic services is proposed to be measured for at least the following public services: Healthcare facilities, Educational facilities, Power/energy and other utility system, Transport system.

Rationale and Interpretation:

The Sendai Framework for Disaster Risk Reduction 2015-2030 was adopted by UN Member States in March 2015 as a global policy of disaster risk reduction. Among the global targets, "Target C: Reduce direct disaster economic loss in relation to global gross domestic product (GDP) by 2030" will contribute to sustainable development and strengthen economic, social, health and environmental resilience. The economic, environmental and social perspectives would include poverty eradication, urban resilience, and climate change adaptation.

The open-ended intergovernmental expert working group on indicators and terminology relating to disaster risk reduction (OIEWG) established by the General Assembly (resolution 69/284) has developed a set of indicators to measure global progress in the implementation of the Sendai Framework, which was endorsed by the UNGA (OIEWG [report A/71/644](#)). The relevant global indicators for the Sendai Framework will be used to report for this indicator.

Disaster loss data is greatly influenced by large-scale catastrophic events, which represent important outliers. UNISDR recommends countries report the data by event, so that complementary analysis can be undertaken to obtain trends and patterns in which such catastrophic events (that can represent outliers in terms of damage) can be included or excluded.

Data Sources and Collection Method

Data providers at national level are appointed Sendai Framework Focal Points. In most countries disaster data are collected by line ministries and national disaster loss databases are established and managed by special purpose agencies including national disaster management agencies, civil protection agencies, and meteorological agencies. The Sendai Framework Focal Points in each country are responsible of data reporting through the online Sendai Framework Monitoring System.

Method of Computation and Other Methodological Considerations

Computation Method:

This indicator has three datasets:

- 1) Direct economic loss in relation to global GDP,
- 2) damage to critical infrastructure, and
- 3) number of disruptions to basic services.

Detailed methodologies can be found in the Technical Guidance (see the Reference 2)

A short summary:

The original national disaster loss databases usually register physical damage value (housing unit loss, infrastructure loss etc.), which is reported to 2), while monetary value for 1) needs conversion according to a standardized methodology, either provided nationally or described in the Technical Guidance. For 3) "disruption" includes: interruptions, either single or multiple, short or long, of the services; or a measurable/noticeable reduction in the quality of the service; or reduction in the service coverage; or a combination of the above situations. Countries are required to separately report by facilities according to the sub-indicators, and maintain their methodologies consistent over the reporting period.

- 1) Direct economic loss in relation to global GDP:

For complete information on this sub-indicator please refer to Indicator: 1.5.2

These sub-indicators include global indicators for the Sendai Framework;

C-2: Direct agricultural loss attributed to disasters.

Agriculture is understood to include the crops, livestock, fisheries, apiculture, aquaculture and forest sectors as well as associated facilities and infrastructure.

C-3: Direct economic loss to all other damaged or destroyed productive assets attributed to disasters.

Productive assets would be disaggregated by economic sector, including services, according to standard international classifications. Countries would report against those economic sectors relevant to their economies. This would be described in the associated metadata.

C-4: Direct economic loss in the housing sector attributed to disasters.

Data would be disaggregated according to damaged and destroyed dwellings.

C-5: Direct economic loss resulting from damaged or destroyed critical infrastructure attributed to disasters.

The decision regarding those elements of critical infrastructure to be included in the calculation will be left to the Member States and described in the accompanying metadata. Protective infrastructure and green infrastructure should be included where relevant

C-6: Direct economic loss to cultural heritage damaged or destroyed attributed to disasters.

- 2) damage to critical infrastructure

D-2: Number of destroyed or damaged health facilities attributed to disasters.

D-3: Number of destroyed or damaged educational facilities attributed to disasters.

D-4: Number of other destroyed or damaged critical infrastructure units and facilities attributed to disasters.

The decision regarding those elements of critical infrastructure to be included in the calculation will be left to the Member States and described in the accompanying metadata. Protective infrastructure and green infrastructure should be included where relevant.

3) number of disruptions to basic services

D-6: Number of disruptions to educational services attributed to disasters.

D-7: Number of disruptions to health services attributed to disasters.

D-8: Number of disruptions to other basic services attributed to disasters.

The decision regarding those elements of basic services to be included in the calculation will be left to the Member States and described in the accompanying metadata.

Comments and limitations:

The Sendai Framework Monitoring System has been developed to measure the progress in the implementation of the Sendai Framework by UNGA endorsed indicators. Member States are to report through the System from March 2018. The data for SDG indicators are compiled and reported by UNISDR.

Proxy, alternative and additional indicators:

While the data obtained through the Sendai Framework Monitor has no thresholds, most international data sources only record events that surpass some threshold of impact and use secondary data sources which usually have non uniform or even inconsistent methodologies, producing heterogeneous datasets.

Data Disaggregation

This indicator is required to be disaggregated by:

Direct agricultural loss attributed to disasters;

Direct economic loss to all other damaged or destroyed productive assets attributed to disasters;

Direct economic loss in the housing sector attributed to disasters;

Direct economic loss resulting from damaged or destroyed critical infrastructure attributed to disasters;

Direct economic loss to cultural heritage damaged or destroyed attributed to disasters;

Number of destroyed or damaged health facilities attributed to disasters;

Number of destroyed or damaged educational facilities attributed to disasters;

Number of other destroyed or damaged critical infrastructure units and facilities attributed to disasters;

Number of disruptions to educational services attributed to disasters;

Number of disruptions to health services attributed to disasters; and

Number of disruptions to other basic services attributed to disasters.

It can be also disaggregated as follows.

Hazard

Geography (Administrative Unit)

C-2: type of crops, livestock lost, and other agricultural sectors

C-3: level of affectation (damaged/destroyed), and type and size of Facility (types according to ISIC classification and size in categories such as small/medium/large.)

C-4: house location (such as rural/urban). Optionally by size (small/medium/large), and material (wood, cardboard, masonry, etc.)

C-5: level of affectation (damaged/destroyed), and type and size of infrastructure (types according to UNISDR provided classification based on HAZUS, and size in categories such as unpaved/paved/highway or small/medium/large.)

D-2, 3, 4: level of affectation (damaged/destroyed), and type and size of infrastructure (types according to UNISDR provided classification based on HAZUS, and size in categories such as unpaved/paved/highway or small/medium/large. The disaggregation will be declared in the accompanying metadata)

D-4: infrastructure

D-8: by type of service as declared in the accompanying metadata

The disaggregation is set up by each country in the accompanying metadata

References

Official SDG Metadata URL

<https://unstats.un.org/sdgs/metadata/files/Metadata-11-05-02.pdf>

Internationally agreed methodology and guideline URL

Technical guidance for monitoring and reporting on progress in achieving the global targets of the Sendai Framework for Disaster Risk Reduction (UNISDR 2018) <https://www.preventionweb.net/publications/view/54970>

Other references

Report of the open-ended intergovernmental expert working group on indicators and terminology relating to disaster risk reduction (OEIWG). *Endorsed by UNGA on 2nd February 2017*. Available at: <https://www.preventionweb.net/publications/view/51748>

Country examples

N/A

International Organization(s) for Global Monitoring

This document was prepared based on inputs from United Nations Office for Disaster Risk Reduction (UNISDR).

For focal point information for this indicator, please visit <https://unstats.un.org/sdgs/dataContacts/>

Indicator 11.6.1

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Indicator Name, Target and Goal

Indicator 11.6.1: Proportion of urban solid waste regularly collected and with adequate final discharge out of total urban solid waste generated, by cities

Target 11.6: By 2030, reduce the adverse per capita environmental impact of cities, including by paying special attention to air quality and municipal and other waste management

Goal 11: Make cities and human settlements inclusive, safe, resilient and sustainable

Definition and Rationale

Definition:

This indicator is defined as the proportion of municipal solid waste collected and managed in controlled facilities out of total municipal solid waste generated, by cities.

Concepts:

Solid Waste is the garbage or refuse generated by households, offices, industries and commercial activities within an urban area.

Municipal Solid Waste is wastes generated by households, and wastes of a similar nature generated by commercial and industrial premises, by institutions such as schools, hospitals, care homes and prisons, and from public spaces such as streets, markets, slaughter houses, public toilets, bus stops, parks, and gardens. The definition of MSW should follow the local definitions so it is important to

annotate the local and national definition(s) of MSW. However, MSW should exclude the mineral waste.

Total Municipal Solid Waste Generated by the City is the sum of collected municipal solid waste and uncollected municipal solid waste

Municipal Solid Waste Collected refers to waste that is regularly collected from specific addresses or designated collection points. Collection frequency will depend on local conditions and on any pre-separation of the waste. For example, both mixed waste and organic waste are often collected daily in tropical climates for public health reasons, and generally at least weekly; source separated dry recyclables may be collected less frequently.

Uncollected Municipal Solid Waste refers to waste generated in a city but uncollected due to the lack of collection services.

Municipal Solid Waste Managed in Controlled Facilities refers to waste being accepted in a facility that has reached at least an intermediate level of control out of collected municipal solid waste. The level of control for a particular facility can be assessed using qualitative criteria including 1) degree of control over waste reception and general site management; 2) degree of control over waste treatment and disposal and 3) degree of monitoring and verification of environmental control. A score of at least 10 on each criterion is the threshold required to be considered as 'controlled'.

International data collection efforts (e.g., UNSD/ United Nations Environment Programme Questionnaire on Environment Statistics-Waste Section) exclude waste from municipal sewage network and treatment, municipal construction and demolition waste from the definition of Municipal Solid Waste. Possible data collected for this SDG indicator, if allowed for disaggregation by these categories can enable reporting for both the SDG and for other international reporting (e.g., UNSD/ United Nations Environment Programme Questionnaire).

Comments and Limitations:

Collection of data for the indicator will require training and capacity development for monitoring at both national and local level. The precision of data on total municipal solid waste generation is disputable. In general, developed countries have solid waste data collection systems but most of the middle and low-income countries do not have data. In these countries and cities, household survey and other complimentary surveys can be conducted for the estimation of municipal waste generation per capita. However, one of the key challenges of data precision in the middle to low income countries is the lack of accurate population data in their jurisdiction, particularly regarding slums, where usually no waste collection service is taking place. The judgement on the level of control of waste management facilities, including composting, recycling, incineration facilities in a city, requires high level of technical capacity and large investment in human resources.

Rationale and Interpretation:

A sustainable city must collect and appropriately manage all its solid waste in order to improve the standards of living and cleanliness. Integrated solid waste management (ISWM) strategies are also necessary for environmental sustainability and effective resource management.

Data Sources and Collection Method

Municipal Solid Waste Generation Per Capita

For countries and cities that have the data already, data can be collected through municipal record. For countries and cities that do not have the data, a household survey to identify daily waste generation should be done, at least two times a year in different seasons. In the household survey, liner bags will be distributed to each household to be surveyed and ask head of household to put 7 days of waste generated. Then the liner bags are collected and its weight is measured. Household to be surveyed should be picked up according to the income levels. Municipal waste from other sources such as market, restaurants, hotels, schools and so on also should be measured.

Population in the City

Population census

Municipal Solid Waste Managed in a Controlled Facility

Survey on the qualitative judgement of waste treatment and facility as well as daily amount of waste received by the facilities is required. The sheet below can be utilised.

Survey Sheet Example for Recycling and Treatment Facilities

Treatment facility name	Degree of control score	Process employed	Type of waste	Amount of solid waste received	Amount of sewage sludge	Amount of residue	Where residue is exported
	(1)						
	(2)			(t)	(t)	(t)	
	(3)						
	(1)						
	(2)			(t)	(t)	(t)	
	(3)						

Survey Sheet Example for Disposal Facilities

Landfill sites name	Landfill type	Operation start year	Degree of control score	Amount of MSW received	Amount of sewage sludge received
			(1)		
			(2)	(t)	(t)
			(3)		
			(1)		
			(2)	(t)	(t)
			(3)		

Globally, data are already being collected for the related statistics contained in the UNSD/United Nations Environment Programme Questionnaire, and methodological guidance for the statistics is being developed in the methodology sheet on waste statistics of the Manual on the Basic Set of Environment Statistics (https://unstats.un.org/unsd/envstats/fdes/manual_bses.cshtml).

Method of Computation and Other Methodological Considerations

Computation Method:

The indicator is calculated as follows:

$$x = \frac{\text{Municipal solid waste collected and managed in a controlled facility}}{\text{Total municipal solid waste generated by the city}} \times 100 (\%)$$

Total municipal solid waste generated by the city can be estimated by multiplication of the municipal solid waste generation per capita and population of the city. When the municipal solid waste generation per capita is not available, household survey for a daily waste generation in household and other premises (e.g. restaurants, hotels, hospitals, schools, etc) should be conducted. Since the waste generation can differ according to the seasons, the survey should be conducted at least two times a year to estimate the municipal solid waste generation per capita.

Municipal solid waste managed in controlled facility is estimated through qualitative judgement of the degree of environmental control of facilities where the city's municipal waste is collected and transported. The judgement of environmental control can be conducted in line with the criteria below. Another important thing is to deduct residue amount from treatment facilities to avoid double count.

(1) Degree of control over waste reception and handling at each site. This criterion should be applied to all treatment and disposal sites, whatever the specific process being used.

Factors affecting the assessment include:

- Vehicular access to the site (high level of control: hard surfaced access roads of adequate width and load-bearing capacity, kept clean and free of mud)
- Traffic management (high level of control: any queues for site access kept short in time and contained within the site; little impact of traffic on neighbours).
- Site security (high level of control: site fenced; no unauthorised site access; gates locked when site closed).
- Waste reception and record keeping (high level of control: reception office; staffed during all opening hours; all vehicles logged and loads checked; weighbridge installed and all weights logged). Note that the procedures for monitoring the records thus collected are assessed under (3).
- Waste unloading (high level of control: waste directed to a designated area; unloading supervised by site staff).
- Control over nuisance (high level of control: successful control of windblown litter, flies, vermin, birds and of 'mud' leaving the site on vehicle tyres)
- Control of fires (high level of control: no routine burning of wastes; no 'wild' fires; active fire prevention and emergency response systems in place in case of accidental fire)

				<p>a. No control</p> <p>b. Low level of control</p> <p>c. Medium level of control</p> <p>d. Medium/High level of control</p> <p>e. High level of control</p>	<p>0 is scored</p> <p>5</p> <p>10</p> <p>15</p> <p>20</p>
(2) Degree of control over both the waste treatment and disposal process in use at each site and over any potential emissions.	<p>The nature of controls required will depend on both the process employed and on the potential emissions. As an example, the table below provides guidance on how the general principles can be applied to land disposal and thermal treatment (using the specific example of mass-burn incineration).</p> <p>For biological treatment, the detail will vary with the type of process (e.g. windrow composting, in-vessel composting, anaerobic digestion). However, in all cases a 'high level' of control would imply a high degree of control over: the incoming waste (to avoid hazardous waste or contrary materials); processing temperature to ensure pathogen destruction; retention time in the process; mixing in the process (including turning of windrows); atmospheric emissions including odours and bio aerosols; and leachate collection and treatment.</p> <p>Similar principles can be applied to other facilities, including mechanical-biological treatment (MBT) plants, advanced thermal treatment and new technologies for valorisation of organic waste in developing countries. In each case, the user may use the following scoring tables as a 'best judgment' guideline for scoring.</p> <p>Where a fuel is being made from waste to be burnt elsewhere, then the assessment should include the process and emission controls at the user facilities.</p>				
(3) Degree of monitoring and verification of environmental controls (Includes the existence and regular implementation of: robust environmental permitting/ licensing procedures; regular record keeping, monitoring and verification carried out by the facility itself; AND monitoring, inspection and verification by an independent regulatory body)	<p>The environmental monitoring programme and process control record keeping required will be specific to the type of facility.</p> <ul style="list-style-type: none"> All sites must comply with the federal/national/local environmental legislation, have conducted an Environmental Impact Assessment (EIA) where necessary, have obtained the most recent permit/license and kept it up-to-date. Permitting processes should be supportive of initiatives that improve environmental performance of the system. A lower score should be assigned if permitting processes for improved facilities have been unduly long and complex, while existing facilities continued to operate with much lower levels of (or no) environmental control. For all sites it should include incoming waste volumes, weights and categories; at least occasional monitoring of waste composition and relevant properties; control of 'nuisance' (including windblown litter, flies, vermin, birds and 'mud' leaving the site on vehicle tyres); and control of odour, site fires, and emission of potential greenhouse gases (particularly methane and nitrous oxides, as well as carbon dioxide). For all land disposal: ground and surface water. For engineered and sanitary landfills: leachate and landfill gas management. For thermal treatment: moisture content and calorific value of incoming wastes; temperature, residence time, emissions to air (including those of nitrogen oxides (NO), sulphur dioxide (SO₂), hydrogen chloride (HCl), heavy metals and dioxins), effluent treatment and disposal, and the quantities and management methods of both fly ash and bottom ash. For biological treatment: input waste controls (to protect both the process and the product quality); process control (temperature, residence time, mixing); product quality control; emissions controls; and greenhouse gas controls (particularly methane and nitrous oxides). 				
				<p>a. No compliance</p> <p>b. Low compliance</p> <p>c. Medium Compliance</p> <p>d. Medium/High compliance</p> <p>e. High compliance</p>	<p>0 is scored</p> <p>5</p> <p>10</p> <p>15</p> <p>20</p>
	Level of Control	Score	Land disposal	Thermal treatment	
	a. None	0	Uncontrolled dumping – no controls	Uncontrolled burning lacking most 'control' functions	

b.	Low (Semi-controlled facility)	5	Site staffed; waste placed in designated area; some site equipment	Site staffed; some containment and management of combustion process; basic operating procedures to control nuisance
c.	Medium (Controlled facility)	10	Waste compacted using site equipment; waste covered (at least irregularly)	Emission controls to capture particulates; trained staff follow set operating procedures; equipment properly maintained; ash properly managed
d.	Medium/high (Engineered facility)	15	Engineered landfill site: use daily cover material; some level of leachate containment and treatment; collection of landfill gas	High levels of engineering and process control over residence time, turbulence and temperature; emission controls to capture acid gases and capture dioxins; active management of flyash.
e.	High (State-of-the-art facility)	20	Fully functional sanitary landfill site: properly sited and designed; leachate containment (naturally consolidated clay on the site or constructed liner); leachate & gas collection; gas flaring and/or utilization; final cover; post closure plan	Built to and operating in compliance with international best practice including eg. EU or other similarly stringent stack and GHG emission criteria Flyash managed as a hazardous waste using best appropriate technology.

Data Disaggregation

Data for this indicator can be disaggregated at the city and town levels.

- Disaggregation by population (waste generation per capita)
- Disaggregation by type of facility
- Disaggregation by material type, i.e., by municipal sewage network and treatment, municipal construction and demolition waste and any other

References

Official SDG Metadata URL

<https://unstats.un.org/sdgs/metadata/files/Metadata-11-06-01.pdf>

Internationally agreed methodology and guideline URL

https://unstats.un.org/unsd/envstats/fdes/manual_bses.cshtml

Other references

UN-Habitat (2010). *Solid Waste management in the World Cities Water and Sanitation in the World's Cities*, Earthscan, London, ISBN 978-1-84971-169-2 <http://mirror.unhabitat.org/pmss/listItemDetails.aspx?publicationID=2918>

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Wilson et al - Wasteaware ISWM indicators - doi10.1016j.wasman.2014.10.006 - January 2015

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International Organization(s) for Global Monitoring

This document was prepared based on inputs from UN-Habitat and United Nations Statistics Division (UNSD).

For focal point information for this indicator, please visit <https://unstats.un.org/sdgs/dataContacts/>

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Indicator Name, Target and Goal

Indicator 11.6.2: Annual mean levels of fine particulate matter (eg. PM 2.5 and PM 10) in cities (population weighted)

Target 11.6: By 2030, reduce the adverse per capita environmental impact of cities, including by paying special attention to air quality and municipal and other waste management

Goal 11: Make cities and human settlements inclusive, safe, resilient and sustainable

Definition and Rationale

Definition:

This indicator is defined as the annual mean of the daily concentrations of fine suspended particles equal or less than 2.5 microns in diameters (PM_{2.5}) in urban areas.

Particulate matter is an agreed indicator to measure of air pollution. This mean is a population-weighted average, e.g. if several cities measure PM_{2.5}, the country mean will be weighted with the corresponding city population, and is expressed in micrograms per cubic meter

($\mu\text{g}/\text{m}^3$)

To date, particulate matter with a diameter equal or less than 10 microns (PM₁₀) is still more commonly measured than PM2.5 worldwide, although this is evolving (WHO 2016a). To convert PM₁₀ to PM_{2.5}, conversion factors can be used, generally between 0.3-0.8 (WHO, 2014).

The present reported indicator is modelled for all urban areas in each country by WHO (Shaddick et al, 2016; WHO 2016b) following the methodology described below.

Concepts:

Particulate matter with a diameter equal or less than 2.5 microns in diameters (PM2.5) is the most commonly used pollutant in epidemiological studies on the health effects due to exposure to air pollution. PM2.5 is a good indicator of complex pollution mixtures and epidemiological findings suggest that it is a major risk to human health. Particulate matter consists of solid particles and liquid droplets both formed by organic and inorganic substances suspended in the air.

Rationale and Interpretation:

The major sources of particulate matter (PM2.5) are human combustion of fossil fuels from activities such as industry, traffic, and power generation, but also household fuels (e.g. biomass, coal) burning for heating, cooking, and lighting activities at household level. Non-anthropogenic sources (e.g. fires) may also be important in some areas. These particles can penetrate deeply into the respiratory tract and therefore constitute a long-term risk for health by increasing mortality from respiratory infections and diseases, lung cancer, and selected cardiovascular diseases.

The reported indicator value is population –weighted, because from a health perspective, it is important to know the extent of the exposure distribution among populations in order to assess the health impacts.

Data Sources and Collection Method

The data for this indicator is collected using (1) ground-based urban air quality monitoring networks (WHO 2016a) and, where not available, (2) additional data such as satellite retrievals of aerosol optical depth, chemical transport models, topography, etc. Further details on the method can be found in Shaddick et al (2016).

Data sources include official country reporting from the relevant ministries (usually the Ministry of Environment), but also regional and

international networks such as the European Environmental Agency and Clean Air Asia, UN agencies, development agencies, articles from peer reviewed journals and ground measurements compiled in the framework of Global Burden of Disease Project. Wherever gaps in coverage remain, satellite imagery analysis is used to estimate data for monitoring this indicator.

Method of Computation and Other Methodological Considerations

Computation Method:

Although PM10 and PM2.5 measurements are regularly collected in many thousands of locations throughout the world, the amount of monitors in different geographical areas vary, with some areas having little or no monitoring (WHO 2016a). Where ground monitoring data are available, statistical models are used to calibrate measurements with data from other sources. These include estimates of PM2.5 obtained from remote sensing satellites, chemical transport model, and other factors including sand dust and topography, all of which are available for every 0.1° grid-cell. The statistical model can then be used to predict measurements, together with associated measures of uncertainty, for each grid-cell. In areas where there is little, or no, monitoring the calibration models may be unstable, or too cumbersome to be modelled. For this reason, a hierarchical modelling approach can be used where, if there is not enough information to produce an accurate calibration equation for a particular area, information can be 'borrowed' from a wider geographical region (Shaddick et al, 2016; WHO, 2016b). The result is a set of nested calibration and prediction models that can be used to predict PM2.5 for each of the 1.4 million grid-cells covering the entire globe. These can be used to produce distributions of exposures for each country and, by linking exposures to estimates of population for each grid-cell – provided by the Gridded Population of the World (GPW) database - , distributions of expected population exposures.

The following formula is used to obtain the aggregated mean for each country:

$$\text{Annual mean levels} = \frac{\sum C_n \times P_n}{\sum P_n}$$

where C_n is the estimated mean annual fine particulate matter for the city^[1] (or grid(s) corresponding to that city^[2]) n , P_n is the population of the city¹ (or grid(s) corresponding to that city²) n .

The same formula is used to derive country estimates (rural and urban), by aggregating the grid cells that include the country (as opposed to the city).

Proxy, alternative and additional indicators: N/A

[1] For countries with PM2.5 ground measurements available.

[2] WHO is reporting modelled data estimates for 11.6.2, which are available at grid-level globally (WHO 2016b,c)

Data Disaggregation

Data is available at available globally at a high spatial resolution (0.1 x 0.1) – e.g. each grid corresponds approximately to 11x11km at the equator, which can be further aggregated at country, urban or rural level.

References

Official SDG Metadata URL

<https://unstats.un.org/sdgs/metadata/files/Metadata-11-06-02.pdf>

Internationally agreed methodology and guideline URL

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Other references

WHO (2014)- WHO Ambient Air Pollution Database", World Health Organization. Update 2014. http://www.who.int/phe/health_topics/outdoorair/databases/AAP_database_methods_2014.pdf

WHO (2016a). *WHO Urban ambient air quality database*. Geneva. Available at: http://www.who.int/phe/health_topics/outdoorair/databases/cities/en/

WHO (2016b). *Ambient air pollution: a global assessment of exposure and burden of disease*. Geneva. Available at: <http://who.int/phe/publications/air-pollution-global-assessment/en/>

WHO (2016c) Modelled Global Ambient Air Pollution estimates. Available at: http://www.who.int/phe/health_topics/outdoorair/databases/modelled-estimates/en/

Country examples

N/A

International Organization(s) for Global Monitoring

This document was prepared based on inputs from World Health Organization (WHO).

For focal point information for this indicator, please visit <https://unstats.un.org/sdgs/dataContacts/>

Indicator 11.b.1

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Indicator Name, Target and Goal

Indicator 11.b.1: Number of countries that adopt and implement national disaster risk reduction strategies in line with the Sendai Framework for Disaster Risk Reduction 2015-2030

Target 11.b: By 2020, substantially increase the number of cities and human settlements adopting and implementing integrated policies and plans towards inclusion, resource efficiency, mitigation and adaptation to climate change, resilience to disasters, and develop and implement, in line with the Sendai Framework for Disaster Risk Reduction 2015–2030, holistic disaster risk management at all levels

Goal 11: Make cities and human settlements inclusive, safe, resilient and sustainable

Definition and Rationale

Definition:

This indicator measures the number of countries that adopt and implement national disaster risk reduction (DRR) strategies in line with the Sendai Framework for Disaster Risk Reduction 2015-2030, with multiple dimensions of the level of implementation.

Concepts:

Disaster risk reduction strategies: define goals and objectives across different timescales and with concrete targets, indicators and time frames. In line with the Sendai Framework for Disaster Risk Reduction 2015-2030, these should be aimed at preventing the creation of disaster risk, the reduction of existing risk and the strengthening of economic, social, health and environmental resilience.

Rationale and Interpretation:

The Sendai Framework for Disaster Risk Reduction 2015-2030 was adopted by UN Member States in March 2015 as a global policy of disaster risk reduction. Among the global targets, “Target E: Substantially increase the number of countries with national and local disaster risk reduction strategies by 2020” will promote DRR and eventually contribute to sustainable development and strengthen economic, social, health and environmental resilience. The economic, environmental and social perspectives would include poverty eradication, urban resilience, and climate change adaptation. Their economic, environmental and social perspectives would include poverty eradication, urban resilience, and climate change adaptation.

In line with the Sendai Framework, DRR strategies and policies should mainstream and integrate disaster risk reduction within and across all sectors, across different timescales and with targets, indicators and time frames. These DRR strategies should be aimed at preventing the creation of disaster risk, the reduction of existing risk, the strengthening of economic, social, health and environmental resilience, and other key elements stipulated in the Sendai Framework.

The open-ended intergovernmental expert working group on indicators and terminology relating to disaster risk reduction (OIEWG)

established by the General Assembly (resolution 69/284) has developed a set of indicators to measure global progress in the implementation of the Sendai Framework, which was endorsed by the UNGA (OIEWG report [A/71/644](#)). The relevant global indicator for the Sendai Framework, E-1, is used to report for this indicator.

Data Sources and Collection Method

Appointed Sendai Framework focal points.

In most countries national disaster loss databases are established and managed by special purpose agencies including national disaster management agencies, civil protection agencies, and meteorological agencies, and disaster data collected by line ministries. The Sendai Framework Focal Points in each country are responsible of data reporting through the online Sendai Framework Monitoring System.

Method of Computation and Other Methodological Considerations

Computation Method:

Detailed methodologies can be found in the Technical Guidance (see the Reference)

Summary

This is a quantitative indicator by increment measurements for achievement that would quantify the improvement in the quality of national DRR strategies over time, rather than binary measurement (yes/no), which was based on the deliberations of the OIEWG as well as the IAEG-SDGs.

Ten Key elements derived from the Sendai Framework are used as sub-indicators (5 levels from 0 to 1: 0, 0.25, 0.50, 0.75, 1.0) to measure the alignment with the Sendai Framework. Member States are to assess the level of implementation for each sub-indicator.

This indicator is calculated through the arithmetic average of these sub-indicators:

National DRR strategies are to

- i. Have different timescales, with targets, indicators and time frames
- ii. Have aims at preventing the creation of risk
- iii. Have aims at reducing existing risk
- iv. Have aims at strengthening economic, social, health and environmental resilience
- v. Address the recommendations of Priority 1, Understanding disaster risk : Based on risk knowledge and assessments to identify risks at the local and national levels of the technical, financial and administrative disaster risk management capacity
- vi. Address the recommendations of Priority 2, Strengthening disaster risk governance to manage disaster risk : Mainstream and integrate DRR within and across all sectors with defining roles and responsibilities
- vii. Address the recommendations of Priority 3, Investing in disaster risk reduction for resilience : Guide to allocation of the necessary resources at all levels of administration for the development and the implementation of DRR strategies in all relevant sectors
- viii. Address the recommendations of Priority 4, Enhancing disaster preparedness for effective response and to “Build Back Better” in recovery, rehabilitation and reconstruction : Strengthen disaster preparedness for response and integrate DRR response preparedness and development measures to make nations and communities resilient to disasters
- ix. Promote policy coherence relevant to disaster risk reduction such as sustainable development, poverty eradication, and climate change, notably with the SDGs and the Paris Agreement
- x. Have mechanisms to follow-up, periodically assess and publicly report on progress.

Comments and limitations:

The Sendai Framework Monitoring System has been developed to measure the progress in the implementation of the Sendai Framework by UNGA endorsed indicators. Member States are to report through the System from March 2018. The data for SDG indicators are compiled and reported by UNISDR.

In contrast to a binary measurement of “legislative and/or regulatory provisions of DRR” in the previous Hyogo Framework for Action Monitor, the Sendai Framework Monitor can incrementally measure the progress by with multiple dimensions of the level of implementation.

Proxy, alternative and additional indicators: N/A

Data Disaggregation

None

References

Official SDG Metadata URL

<https://unstats.un.org/sdgs/metadata/files/Metadata-11-0B-01.pdf>

Internationally agreed methodology and guideline URL

Technical guidance for monitoring and reporting on progress in achieving the global targets of the Sendai Framework for Disaster Risk Reduction (UNISDR 2018) <https://www.preventionweb.net/publications/view/54970>

Other references

Report of the open-ended intergovernmental expert working group on indicators and terminology relating to disaster risk reduction (OEIWG). *Endorsed by UNGA on 2nd February 2017*. Available at: <https://www.preventionweb.net/publications/view/51748>

Country examples

N/A

International Organization(s) for Global Monitoring

This document was prepared based on inputs from United Nations Office for Disaster Risk Reduction (UNISDR).

For focal point information for this indicator, please visit <https://unstats.un.org/sdgs/dataContacts/>

Goal 12

Ensure sustainable consumption and production patterns

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In this goal:

United Nations Statistics Division (UNSD) worked in consultation with each indicators' custodian agency(ies) to prepare these chapters. For indicators that do not have chapters here yet, they are currently being prepared and they will be uploaded here as soon as they become available.

If you have any questions on the e-Handbook, do not hesitate to contact Shaswat Sapkota (sapkotas@un.org).

Indicator 12.2.2

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Indicator Name, Target and Goal

Indicator 12.2.2: Domestic material consumption, domestic material consumption per capita, and domestic material consumption per GDP

Target 12.2: By 2030, achieve the sustainable management and efficient use of natural resources

Goal 12: Ensure sustainable consumption and production patterns

Definition and Rationale

Definition:

Domestic Material Consumption (DMC) is a standard material flow accounting (MFA) indicator and reports the apparent annual consumption of materials in a national economy. The indicator can also be expressed per capita and per GDP.

Concepts:

Economy-wide *material flow accounts* (EW-MFA) provide an aggregate overview, in thousand tonnes per year, of the material flows into and out of an economy. EW-MFA cover solid, gaseous, and liquid materials, except for bulk flows of water and air.

DMC measures the total amount of material directly used in an economy (i.e. excluding indirect flows). DMC is defined in the same way as other key physical indicators such as gross inland energy consumption. DMC equals Domestic Extraction plus imports minus exports.

Rationale and Interpretation:

As a territorial and production-side indicator, DMC refers to the amount of material used in the production processes within an economy. DMC describes the physical dimension of economic processes and interactions. Per-capita DMC describes the average level of material use in an economy – an environmental pressure indicator – and is also referred to as metabolic profile.

Data Sources and Collection Method

Data for the calculation of the DMC is compiled by the relevant national agency such as the ministry of commerce, trade or industry, or the national statistical office.

For Europe, Eurostat compiles Economy-wide material flow account data from countries. For other countries, DMC is based on official statistics and then standard rates are used to convert data into tonnes of extraction, imports and exports. This is done by type of material based on the following: the International Energy Agency (IEA) has detailed information on fossil fuels; for biomass, major crops and crop products, livestock and animal products, forestry products and fish are available from the Food and Agriculture Organization (FAO) and for components that are difficult to measure directly, e.g. grazed biomass, the FAO will typically not have direct data, however data reported to the FAO for animal products or herd numbers is used as input data for making an estimate; for metal ores, the United States Geological Survey (USGS) and the British Geological Survey (BGS) collect data on metal production, and in some cases ore production with trade of metal ores from United Nations Comtrade database; and for non-metallic minerals the USGS and BGS have some data and where data is missing then it is based on data published by countries or in some cases a standard estimation of per capita consumption for countries with different per capita incomes.

Method of Computation and Other Methodological Considerations

Computation Method:

It is calculated as direct imports (IM) of material plus domestic extraction (DE) of materials minus direct exports (EX) of materials measured in metric tonnes.

$$DMC = IM + DE - EX$$

UN Environment is publishing a global manual which should be released by July 2018. This global manual is based largely on the EUROSTAT Economy Wide Material Flow Accounting compilation guide 2013. MFA accounting is also part of the central framework of the System of Integrated Environmental-Economic Accounts (SEEA). More information on data sources and compilation is provided in the below section.

DMC should be divided by the GDP and the population of the country to get standardized measures such as DMC per capita and DMC

per GDP.

Comments and limitations:

DMC cannot be disaggregated to economic sectors due to the fact that there is no way to link the consumption of materials to a particular economic sector.

DMC and Material Footprint (MF) (*indicator 12.2.1*) need to be looked at in combination as they cover the two aspects of the economy: production and consumption. The DMC and MF reports the virtual amount required across the whole supply chain to service final demand. A country can, for instance have a very high DMC because it has a large primary production sector for export or a very low DMC because it has outsourced most of the material intensive industrial process to other countries. Analysing both of these production and consumption side indicators together gives a better understanding of the overall resource use patterns of a country.

Proxy, alternative and additional indicators: No proxy is needed due to the excellent coverage. However, there is a need for additional country validation.

Data Disaggregation

DMC can be disaggregated by type of material and for the purpose of the SDGs, there are four proposed disaggregations of DMC: Biomass, Fossil Fuels, Metal Ores and Non-metallic minerals.

References

Official SDG Metadata URL

<https://unstats.un.org/sdgs/metadata/files/Metadata-08-04-02.pdf>

Internationally agreed methodology and guideline URL

to be published in 2018

Other references

EUROSTAT (2013). *Economy-wide material flow accounts*. Compilation guide 2013. Available at: <http://ec.europa.eu/eurostat/document/s/1798247/6191533/2013-EW-MFA-Guide-10Sep2013.pdf/>

Wiedmann, T., H. Schandl, M. Lenzen, D. Moran, S. Suh, J. West, K. Kanemoto, (2013) *The Material Footprint of Nations*, Proc. Nat. Acad. Sci. Available at: <http://www.pnas.org/content/112/20/6271.abstract>

Lenzen, M., Moran, D., Kanemoto, K., Geschke, A. (2013) *Building Eora: A global Multi-Regional Input/output Database at High Country and Sector Resolution*, Economic Systems Research, 25:1, 20-49. Available at: http://folk.ntnu.no/daniemor/pdf/ESR_BuildingEora.pdf

Country examples

N/A

International Organization(s) for Global Monitoring

This document was prepared based on inputs from United Nations Environment Programme (UNEP).

For focal point information for this indicator, please visit <https://unstats.un.org/sdgs/dataContacts/>

Indicator 12.4.1

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Indicator Name, Target and Goal

Indicator 12.4.1: Number of parties to international multilateral environmental agreements on hazardous waste, and other chemicals that meet their commitments and obligations in transmitting information as required by each relevant agreement

Target 12.4: By 2020, achieve the environmentally sound management of chemicals and all wastes throughout their life cycle, in accordance with agreed international frameworks, and significantly reduce their release to air, water and soil in order to minimize their adverse impacts on human health and the environment

Goal 12: Ensure sustainable consumption and production patterns

Definition and Rationale

Definition:

The indicator refers to the number of parties (countries that have ratified, accepted, approved or accessed) to five Multilateral Environmental Agreements (MEAs), which have submitted relevant information to the Secretariat of each MEA, as stipulated by each of the agreements. The five MEAs are:

1. The Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal (Basel Convention);
2. The Rotterdam Convention on the prior informed consent procedure for certain hazardous chemicals and pesticides in international trade (Rotterdam Convention);
3. The Stockholm Convention on Persistent Organic Pollutants (Stockholm Convention);
4. The Montreal Protocol on Substances that Deplete the Ozone Layer (Montreal Protocol); and
5. Minamata Convention on Mercury (Minamata Convention), which have submitted the information to the Secretariat of each MEA, as required by each of the agreements.

Concepts:

Parties refers to countries that have ratified, accepted, approved or accessed a convention.

Information refers to specific reporting parameters that are stipulated in the respective MEAs, and which the parties are obligated to transmit to the Secretariat of each MEAs.

Rationale and Interpretation:

The indicator is process-oriented, focusing on compliance with the respective MEA obligations to report information, which contributes to the overall target of achieving the environmentally sound management of chemicals and all wastes throughout their life cycle.

The reporting for this indicator is to take place once every five years, starting with 2017 for the period of 2010-2014, in 2020 for the period of 2015-2019, in 2025 for the period 2020-2024, and in 2030 for the period 2025-2029.

The final indicator is a number expressed as percent, where 100% is the maximum degree of compliance with the reporting obligations of the MEAs to which a Country is a Party, and 0% the least degree of compliance with those obligations.

This indicator is for global monitoring of compliance in transmitting information only.

Data Sources and Collection Method

Following are the data sources for each of the Conventions:

1. *Basel Convention*: national focal points, electronic reporting system for annual national reports;
2. *Rotterdam Convention*: official contact points, Prior Informed Consent (PIC) circular for import responses;
3. *Stockholm Convention*: official contact points, electronic reporting system for national reports every four years, national implementation plans;
4. *Montreal Protocol*: national focal points; and
5. *Minamata Convention*: national focal points.

The established secretariats for each of the conventions is responsible for receiving and compiling the data from the aforementioned data sources for their respective convention.

Method of Computation and Other Methodological Considerations

Computation Method:

The transmission rate is calculated based on Country Score (CS), which depends on the amount of information that is sent to the Conventions' Secretariat. The country score is determined using the following points distributions for each of the conventions:

A. Basel Convention:

1. Designation of the Focal Point and one or more Competent Authorities (1 point);
2. Submission of the annual national reports during the reporting period (1 point per report).
3. The CS is then calculated as the total number of points for the country divided by the total points possible for that convention.

B. Rotterdam Convention:

1. Designation of the Designated National Authority and Official contact point (1 point);
2. Submission of the import responses during the reporting period (0,2 point per import response).
3. The CS is then calculated as the total number of points for the country divided by the total points possible for that convention.

C. Stockholm Convention:

1. Designation of the Stockholm Convention official contact point and national focal point (1 points);
2. Submission of the national implementation plan (1 points);
3. Submission of the revised national implementation plan(s) addressing the amendments adopted by the Conference of the Parties within the reporting period (1 point per revised and updated plan).
4. The CS is then calculated as the total number of points for the country divided by the total points possible for that convention.

D. Montreal Protocol:

1. Compliance with reporting requirements for production and consumption of ozone-depleting substances under the Montreal Protocol (15 points);
2. Submission of information on Licensing systems under (Article 4B of) the Montreal Protocol (5 points).
3. The CS is then calculated as the total number of points for the country divided by the total points possible for that convention.

E. Minamata Convention:

1. Designation of a national focal point (5 points);
2. Submission of national report (15 points).
3. The CS is then calculated as the total number of points for the country divided by the total points possible for that convention.

Once the CS is ascertained, the formula below is used to calculate the transmission rate for countries using scores for each of the conventions:

$$\text{Transmission Rate} = \frac{A_{CS} + B_{CS} + C_{CS} + D_{CS} + E_{CS}}{\text{No. of Conventions}} \times 100$$

Where (for example) A_{CS} is calculated as a score for the *Basel Convention* for 5-year periods as:

$$A_{CS} = \frac{(PY_1 + PY_2 + PY_3 + PY_4 + PY_5)}{AP}$$

PY_i is the points received in year i and AP is the total number of points available for convention A .

Comments and limitations:

The five conventions have different reporting schedules. As a result, reporting to this indicator is scheduled for every 5 years. This allows for capturing of compliance information of all the Conventions.

The timing for submission of reporting for the Minamata Convention has not yet been agreed on. Therefore, it is not clear whether any reporting will be required prior to 2020, nor it is clear how many times reporting would be required prior to 2030.

Proxy, alternative and additional indicators: N/A

Data Disaggregation

Data can be disaggregated by the convention type.

References**Official SDG Metadata URL**

<https://unstats.un.org/sdgs/metadata/files/Metadata-12-04-01.pdf>

Internationally agreed methodology and guideline URL

Not applicable as this indicator is a compilation of five existing conventions listed in other references.

Other references

Basel Convention (2010). *Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and Their Disposal*. Available at: <http://archive.basel.int/text/17Jun2010-conv-e.pdf>

Rotterdam Convention (2004). *Rotterdam Convention on the Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides for International Trade*. Available at: <http://www.pic.int/TheConvention/Overview/TextoftheConvention/RotterdamConventionText/tabid/1160/language/en-US/Default.aspx>

Stockholm Convention (2004). *The Stockholm Convention on Persistent Organic Pollutants*. Available at: <http://chm.pops.int/TheConvention/Overview/TextoftheConvention/tabid/2232/Default.aspx>

Montreal Protocol (2000). *The Montreal Protocol on Substances that Deplete the Ozone Layer*. Available at: <http://ozone.unep.org/pdfs/Montreal-Protocol2000.pdf>

Minamata Convention (2017). *Minamata Convention on Mercury*. Available at: http://www.mercuryconvention.org/Portals/11/documents/conventionText/Minamata%20Convention%20on%20Mercury_e.pdf

Country examples

N/A

International Organization(s) for Global Monitoring

This document was prepared based on inputs from United Nations Environment Programme (UNEP).

For focal point information for this indicator, please visit <https://unstats.un.org/sdgs/dataContacts/>

Goal 13

Take urgent action to combat climate change and its impacts

[e-Handbook Home Page](#)



In this goal:

United Nations Statistics Division (UNSD) worked in consultation with each indicators' custodian agency(ies) to prepare these chapters. For indicators that do not have chapters here yet, they are currently being prepared and they will be uploaded here as soon as they become available.

If you have any questions on the e-Handbook, do not hesitate to contact Shaswat Sapkota (sapkotas@un.org).

Indicator 13.1.1

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Indicator Name, Target and Goal

Indicator 13.1.1: Number of deaths, missing persons and directly affected persons attributed to disasters per 100,000 population

Target 13.1: Strengthen resilience and adaptive capacity to climate-related hazards and natural disasters in all countries

Goal 13: Take urgent action to combat climate change and its impact

Definition and Rationale

Definition:

This indicator measures the number of people who died, went missing or were directly affected by disasters per 100,000 population.

Concepts:

Death: The number of people who died during the disaster, or directly after, as a direct result of the hazardous event.

Missing: The number of people whose whereabouts is unknown since the hazardous event. It includes people who are presumed dead, for whom there is no physical evidence such as a body, and for which an official/legal report has been filed with competent authorities.

Directly affected: The number of people who have suffered injury, illness or other health effects; who were evacuated, displaced, relocated or have suffered direct damage to their livelihoods, economic, physical, social, cultural and environmental assets. Indirectly affected are people who have suffered consequences, other than or in addition to direct effects, over time, due to disruption or changes in economy, critical infrastructure, basic services, commerce or work, or social, health and psychological consequences.

Rationale and Interpretation:

The Sendai Framework for Disaster Risk Reduction 2015-2030 was adopted by UN Member States in March 2015 as a global policy of disaster risk reduction. Among the global targets, "Target A: Substantially reduce global disaster mortality by 2030, aiming to lower average per 100,000 global mortality between 2020-2030 compared with 2005-2015" and "Target B: Substantially reduce the number of affected people globally by 2030, aiming to lower the average global figure per 100,000 between 2020-2030 compared with 2005-2015" will contribute to sustainable development and strengthen economic, social, health and environmental resilience. The economic, environmental and social perspectives would include poverty eradication, urban resilience, and climate change adaptation.

The open-ended intergovernmental expert working group on indicators and terminology relating to disaster risk reduction (OIEWG) established by the General Assembly (resolution 69/284) has developed a set of indicators to measure global progress in the implementation of the Sendai Framework, which was endorsed by the UNGA (OIEWG [report A/71/644](#)). The relevant global indicators for the Sendai Framework will be used to report for this indicator.

Disaster loss data is greatly influenced by large-scale catastrophic events, which represent important outliers. UNISDR recommends countries report the data by event, so that complementary analysis can be undertaken to obtain trends and patterns in which such catastrophic events (that can represent outliers) can be included or excluded.

Data Sources and Collection Method

Data provider at national level is appointed Sendai Framework Focal Points. In most countries disaster data are collected by line ministries and national disaster loss databases are established and managed by special purpose agencies including national disaster management agencies, civil protection agencies, and meteorological agencies. The Sendai Framework Focal Points in each country are responsible of data reporting through the Sendai Framework Monitoring System.

Method of Computation and Other Methodological Considerations

Computation Method:

This indicator, X, is calculated as a simple summation of related indicators (death, missing people, and affected people) from national disaster loss databases divided by the national population data (from national censuses, World Bank or UN Statistical Commission information).

$$X = \frac{(A_2 + A_3 + B_1)}{\text{National Population}} \times 100,000$$

Where:

A₂ Number of deaths attributed to disasters;

A₃ Number of missing persons attributed to disasters; and

B₁ Number of directly affected people attributed to disasters.

* Detailed methodologies can be found in the Technical Guidance (see below the Reference section)

Comments and limitations:

The Sendai Framework Monitoring System has been developed to measure the progress in the implementation of the Sendai Framework by UNGA endorsed indicators. Member States will be able to report through the System from March 2018. The data for SDG indicators will be compiled and reported by UNISDR.

Proxy, alternative and additional indicators:

In most cases international data sources only record events that surpass some threshold of impact and use secondary data sources which usually have non uniform or even inconsistent methodologies, producing heterogeneous datasets.

Data Disaggregation

This indicator can be disaggregated by number of deaths attributed to disasters; number of missing persons attributed to disasters; and number of directly affected people attributed to disasters. Possible desirable disaggregation dimensions include: hazard, geography (administrative unit), sex, age (3 categories), disability and income.

References

Official SDG Metadata URL

<https://unstats.un.org/sdgs/metadata/files/Metadata-01-05-01.pdf>

Internationally agreed methodology and guideline URL

Technical guidance for monitoring and reporting on progress in achieving the global targets of the Sendai Framework for Disaster Risk Reduction (UNISDR 2017)

https://www.preventionweb.net/files/54970_collectionoftechnicalguidancenoteso.pdf

Other references

Report of the open-ended intergovernmental expert working group on indicators and terminology relating to disaster risk reduction (OEIWG). *Endorsed by UNGA on 2nd February 2017*. Available at: <https://www.preventionweb.net/publications/view/51748>

Country examples

N/A

International Organization(s) for Global Monitoring

This document was prepared based on inputs from United Nations Office for Disaster Risk Reduction (UNISDR).

For focal point information for this indicator, please visit <https://unstats.un.org/sdgs/dataContacts/>

Indicator 13.1.2

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Indicator Name, Target and Goal

Indicator 13.1.2: Number of countries that adopt and implement national disaster risk reduction strategies in line with the Sendai Framework for Disaster Risk Reduction 2015-2030

Target 13.1: Strengthen resilience and adaptive capacity to climate-related hazards and natural disasters in all countries

Goal 13: Take urgent action to combat climate change and its impacts

Definition and Rationale

Definition:

This indicator measures the number of countries that adopt and implement national disaster risk reduction (DRR) strategies in line with the Sendai Framework for Disaster Risk Reduction 2015-2030, with multiple dimensions of the level of implementation.

Concepts:

Disaster risk reduction strategies: define goals and objectives across different timescales and with concrete targets, indicators and time frames. In line with the Sendai Framework for Disaster Risk Reduction 2015-2030, these should be aimed at preventing the creation of disaster risk, the reduction of existing risk and the strengthening of economic, social, health and environmental resilience.

Rationale and Interpretation:

The Sendai Framework for Disaster Risk Reduction 2015-2030 was adopted by UN Member States in March 2015 as a global policy of disaster risk reduction. Among the global targets, "Target E: Substantially increase the number of countries with national and local disaster risk reduction strategies by 2020" will promote DRR and eventually contribute to sustainable development and strengthen economic, social, health and environmental resilience. The economic, environmental and social perspectives would include poverty eradication, urban resilience, and climate change adaptation. Their economic, environmental and social perspectives would include poverty eradication, urban resilience, and climate change adaptation.

In line with the Sendai Framework, DRR strategies and policies should mainstream and integrate disaster risk reduction within and across all sectors, across different timescales and with targets, indicators and time frames. These DRR strategies should be aimed at preventing the creation of disaster risk, the reduction of existing risk, the strengthening of economic, social, health and environmental resilience, and other key elements stipulated in the Sendai Framework.

The open-ended intergovernmental expert working group on indicators and terminology relating to disaster risk reduction (OIEWG) established by the General Assembly (resolution 69/284) has developed a set of indicators to measure global progress in the implementation of the Sendai Framework, which was endorsed by the UNGA (OIEWG report [A/71/644](#)). The relevant global indicator for the Sendai Framework, E-1, is used to report for this indicator.

Data Sources and Collection Method

Appointed Sendai Framework focal points.

In most countries national disaster loss databases are established and managed by special purpose agencies including national disaster management agencies, civil protection agencies, and meteorological agencies, and disaster data collected by line ministries. The Sendai Framework Focal Points in each country are responsible of data reporting through the online Sendai Framework Monitoring System.

Method of Computation and Other Methodological Considerations

Computation Method:

Detailed methodologies can be found in the Technical Guidance (see the Reference)

Summary

This is a quantitative indicator by increment measurements for achievement that would quantify the improvement in the quality of national DRR strategies over time, rather than binary measurement (yes/no), which was based on the deliberations of the OIEWG as well as the IAEG-SDGs.

Ten Key elements derived from the Sendai Framework are used as sub-indicators (5 levels from 0 to 1: 0, 0.25, 0.50, 0.75, 1.0) to measure the alignment with the Sendai Framework. Member States are to assess the level of implementation for each sub-indicator.

This indicator is calculated through the arithmetic average of these sub-indicators:

National DRR strategies are to

- i. Have different timescales, with targets, indicators and time frames
- ii. Have aims at preventing the creation of risk
- iii. Have aims at reducing existing risk
- iv. Have aims at strengthening economic, social, health and environmental resilience
- v. Address the recommendations of Priority 1, Understanding disaster risk : Based on risk knowledge and assessments to identify risks at the local and national levels of the technical, financial and administrative disaster risk management capacity
- vi. Address the recommendations of Priority 2, Strengthening disaster risk governance to manage disaster risk : Mainstream and integrate DRR within and across all sectors with defining roles and responsibilities
- vii. Address the recommendations of Priority 3, Investing in disaster risk reduction for resilience : Guide to allocation of the necessary resources at all levels of administration for the development and the implementation of DRR strategies in all relevant sectors
- viii. Address the recommendations of Priority 4, Enhancing disaster preparedness for effective response and to "Build Back Better" in recovery, rehabilitation and reconstruction : Strengthen disaster preparedness for response and integrate DRR response preparedness and development measures to make nations and communities resilient to disasters
- ix. Promote policy coherence relevant to disaster risk reduction such as sustainable development, poverty eradication, and climate change, notably with the SDGs and the Paris Agreement
- x. Have mechanisms to follow-up, periodically assess and publicly report on progress.

Comments and limitations:

The Sendai Framework Monitoring System has been developed to measure the progress in the implementation of the Sendai Framework by UNGA endorsed indicators. Member States are to report through the System from March 2018. The data for SDG indicators are compiled and reported by UNISDR.

In contrast to a binary measurement of "legislative and/or regulatory provisions of DRR" in the previous Hyogo Framework for Action Monitor, the Sendai Framework Monitor can incrementally measure the progress by with multiple dimensions of the level of implementation.

Proxy, alternative and additional indicators: N/A

Data Disaggregation

None

References

Official SDG Metadata URL

<https://unstats.un.org/sdgs/metadata/files/Metadata-11-0B-01.pdf>

Internationally agreed methodology and guideline URL

Technical guidance for monitoring and reporting on progress in achieving the global targets of the Sendai Framework for Disaster Risk Reduction (UNISDR 2018) <https://www.preventionweb.net/publications/view/54970>

Other references

Report of the open-ended intergovernmental expert working group on indicators and terminology relating to disaster risk reduction (OEIWG). *Endorsed by UNGA on 2nd February 2017*. Available at: <https://www.preventionweb.net/publications/view/51748>

Country examples

N/A

International Organization(s) for Global Monitoring

This document was prepared based on inputs from United Nations Office for Disaster Risk Reduction (UNISDR).

For focal point information for this indicator, please visit <https://unstats.un.org/sdgs/dataContacts/>

Goal 14

Conserve and sustainably use the oceans, seas and marine resources for sustainable development

[e-Handbook Home Page](#)



In this goal:

United Nations Statistics Division (UNSD) worked in consultation with each indicators' custodian agency(ies) to prepare these chapters. For indicators that do not have chapters here yet, they are currently being prepared and they will be uploaded here as soon as they become available.

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Indicator 14.4.1

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Indicator Name, Target and Goal

Indicator 14.4.1: Proportion of fish stocks within biologically sustainable levels

Target 14.4: By 2020, effectively regulate harvesting and end overfishing, illegal, unreported and unregulated fishing and destructive fishing practices and implement science-based management plans, in order to restore fish stocks in the shortest time feasible, at least to levels that can produce maximum sustainable yield as determined by their biological characteristics

Goal 14: Conserve and sustainably use the oceans, seas and marine resources for sustainable development

Definition and Rationale

Definition:

This indicator is defined as the proportion of *fish stocks* or species that are exploited within the level of Maximum Sustainable Yield (MSY).

This indicator is currently reported at the regional and global level.

Concepts:

The Food and Agriculture Organization of the United Nations (FAO) has divided the world oceans into 21 statistical areas, and stock assessment is carried out based on these statistical areas. In total, 584 *fish stocks and species* have been monitored since 1974, with stock assessment information on 441 stock or species. The stock assessment classifies fish stocks into 3 categories: non-fully exploited, fully exploited, and overexploited. The stocks within *biologically sustainable levels* are those classified as non-fully exploited and fully

exploited.

The Maximum Sustainable Yield (MSY) is the largest yield (or catch) that can be taken from a fish stock over an indefinite period. The aim of this threshold yield is to achieve the maximum productivity of fish resources while maintaining biodiversity and proper functioning of the relevant ecosystems for present and future generations.

When fishing drives down the *biomass* of a fish stock below the level at which an MSY can be produced, the stock is said to be *overexploited*. In contrast, the stock is *non-fully exploited* if its biomass is above the level corresponding to MSY. When population size is maintained at or close to the level that produces MSY, the species is said to be *fully exploited*, allowing the population to continue to be productive indefinitely. Sustainable fishery management aims to control fishing pressure so that the stock is maintained at the most productive level.

The *biomass* of a fish stock is the quantity, usually by weight, of a stock at a given time. Whether a fish stock or species is *overexploited* is judged based on the estimate of current stock biomass relative to its virgin stock level. This information can only be obtained through stock assessment, although some alternative methods have recently been developed for the use in fisheries that have no adequate data available.

Rationale and Interpretation:

This indicator provides a means of monitoring progress and changes in the exploitation and management of global fishery resources as a direct measure of sustainability. It is an important reference for policy formulation and decision making related to sustainable management of fishery resources.

The United Nations Conference on the Law of the Sea, the United Nations Fish Stocks Agreement, the Plan of Implementation of the 2002 World Summit on Sustainable Development, the strategic goal of the Conference of the Parties to the Convention on Biological Diversity (CBD) in 2010, among others, all refer to the MSY-based reference points and targets. Many countries, including Australia, New Zealand and the United States, and the European Union set their management targets based on MSY.

The indicator is currently estimated at regional and global levels due to data limits and other issues, the principles and methodologies behind the assessment are equally applicable at national level. Countries that have sufficient data and capacity should endeavour to estimate this indicator because it directly measures fish resources' sustainability that is the most fundamental information for national policy and management strategy specific to fish stocks and fishing areas relevant to each country.

Data Sources and Collection Method

All United Nations member countries are asked to report their annual landings by fish species or species group to FAO. The *Handbook of Fishery Statistical Standards* provides comprehensive definitions of concepts and details of standard classifications applied by the international agencies. The *Handbook* does not attempt to include details of national systems, many of which were developed for specific national purposes and thus differ from systems used internationally. Nevertheless, authorities considering introducing or revising national statistical systems are encouraged to ensure that the system developed incorporates a high degree of compatibility with the international standards described in the *Handbook*.

To ensure data quality, each collection is documented to highlight definitions and to specify the structure, sources, coverage, processes, intended use, etc.

Formal stock assessment requires time series of both catch and effort data, together with other biological parameters. Catch means biomass of a fish species that was caught or landed. Fishing effort is a measure of fishing intensity, usually measured as the number of fishing vessels multiplied by time spent fishing. Although FAO collects statistics on the numbers of fishermen and fishing vessels in different categories, no fishing effort data have been collected.

The FAO database covers only official statistics provided by member countries. Regional scientific committees and management bodies are other important sources of fisheries data. However, their significance in data collection varies from commission to commission. For example, a number of tuna commissions have their own data collection system.

Method of Computation and Other Methodological Considerations

Computation Method:

This indicator is calculated as the number of fish species with a stock assessment of non-fully exploited or fully exploited divided by the total number of fish species with a stock assessment and multiplied by 100.

Comments and limitations:

The derivation of this indicator is not only data demanding, but also technically intensive as stock assessment is a numerical modelling of fish population dynamics based on time series data of catch and fishing effort as well as other biological parameters and fishery independent data. This is the reason why many countries do not have sufficient data and capacity to produce this indicator.

The proportion is calculated based on stock numbers, without weighting either by its production volume or stock abundance. This means

that every fish stock is considered of the same importance.

Data quality varies from country to country. In some countries, there is no specific system or network for collecting statistical data on fish catches and other fishery data. Fishery landings data are often reported by national governments in aggregated form rather than by fish species. Many fish stocks do not have adequate data to support formal stock assessment. In such cases FAO evaluates their stock status using simple ad hoc methods that are less data-demanding, but this introduces greater uncertainty. Fishing has a major influence on the abundance of fish populations. However, it is widely recognised that other factors, such as environmental changes, coastal development, climatic change, predator-prey interaction and habitat modification also play an important role.

Proxy, alternative and additional indicators: N/A

Data Disaggregation

At the international level, the indicator can be calculated separately for each FAO statistical area as well as being presented globally. In addition, for specific fish species or groups it is useful to show the degree of exploitation, as an aid to determining policy on which species need particular attention.

References

Official SDG Metadata URL

<https://unstats.un.org/sdgs/metadata/files/Metadata-14-04-01.pdf>

Internationally agreed methodology and guideline URL

<http://www.fao.org/docrep/015/i2389e/i2389e.pdf>

Other references

FAO SDG Portal and E-Learning:

FAO. *Sustainable Development Goals Indicators*. Available at <http://www.fao.org/sustainable-development-goals/indicators/en/>

FAO. E-learning Centre. Available at <http://www.fao.org/elearning/>

Additional References:

FAO (2011). *Review of the State of World Marine Fishery Resources*. Rome. Available at: <http://www.fao.org/docrep/015/i2389e/i2389e00.htm>

The *Handbook of Fishery Statistical Standards*. Available at: <http://www.fao.org/docrep/006/Y4922E/y4922e0h.htm>

Country examples

N/A

International Organization(s) for Global Monitoring

This document was prepared based on inputs from Food and Agriculture Organization of the United Nations (FAO).

For focal point information for this indicator, please visit <https://unstats.un.org/sdgs/dataContacts/>

Indicator 14.5.1

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Indicator Name, Target and Goal

Indicator 14.5.1: Coverage of protected areas in relation to marine areas

Target 14.5: By 2020, conserve at least 10 per cent of coastal and marine areas, consistent with national and international law and based on the best available scientific information

Goal 14: Conserve and sustainably use the oceans, seas and marine resources for sustainable development

Definition and Rationale

Definition:

This indicator measures the average proportion of each marine Key Biodiversity Area that has been designated as a protected area.

Concepts:

Key Biodiversity Areas (KBAs) are sites contributing significantly to the global persistence of biodiversity and are identified following globally standard criteria for the identification of KBAs (IUCN 2016) applied at national levels.

Marine areas, also known as *territorial seas*, are defined by the 1982 United Nations Convention on the Law of the Sea as belts of coastal waters extending at most twelve nautical miles from the baseline (usually the mean low-water mark) of a coastal state.

Protected areas are clearly defined geographical spaces, recognized, dedicated and managed, through legal or other effective means, to achieve the long-term conservation of nature with associated ecosystem services and cultural values.

The status "*designated*" is attributed to a protected area when the corresponding authority, according to national legislation or common practice (e.g., by means of an executive decree or the like), officially endorses a document of designation. The designation must be made for biodiversity conservation, not de facto protection arising because of some other activity (e.g., military).

Marine KBAs are defined as those with at least 5% of their area overlapping the sea, as defined through a spatial analysis.

Rationale and Interpretation:

The safeguard of important sites is vital for stemming the decline in biodiversity and ensuring long term and sustainable use of marine natural resources. The establishment of protected areas is an important mechanism for achieving this aim, and this indicator serves as a means of measuring progress toward the conservation, restoration and sustainable use of marine ecosystems and their services, in line with obligations under international agreements. Importantly, while it can be disaggregated to report on any given single ecosystem of interest, it is not restricted to any single ecosystem type.

This indicator adds meaningful information to, complements, and builds from traditionally reported simple statistics of marine area covered by protected areas, computed by dividing the total protected area within a country by the total territorial area of the country and multiplying by 100 (e.g., Chape et al. 2005). It provides a useful measure of whether protected areas are located to cover areas of particular importance for biodiversity.

Data Sources and Collection Method

Protected area data are available through the administrative records of ministries of environment and other ministries responsible for the designation and maintenance of protected areas. Protected Areas data for sites designated under the Ramsar Convention and the UNESCO World Heritage Convention are collected through the relevant convention international secretariats. Protected area data are also aggregated globally into the World Database on Protected Areas by the UN Environment World Conservation Monitoring Centre, according to the mandate for production of the United Nations List of Protected Areas (Deguignet et al. 2014). They are disseminated through Protected Planet, which is jointly managed by UNEP-WCMC and IUCN and its World Commission on Protected Areas (UNEP-WCMC 2016).

KBAs are identified at national scales through multi-stakeholder processes, following standard criteria and thresholds. KBAs data are aggregated into the World Database on Key Biodiversity Areas and managed by BirdLife International on behalf of the KBA Partnership.

Method of Computation and Other Methodological Considerations

Computation Method:

This indicator is calculated from data derived from a spatial overlap between digital polygons, using Geographic Information Systems (GIS), for protected areas from the World Database on Protected Areas (WDPA - available at www.protectedplanet.net) and digital polygons for marine KBAs (from the World Database of Key Biodiversity Areas, including Important Bird and Biodiversity Areas, Alliance for Zero Extinction sites, and other KBAs; available at www.keybiodiversityareas.org).

The value of the indicator at time t is calculated as the proportion of each marine KBA covered by protected areas at time t , averaged across all KBAs, as shown in the formula below:

$$\frac{1}{n} \sum_{x=1}^n \frac{PA_x^t}{KBA_x} \times 100$$

where

KBA_x is the area of a marine KBA_x

PA_x^t is the area of KBA_x covered by protected areas at time t .

The UN List of Protected Areas is produced every 5-10 years, and, in the intervening period between compilations of the UN Lists, the WDPA is continually updated as new data become available and released monthly. Based on the latest version of the WDPA, the annual value of the indicator is computed as the mean percentage of each KBA that is covered by protected areas for that year.

The coverage of each KBA by protected areas is calculated using all the nationally designated protected areas recorded in WDPA whose location and extent is known. Protected areas with unknown location and/or extent are excluded from the data compilation. Where no new data are received for a country/territory during a year, protected area coverage is assumed to be equal to the previous year.

Comments and limitations:

The indicator does not measure the effectiveness of protected areas in reducing biodiversity loss, which ultimately depends on a range of management and enforcement factors not covered by the indicator.

Future developments of the indicator will include:

- (1) An expansion of the taxonomic coverage of marine Key Biodiversity Areas through application of the Key Biodiversity Areas standard (IUCN 2016) to a wide variety of marine vertebrates, invertebrates, plants and ecosystem type;
- (2) Improvements in the data on protected areas by continuing to increase the proportion of sites with documented dates of designation and with digitised boundary polygons (rather than coordinates); and
- (3) Further exploration of other methods for assessing and presenting temporal trends in protected area coverage.

Proxy, alternative and additional indicators: N/A

Data Disaggregation

These data can be disaggregated at national and regional scales.

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Official SDG Metadata URL

<https://unstats.un.org/sdgs/metadata/>

Internationally agreed methodology and guideline URL

<https://www.protectedplanet.net/c/wdpa-manual>

Other references

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UNEP-WCMC (2016). *World Database on Protected Areas User Manual 1.4*. UNEP-WCMC, Cambridge, UK. Available from: http://wcmc.io/WDPA_Manual

Country examples

N/A

International Organization(s) for Global Monitoring

This document was prepared based on inputs from UN Environment World Conservation Monitoring Centre (UNEP-WCMC) and United Nations Environment Programme (UNEP).

For focal point information for this indicator, please visit <https://unstats.un.org/sdgs/dataContacts/>

Goal 15

[e-Handbook Home Page](#)

Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss



In this goal:

United Nations Statistics Division (UNSD) worked in consultation with each indicators' custodian agency(ies) to prepare these chapters. For indicators that do not have chapters here yet, they are currently being prepared and they will be uploaded here as soon as they become available.

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Indicator 15.1.1

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Indicator Name, Target and Goal

Indicator 15.1.1: Forest area as a proportion of total land area

Target 15.1: By 2020, ensure the conservation, restoration and sustainable use of terrestrial and inland freshwater ecosystems and their services, in particular forests, wetlands, mountains and drylands, in line with obligations under international agreements

Goal 15: Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss

Definition and Rationale

Definition:

This indicator is defined as the proportion of forest area of the total land area of a country. It is represented as a percentage.

Concepts:

Forest is defined as land spanning more than 0.5 hectares with trees higher than 5 meters and a canopy cover of more than 10 percent, or trees able to reach these thresholds in situ. It does not include land that is predominantly under agricultural or urban land use.

Additional detailed criteria are listed in FAO's Forest Resource Assessment (FRA) 2020 Terms and Definitions Document available at: <http://www.fao.org/3/l8661EN/l8661en.pdf>.

Total land area refers to the total surface area of a country excluding the area covered by inland waters, such as major rivers and lakes. Total land area of the reference year 2015 is used.

Rationale and Interpretation:

The availability of accurate data on a country's forest area is a key element for forest policy and planning within the context of sustainable development. Forest area as a proportion of total land area can provide a rough proxy for the extent to which the forests in a country are being conserved or restored.

Data Sources and Collection Method

Forest area data are typically collected through field inventories and/or remote sensing. Field inventories are based on statistical sampling or aggregation of data collected for management inventories. Remote sensing has often an important role in these efforts either as an auxiliary data source which can be used to improve the efficiency of the field inventories, or as an input allowing direct assessment of land cover and its changes. Comprehensive guidance on how to establish a national forest monitoring system can be found in <http://www.fao.org/3/a-l6767e.pdf>

Forest resources assessments are typically carried out by national forest authorities as part of statistical data collection activities of Ministry of Forestry, Agriculture or Environment or their combination.

Method of Computation and Other Methodological Considerations

Computation Method:

The formula of the indicator is given as follows:

$$\text{Percentage of area under forest cover} = \frac{\text{Total forest area (reference year)}}{\text{Total land area (2015)}} \times 100$$

Retrospective estimate can be applied if national borders have changed between reporting years.

Comments and limitations:

Assessment of forest area is carried out at infrequent intervals in many countries. Although the increasing availability of remote sensing data has improved the possibilities for more frequent monitoring and reporting, the analysis of these data requires expertise and resources which may not be available. Furthermore, conversion of acquired land cover data to land use information as well as observing slow changes, such as forest regrowth, remain challenging. In addition, forest areas with low canopy cover densities (i.e. 10-30%) are difficult to detect and monitor with affordable remote sensing techniques.

Proxy, alternative and additional indicators: N/A

Data Disaggregation

This indicator can be disaggregated by geographical regions, forest types, soil types, forest development class, dominant tree species or tree species groups, among other dimensions.

References

Official SDG Metadata URL

<https://unstats.un.org/sdgs/metadata/files/Metadata-15-01-01.pdf>

Internationally agreed methodology and guideline URL

FRA 2020 Terms and definitions: <http://www.fao.org/3/l8661EN/i8661en.pdf>

FRA 2020 Guidelines and Specifications: <http://www.fao.org/3/l8699EN/i8699en.pdf>

Other references

FAO SDG Portal and E-Learning:

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Additional References:

FAO. *Global Forest Resources Assessments*. Rome. Internet site: <http://www.fao.org/forest-resources-assessment/en/>

FAO (2015). *Global Forest Resources Assessments*. Rome. Available at: <http://www.fao.org/forest-resources-assessment/current-assessment/en/>

Country examples

N/A

International Organization(s) for Global Monitoring

This document was prepared based on inputs from Food and Agricultural Organization (FAO).

For focal point information for this indicator, please visit <https://unstats.un.org/sdgs/dataContacts/>

Indicator 15.2.1

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Indicator Name, Target and Goal

Indicator 15.2.1: Progress towards sustainable forest management

Target 15.2: By 2020, promote the implementation of sustainable management of all types of forests, halt deforestation, restore degraded forests and substantially increase afforestation and reforestation globally

Goal 15: Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss

Definition and Rationale

Definition:

This indicator measures progress towards sustainable forest management (SFM) The indicator comprises five sub-indicators:

- (1) Forest area net change rate;
- (2) Above-ground biomass stock in forest;
- (3) Proportion of forest area located within legally established protected areas;
- (4) Proportion of forest area under a long-term forest management plan; and
- (5) Forest area under an independently verified forest management certification scheme.

Concepts:

Sustainable forest management is defined as a “[a] dynamic and evolving concept [that] aims to maintain and enhance the economic, social and environmental values of all types of forests, for the benefit of present and future generations” (Resolution A/RES/62/98).

Forest is defined as land spanning more than 0.5 hectares with trees higher than 5 meters and a canopy cover of more than 10 percent, or trees able to reach these thresholds in situ. It does not include land that is predominantly under agricultural or urban land use. Additional detailed criteria are listed in FAO’s Global Forest Resources Assessment (FRA) 2020 Terms and Definitions Document available at <http://www.fao.org/3/I8661EN/i8661en.pdf>.

Above-ground biomass is defined as all living biomass above the soil, including stem, stump, branches, bark, seeds and foliage. In cases where forest understorey is a relatively small component of the aboveground biomass carbon pool, it is acceptable to exclude it, provided this is done in a consistent manner throughout the inventory time series.

Protected Areas, are areas especially dedicated to the protection and maintenance of biological diversity, and of natural and associated cultural resources, and managed through legal or other effective means.

Forest area within protected areas refers to forest area within formally established protected areas independently of the purpose for which the protected areas were established and includes International Union for Conservation of Nature (IUCN) categories I-IV:

- Category Ia: Strict nature reserve
- Category Ib: Wilderness area
- Category II: National park
- Category III: Natural monument or feature
- Category IV: Habitat/species management area.

Forest area with management plan refers to forest areas that have a long-term documented management plan, aiming at defined management goals, which is periodically revised. It may refer to forest management unit level or aggregated forest management unit level (forest blocks, farms, enterprises, watersheds, municipalities, or wider units). It also includes forest areas that are within protected areas with management plan.

A management plan must include adequate detail on operations planned for individual operational units (stands or compartments) but may also provide general strategies and activities planned to reach management goals.

Independently verified forest management certification refers to forest area certified under a forest management certification scheme with published standards and is independently verified by a third-party.

Rationale and Interpretation:

The five sub-indicators contribute to the measurement of progress in SFM in various ways:

1. Trends in forest area are crucial for monitoring SFM. The first sub-indicator focuses on both the direction of change (whether there is a loss or gain in forest area) and how the change rate is changing over time; the latter is important in order to capture progress among countries that are losing forest area, but have managed to reduce the rate of annual forest area loss.
2. Changes in the above-ground biomass stock in forest indicate the balance between gains in biomass stock due to forest growth and losses due to wood removals, natural losses, fire, wind, pests and diseases.
3. The change in forest area within legally protected areas is a proxy for trends in forest biodiversity conservation and a clear indication of the political will to protect and conserve forest biodiversity.
4. The fourth sub-indicator looks at the forest areas that are under a long-term forest management plan. An increasing area under forest management plan is an indicator of progress towards sustainable forest management.
5. The fifth sub-indicator is the forest area that is certified by an independently verified forest management certification scheme. An increase in certified forest area provides an additional indication of progress towards sustainable forest management

Data Sources and Collection Method

The data for all sub indicators are collected through the officially nominated FRA National Correspondent network with one exception – data on forest certification data is produced by responsible certification bodies and delivered directly to the FRA after which it is sent to the countries for their validation.

Method of Computation and Other Methodological Considerations

Computation Method:

Sub-indicator 1: forest area annual net change rate

This indicator is calculated using a compound interest formula to determine the annual net change rate.

$$q = \left[\left(\frac{A_2}{A_1} \right)^{1/(t_2 - t_1)} - 1 \right] \times 100$$

Where:

A1 is forest area for year t1 and A2 is forest area for year t2

For example, if forest area for a country in year 2010 is 20 million hectares and year 2015 21 million hectares, the value of the annual net change rate becomes

$$A_2/A_1 = 21\text{Mha}/20\text{Mha} = 1.05$$

$$t_2 - t_1 = 2015 - 2010 = 5$$

$$q = [1.05^{1/5} - 1] = [1.004988 - 1] * 100 = 0.498756 \%$$

Sub-indicator 2: Above-ground biomass stock in forest

The formula is given as follows:

$$\frac{\text{above - ground biomass stock in forest (tonnes)}}{\text{forest area (ha)}}$$

Sub-indicator 3: Proportion of forest area located within legally established protected areas

Percentage of forest area located within legally established protected areas is calculated as:

$$\frac{\text{forest area within legally established protected areas (ha)}}{\text{total forest area (ha, reference year 2015)}} * 100$$

Sub-indicator 4: Proportion of forest area under a long-term forest management plan.

Percentage of forest area under a long-term forest management plan is calculated as:

$$\frac{\text{forest area under a long term forest management plan (ha, reference year)}}{\text{total forest area (ha, reference year 2015)}} * 100$$

Sub-Indicator 5: Forest area under an independently verified forest management certification scheme

The data for this sub-indicator are collected directly from the databases of each certification body provided to countries for validation.

Comments and limitations:

The five sub-indicators chosen to illustrate progress towards sustainable forest management do not fully cover all aspects of sustainable forest management. In particular, social and economic aspects are poorly reflected in the current set of sub-indicators. Furthermore, there are some data gaps, and the trends of some of the sub-indicators reflect different sets of countries. While the dashboard illustrates the progress on the individual sub-indicators, there is no weighting of the relative importance of the sub-indicators.

Proxy, alternative and additional indicators: N/A

Data Disaggregation

Sub-indicator 1 : - This indicator can be disaggregated by geographical regions, forest types, soil types, forest development class, dominant tree species or tree species groups, among other dimensions.

Sub-indicator 2: - This indicator can be disaggregated by geographical regions, forest types, soil types, forest development class, tree species or tree species groups, among other dimensions.

Sub-indicator 3: - This indicator can be disaggregated by geographical regions, forest types, soil types, forest development class, dominant tree species or tree species groups, among other dimensions.

Sub-indicator 4: - This indicator can be disaggregated by geographical regions, forest types, soil types, forest development class, dominant tree species or tree species groups, among other dimensions.

Sub-indicator 5: - This indicator can be disaggregated by certification bodies

References

Official SDG Metadata URL

<https://unstats.un.org/sdgs/metadata/files/Metadata-15-02-01.pdf>

Internationally agreed methodology and guideline URL

FRA 2020 terms and definitions: <http://www.fao.org/3/I8661EN/i8661en.pdf>

FRA 2020 Guidelines and Specifications: <http://www.fao.org/3/I8699EN/i8699en.pdf>

Other references

FAO SDG Portal and E-Learning:

FAO. *Sustainable Development Goals Indicators*. Available at <http://www.fao.org/sustainable-development-goals/indicators/en/>

FAO. E-learning Centre. Available at <http://www.fao.org/elearning/>

Additional References:

FAO. *Global Forest Resources Assessments*. Internet site: <http://www.fao.org/forest-resources-assessment/en/>

Country examples N/A

International Organization(s) for Global Monitoring

This document was prepared based on inputs from Food and Agricultural Organization (FAO).

For focal point information for this indicator, please visit <https://unstats.un.org/sdgs/dataContacts/>

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Indicator 15.5.1

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Indicator Name, Target and Goal

Indicator 15.5.1: Red List Index

Target 15.5: Take urgent and significant action to reduce the degradation of natural habitats, halt the loss of biodiversity and, by 2020, protect and prevent the extinction of threatened species

Goal 15: Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss

Definition and Rationale

Definition:

The Red List Index is an index that measures changes in aggregate extinction risk across groups of species. It is based on the number of species in each category of extinction risk on The IUCN Red List of Threatened Species (IUCN 2015) is expressed as changes in an index ranging from 0 to 1.

This is an indicator that is monitored at the global level.

Concepts:

Threatened species are those listed on The IUCN Red List of Threatened Species in the categories Vulnerable, Endangered, or Critically Endangered (i.e., species that are facing a high, very high, or extremely high risk of extinction in the wild in the medium-term future).

Rationale and Interpretation:

The world's species are impacted by a number of threatening processes, including habitat destruction and degradation, overexploitation, invasive alien species, human disturbance, pollution and climate change. This indicator can be used to assess overall changes in the extinction risk of groups of species as a result of these threats and the extent to which threats are being mitigated.

The Red List Index value ranges from 1 (all species are categorized as 'Least Concern') to 0 (all species are categorized as 'Extinct'), and so indicates how far the set of species has moved overall towards extinction. A downward trend in the Red List Index over time means that the expected rate of future species extinctions is worsening (i.e., the rate of biodiversity loss is increasing). An upward trend means that the expected rate of species extinctions is abating (i.e., the rate of biodiversity loss is decreasing), and a horizontal line means that the expected rate of species extinctions is remaining the same, although in each of these cases it does not mean that biodiversity loss has stopped.

The name "Red List Index" should not be taken to imply that the indicator is produced as a composite indicator of a number of disparate metrics (in the same way that, e.g., the Multidimensional Poverty Index is compiled). The index is compiled from data on changes over time in the Red List Category for each species, excluding any changes driven by improved knowledge or revised taxonomy.

The Red List Index calculates the extinction risk of a group relative to the worst-case scenario where all species of that group would be Extinct.

Data Sources and Collection Method

National agencies producing relevant data include government, non-governmental organisations (NGOs), and academic institutions working jointly and separately. Data are gathered from published and unpublished sources, species experts, scientists, and conservationists through correspondence, workshops, and electronic fora.

Data are submitted by national agencies to IUCN, or are gathered through initiatives of the Red List Partnership. From 2013–6, the Red List Partnership encompassed: BirdLife International; Botanic Gardens Conservation International; Conservation International; Microsoft; NatureServe; Royal Botanic Gardens, Kew; Sapienza University of Rome; Texas A&M University; Wildscreen; and Zoological Society of London.

Method of Computation and Other Methodological Considerations

Computation Method:

The Red List Index is calculated for a specific time period by first multiplying the number of species in each Red List Category by a weight (ranging from 1 for 'Near Threatened' to 5 for 'Extinct' and 'Extinct in the Wild') and summing these values. This is then divided by a maximum threat score which is the total number of species multiplied by the weight assigned to the 'Extinct' category. This final value is subtracted from 1 to give the Red List Index value.

Mathematically this calculation is expressed as:

$$RLI_t = 1 - \frac{\sum_s W_c(t, s)}{W_{EX} \cdot N}$$

where $W_c(t,s)$ is the weight for category c at time t for species s .

The weights are: for 'Critically Endangered' = 4, 'Endangered' = 3, 'Vulnerable' = 2, 'Near Threatened' = 1, 'Least Concern' = 0. 'Critically Endangered' species tagged as 'Possibly Extinct' or 'Possibly Extinct in the Wild' are assigned a weight of 5; $W_{EX} = 5$, the weight assigned to 'Extinct' or 'Extinct in the Wild' species; and N is the total number of assessed species, excluding those assessed as Data Deficient in the current time period, and those considered to be 'Extinct' in the year the set of species was first assessed.

In many cases, species lists will change slightly from one assessment to the next (e.g., owing to taxonomic revisions). The conditions can therefore be met by retrospectively adjusting earlier Red List categorizations using current information and taxonomy. This is achieved by assuming that the current Red List Categories for the taxa have applied since the set of species was first assessed for the Red List, unless there is information to the contrary that genuine status changes have occurred. Such information is often contextual (e.g., relating to the known history of habitat loss within the range of the species). If there is insufficient information available for a newly added species, it is not incorporated into the Red List Index until it is assessed for a second time, at which point earlier assessments are retrospectively corrected by extrapolating recent trends in population, range, habitat and threats, supported by additional information.

Comments and limitations:

There are four main sources of uncertainty associated with Red List Index values and trends:

- (1) Inadequate, incomplete or inaccurate knowledge of a species' status. This uncertainty is minimized by assigning estimates of extinction risk to categories that are broad in magnitude and timing;
- (2) Delays in knowledge about a species becoming available for assessment. Such delays apply to a small (and diminishing) proportion of status changes, and can be overcome in the Red List Index through back-casting;
- (3) Inconsistency between species assessments. These can be minimized by the requirement to provide supporting documentation detailing the best available data, with justifications, sources, and estimates of uncertainty and data quality, which are checked and standardized by IUCN through Red List Authorities, a Red List Technical Working Group and an independent Standards and Petitions Sub-committee; and
- (4) Species that are too poorly known for the Red List Criteria to be applied are assigned to the Data Deficient category. In addition, the Red List Index does not capture particularly well the deteriorating status of common species that remain abundant and widespread but are declining slowly.

Proxy, alternative and additional indicators: N/A

Data Disaggregation

The Red List Index can be downscaled to show national and regional Red List Indices, weighted by the fraction of each species' distribution occurring within the country or region. These show an index of aggregate survival probability (the inverse of extinction risk) for all birds, mammals, amphibians, corals and cycads occurring within the country or region. The index shows how well species are conserved in a country or region to its potential contribution to global species conservation.

This subset index is calculated as:

$$RLI(t, u) = 1 - \left[\frac{S_s \left(W(t, s) \times \frac{R_{su}}{R_s} \right)}{W_{EX} \times S_s \left(\frac{R_{su}}{R_s} \right)} \right]$$

where t is the year of comprehensive reassessment, u is the spatial unit (i.e. country), $W(t,s)$ is the weight of the global Red List category for species s at time t (Least Concern =0, Near Threatened =1, Vulnerable =2, Endangered =3, Critically Endangered =4, Critically Endangered (Possibly Extinct) =5, Critically Endangered (Possibly Extinct in the Wild) =5, Extinct in the Wild =5 and Extinct =5), $W_{EX} = 5$ is the weight for Extinct species, R_{su} is the fraction of the total range of species s in unit u , and R_s is the total range size of species s .

The indicator can also be disaggregated by ecosystems, habitats, and other political and geographic divisions, by taxonomic subsets, by suites of species relevant to particular international treaties or legislation, by suites of species exposed to particular threatening processes, and by suites of species that deliver particular ecosystem services, or have particular biological or life-history traits. In each case, information can be obtained from The IUCN Red List of Threatened Species to determine which species are relevant to particular subsets (e.g. which occur in particular ecosystems, habitats, and geographic areas of interest).

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<https://unstats.un.org/sdgs/metadata/files/Metadata-15-05-01.pdf>

Internationally agreed methodology and guideline URL

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Country examples

N/A

International Organization(s) for Global Monitoring

This document was prepared based on inputs from International Union for Conservation of Nature (IUCN).

For focal point information for this indicator, please visit <https://unstats.un.org/sdgs/dataContacts/>

Indicator 15.6.1

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Indicator Name, Target and Goal

Indicator 15.6.1: Number of countries that have adopted legislative, administrative and policy frameworks to ensure fair and equitable sharing of benefits

Target 15.6: Promote fair and equitable sharing of the benefits arising from the utilization of genetic resources and promote appropriate access to such resources, as internationally agreed

Goal 15: Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss

Definition and Rationale

Definition:

This indicator is defined as the number of countries that have adopted legislative, administrative and policy frameworks for the implementation of the Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization to the Convention on Biological Diversity (2010).

This indicator is an international indicator and not monitored at the national level.

Concepts:

The Nagoya Protocol, also referred to the Nagoya Protocol on Access and Benefit Sharing (ABS) is a 2010 supplementary agreement to the 1992 Convention on Biological Diversity (CBD) that aims to implement the fair and equitable sharing of benefits arising out of the utilization of genetic resources, thereby contributing to the conservation and sustainable use of biodiversity.

Rationale and Interpretation:

In order for the Nagoya Protocol to be operational, certain enabling conditions are required to be met at the national level. Each party to the protocol is required to implement a set of legislative, administrative and policy frameworks (as appropriate) and report it to the ABS Clearing-House platform, as per Article 14 of the protocol. This indicator is a measure of progress on the number of party that have adopted said frameworks.

Data Sources and Collection Method

The data for this indicator comes from the ABS Clearing-House, which is maintained by the CBD secretariat. Countries provide the information on ABS legislative, administrative and policy frameworks to the ABS Clearing-House directly by filling a form containing information and details about their frameworks.

In order to ensure the accuracy of the information published in the ABS Clearing-House, all ABS frameworks are submitted to the clearing house by designated publishing authorities (a single authority for each country)

Method of Computation and Other Methodological Considerations

Computation Method:

This indicator is calculated as the sum of the number of parties to the CBD who have submitted ABS legislative, administrative or policy measures to the ABS Clearing-House.

Comments and limitations:

This indicator can be used to measure progress in adopting ABS legislative, administrative and policy frameworks over time. However, it does not assess the scope or effectiveness of ABS legislative, administrative and policy frameworks.

The notion of framework suggests that there is a complete set of rules established on access and benefit sharing. However, it is difficult to have a predefined idea of what constitutes an ABS framework. In the context of this indicator, the publication by a country of one or more ABS legislative, administrative and policy measure in the ABS Clearing-House would be considered progress by that country on having an ABS legislative, administrative and policy framework.

Proxy, alternative and additional indicators: N/A

Data Disaggregation

Data are provided by countries (or regional integration entities), and can be disaggregated by country, regional group, membership to a specific regional organization, and/or by their status as Parties or non-parties to the protocol.

References

Official SDG Metadata URL

<https://unstats.un.org/sdgs/metadata/files/Metadata-15-06-01.pdf>

Internationally agreed methodology and guideline URL

<https://www.cbd.int/abs/about/>

Other references

Convention on Biological Diversity (2010). *Text of the Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization to the Convention on Biological Diversity*. Montreal. Available at: <https://www.cbd.int/abs/text/default.shtml>

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Country examples

N/A

International Organization(s) for Global Monitoring

This document was prepared based on inputs from Secretariat of the Convention on Biological Diversity(CBD-Secretariat).

For focal point information for this indicator, please visit <https://unstats.un.org/sdgs/dataContacts/>

Indicator 15.a.1

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Indicator Name, Target and Goal

Indicator 15.a.1: Official development assistance and public expenditure on conservation and sustainable use of biodiversity and ecosystems

Target 15.a: Mobilize and significantly increase financial resources from all sources to conserve and sustainably use biodiversity and ecosystems

Goal 15: Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss

Definition and Rationale

Definition:

This indicator is defined as gross disbursements of total Official Development Assistance (ODA) from all donors for biodiversity. This chapter of the e-handbook only covers the ODA part of the indicator.

Concepts:

The Development Assistance Committee (DAC) defines ODA as those flows to countries and territories on the DAC list of ODA recipients and multilateral institutions which are:

- (1) Provided by official agencies, including state and local governments, or by their executive agencies; and
- (2) Each transaction of which:
 - a. is administered with the promotion of the economic development and welfare of developing countries as its main objective; and
 - b. is concessional in character and conveys a grant element of at least 25 percent (calculated at a rate of discount of 10%).

All donors refers to DAC donors, other bilateral providers of development cooperation and multilateral organizations.

Biodiversity refers to the OECD Creditor Reporting System's (CRS) Rio marker for biodiversity.

Rationale and Interpretation:

Total ODA flows to developing countries quantify the public effort that donors provide to developing countries for biodiversity.

Data Sources and Collection Method

The OECD/DAC has been collecting data on official and private resource flows from 1960 at an aggregate level and 1973 at an activity level through the CRS (CRS data are considered complete from 1995 for commitments at an activity level and 2002 for disbursements). The Rio marker for biodiversity was introduced in 2002.

A statistical reporter is responsible for the collection of DAC statistics in each providing country/agency. This reporter is usually located in the national aid agency, the Ministry of Foreign Affairs or Finance etc.

The OECD/DAC Secretariat prepares and submits an annual questionnaire (at an aggregate level and at an activity level) to national statistical reporters, and is responsible for collecting, validating and publishing these data.

Method of Computation and Other Methodological Considerations

Computation Method:

This indicator is calculated as the sum of all ODA flows from all donors to developing countries that have biodiversity as a principal or significant objective, thus marked with the Rio marker for biodiversity.

Comments and limitations:

Data in the CRS data are available from 1973. However, the data coverage, at an activity level, is considered complete from 1995 for commitments and 2002 for disbursements. The Rio biodiversity marker was introduced in 2002.

Proxy, alternative and additional indicators: N/A

Data Disaggregation

This indicator can be disaggregated by donor, by recipient country (or region), by type of finance, by type of aid, by sub-sector, by policy marker (e.g. gender), etc.

References

Official SDG Metadata URL

<https://unstats.un.org/sdgs/metadata/files/Metadata-15-0A-01.pdf>

Internationally agreed methodology and guideline URL

<http://www.oecd.org/dac/stats/methodology.htm>

Other references

OECD. *Development Finance Standards*. Paris. Internet site: <http://www.oecd.org/dac/financing-sustainable-development/development-finance-standards/>

Country examples

N/A

International Organization(s) for Global Monitoring

This document was prepared based on inputs from Organization for Economic Co-operation and Development (OECD), United Nations Environment Programme (UNEP) and World Bank.

For focal point information for this indicator, please visit <https://unstats.un.org/sdgs/dataContacts/>

Indicator 15.b.1

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Indicator Name, Target and Goal

Indicator 15.b.1: Official development assistance and public expenditure on conservation and sustainable use of biodiversity and ecosystems

Target 15.a: Mobilize and significantly increase financial resources from all sources to conserve and sustainably use biodiversity and ecosystems

Goal 15: Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss

Definition and Rationale

Definition:

This indicator is defined as gross disbursements of total Official Development Assistance (ODA) from all donors for biodiversity. This chapter of the e-handbook only covers the ODA part of the indicator.

Concepts:

The Development Assistance Committee (DAC) defines ODA as those flows to countries and territories on the DAC list of ODA recipients and multilateral institutions which are:

- (1) Provided by official agencies, including state and local governments, or by their executive agencies; and
- (2) Each transaction of which:
 - a. is administered with the promotion of the economic development and welfare of developing countries as its main objective; and
 - b. is concessional in character and conveys a grant element of at least 25 percent (calculated at a rate of discount of 10%).

All donors refers to DAC donors, other bilateral providers of development cooperation and multilateral organizations.

Biodiversity refers to the OECD Creditor Reporting System's (CRS) Rio marker for biodiversity.

Rationale and Interpretation:

Total ODA flows to developing countries quantify the public effort that donors provide to developing countries for biodiversity.

Data Sources and Collection Method

The OECD/DAC has been collecting data on official and private resource flows from 1960 at an aggregate level and 1973 at an activity level through the CRS (CRS data are considered complete from 1995 for commitments at an activity level and 2002 for disbursements). The Rio marker for biodiversity was introduced in 2002.

A statistical reporter is responsible for the collection of DAC statistics in each providing country/agency. This reporter is usually located in the national aid agency, the Ministry of Foreign Affairs or Finance etc.

The OECD/DAC Secretariat prepares and submits an annual questionnaire (at an aggregate level and at an activity level) to national statistical reporters, and is responsible for collecting, validating and publishing these data.

Method of Computation and Other Methodological Considerations

Computation Method:

This indicator is calculated as the sum of all ODA flows from all donors to developing countries that have biodiversity as a principal or significant objective, thus marked with the Rio marker for biodiversity.

Comments and limitations:

Data in the CRS data are available from 1973. However, the data coverage, at an activity level, is considered complete from 1995 for commitments and 2002 for disbursements. The Rio biodiversity marker was introduced in 2002.

Proxy, alternative and additional indicators: N/A

Data Disaggregation

This indicator can be disaggregated by donor, by recipient country (or region), by type of finance, by type of aid, by sub-sector, by policy marker (e.g. gender), etc.

References

Official SDG Metadata URL

<https://unstats.un.org/sdgs/metadata/files/Metadata-15-0A-01.pdf>

Internationally agreed methodology and guideline URL

<http://www.oecd.org/dac/stats/methodology.htm>

Other references

OECD. *Development Finance Standards*. Paris. Internet site: <http://www.oecd.org/dac/financing-sustainable-development/development-finance-standards/>

Country examples

N/A

International Organization(s) for Global Monitoring

This document was prepared based on inputs from Organization for Economic Co-operation and Development (OECD), United Nations Environment Programme (UNEP) and World Bank.

For focal point information for this indicator, please visit <https://unstats.un.org/sdgs/dataContacts/>

Goal 16

Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels

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In this goal:

United Nations Statistics Division (UNSD) worked in consultation with each indicators' custodian agency(ies) to prepare these chapters. For indicators that do not have chapters here yet, they are currently being prepared and they will be uploaded here as soon as they become available.

If you have any questions on the e-Handbook, do not hesitate to contact Shaswat Sapkota (sapkotas@un.org).

Indicator 16.2.1

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Indicator Name, Target and Goal

Indicator 16.2.1: Proportion of children aged 1-17 years who experienced any physical punishment and/or psychological aggression by caregivers in the past month

Target 16.2: End abuse, exploitation, trafficking and all forms of violence against and torture of children

Goal 16: Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels

Definition and Rationale

Definition:

This indicator is defined as the percentage of children aged 1-17 years who experienced any physical punishment or psychological aggression or both by caregivers in the past month.

Concepts:

Psychological aggression refers to the actions of shouting, yelling or screaming at a child, and calling a child offensive names such as 'dumb' or 'lazy'.

Physical or corporal punishment are actions intended to cause physical pain or discomfort, but not injuries. They include – shaking the child, hitting or slapping on the hand/arm/leg, hitting on the bottom or elsewhere on the body with a hard object, spanking or hitting on the bottom with bare hands, hitting or slapping on the face, head or ears, and repeated rough beating.

Rationale and Interpretation:

The use of violent (physical or verbal) disciplining techniques are a violation of children's rights, and can result in immediate effects and long-term consequences that children carry well into adulthood. It is the most widespread and socially accepted type of violence against children.

Data Sources and Collection Method

Data for this indicator is collected through nationally representative household surveys that include a module on violence against children which are conducted by national statistical offices. Internationally coordinated household surveys such as the Multiple Indicator Cluster Survey (MICS) and the Demographic and Health Survey (DHS) also collect this data in low and middle-income countries.

Method of Computation and Other Methodological Considerations

Computation Method:

The percentage of children aged 1-17 years who experienced any physical punishment or psychological aggression or both by caregivers in the past month (P_{CV}) is calculated as:

$$P_{CV} = \frac{N_{vio}}{N_{total}} \times 100$$

where,

N_{vio} is the number of children aged 1-17 years who experienced any physical and/or psychological aggression by caregivers in the past month; and

N_{total} is the total number of children aged 1-17 years.

Comments and limitations:

The Parent-Child version of the Conflict Tactics Scale (CTSPC) is a standardized and validated measurement tool that is widely accepted and implemented, for assessing violence against children.

General comment no. 13 on the Convention of the Rights of the Child (CRC) provides a definition for 'corporal/physical' punishment as

well as 'mental violence'.

Proxy, alternative and additional indicators:

At the global level, this indicator is currently being measured by the Proportion of children aged 1-14 years who experienced any physical punishment and/or psychological aggression by caregivers in the past month.

Data Disaggregation

The indicator can be disaggregated by sex, age, income, place of residence (rural/urban) and geographic location. In addition to these standard levels of disaggregation, this indicator can be usefully disaggregated in some surveys by mother's level of education, ethnicity, religion, child functional difficulty and mother's functional difficulties.

References

Official SDG Metadata URL

<https://unstats.un.org/sdgs/metadata/files/Metadata-16-02-01.pdf>

Internationally agreed methodology and guideline URL

For information on calculation of the indicator and to access MICS modules on child discipline, see: <https://data.unicef.org/topic/child-protection/violence/violent-discipline/>

Other references

UNICEF Briefing Notes on SDG Indicators:

UNICEF. *Briefing notes on SDG global indicators related to children*. Available at <https://data.unicef.org/resources/sdg-global-indicators-related-to-children/>

Additional References:

UNICEF. *Data: Monitoring the Situation of Children and Women*. Internet site: <https://data.unicef.org/topic/child-protection/violence/violent-discipline/>

Country examples

N/A

International Organization(s) for Global Monitoring

This document was prepared based on inputs from United Nations Children's Fund (UNICEF).

For focal point information for this indicator, please visit <https://unstats.un.org/sdgs/dataContacts/>

Indicator 16.2.3

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Indicator Name, Target and Goal

Indicator 16.2.3: Proportion of young women and men aged 18-29 years who experienced sexual violence by age 18

Target 16.2: End abuse, exploitation, trafficking and all forms of violence against and torture of children

Goal 16: Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels

Definition and Rationale

Definition:

This indicator is defined as the percentage of young women and men (aged 18-29 years) who experienced sexual violence by the age of 18. This indicator is always reported on separately for women and men.

Concepts:

According to General Comment no. 13 on the Convention of the Rights of the Child (CRC), *sexual violence against children* comprises any sexual activities imposed by an adult on a child against which the child is entitled to protection by criminal law. This includes:

- (1) The inducement or coercion of a child to engage in any unlawful or psychologically harmful sexual activity;
- (2) The use of children in commercial sexual exploitation;
- (3) The use of children in audio or visual images of child sexual abuse; and
- (4) Child prostitution, sexual slavery, sexual exploitation in travel and tourism, trafficking for purposes of sexual exploitation (within and between countries), sale of children for sexual purposes and forced marriage.

Sexual activities are also considered as abuse when committed against a child by another child if the offender is significantly older than the victim or uses power, threat or other means of pressure. Consensual sexual activities between children are not considered as sexual abuse if the children are older than the age limit defined by the State Party.

'Sexual violence' is operationally defined in the indicator as sexual intercourse or any other sexual acts that were forced, physically or in any other way.

Rationale and Interpretation:

Experiences of sexual violence in childhood hinder all aspects of development: physical, psychological/emotional and social. Apart from the physical injuries that can result, researchers have consistently found that the sexual abuse of children is associated with a wide array of mental health consequences and adverse behavioural outcomes in adulthood. The issue is universally relevant, and the indicator captures one of the gravest forms of violence against children. The right of children to protection from all forms of violence is outlined in the CRC and its Optional Protocols.

Data Sources and Collection Method

Data for this indicator is collected through nationally representative household surveys that include a module on violence against children or violence against women and men which are conducted by national statistical offices. Internationally coordinated household surveys such as the Demographic and Health Survey (DHS) also collect this data in low and middle-income countries.

It is crucial that fundamental principles are followed for the ethical collection of sound data when conducting research on violence. Key considerations include ensuring that questions are asked in a sufficiently sensitive manner; securing informed consent; protecting respondents from unnecessary danger or risk of re-traumatization; maintaining confidentiality; and instituting clear procedures for providing follow-up support for respondents. UNICEF is currently developing a set of methodological and ethical guidelines for the collection of data on violence against children.

Method of Computation and Other Methodological Considerations

Computation Method:

The percentage of young men and women (aged 18-29 years) who experienced sexual violence by the age of 18 (P_{CSV}) can be calculated as:

$$P_{CSV} = \frac{N_{CSV}}{N_{total}} \times 100$$

where,

N_{CSV} is the number of young women and men (aged 18-29 years) who report having experienced any sexual violence by age 18; and

N_{total} is the total number of young women and men aged 18-29 years.

Comments and limitations:

Comparability of data for this indicator remains a challenge due to different study methodologies and designs, definitions of sexual violence, and sampling frames and questionnaires.

Another challenge is the underreporting of experiences of sexual violence in childhood, especially when it comes to reporting on experiences of sexual violence among boys and men.

Proxy, alternative and additional indicators N/A

Data Disaggregation

This indicator can be disaggregated by sex, age, income, place of residence (rural/urban), geographic location, marital status and education.

References

Official SDG Metadata URL

<https://unstats.un.org/sdgs/metadata/files/Metadata-16-02-03.pdf>

Internationally agreed methodology and guideline URL

DHS domestic violence module: https://dhsprogram.com/pubs/pdf/DHSQMP/domestic_violence_module.pdf.pdf

Other references

UNICEF Briefing Notes on SDG Indicators:

UNICEF. *Briefing notes on SDG global indicators related to children*. Available at <https://data.unicef.org/resources/sdg-global-indicators-related-to-children/>

Additional References:

UNICEF. *Data: Monitoring the Situation of Children and Women*. New York. Internet site: <https://data.unicef.org/topic/child-protection/violence/sexual-violence/>

Country examples

N/A

International Organization(s) for Global Monitoring

This document was prepared based on inputs from United Nations Children's Fund (UNICEF).

For focal point information for this indicator, please visit <https://unstats.un.org/sdgs/dataContacts/>

Indicator 16.8.1

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Indicator Name, Target and Goal

Indicator 16.8.1: Proportion of members and voting rights of developing countries in international organizations

Target 16.8: Broaden and strengthen the participation of developing countries in the institutions of global governance

Goal 16: Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels

Definition and Rationale

Definition:

This global indicator is defined as the percentage of members (or voting rights) in international organizations that are (or belong to) developing countries. For institutions where membership and voting rights are different, this indicator observes the percentages separately.

Concepts:

International organizations comprise the following eleven multi-lateral institutions for the purposes of this indicator:

- (1) UN General Assembly;
- (2) UN Security Council;
- (3) UN Economic and Social Council;
- (4) International Monetary Fund;
- (5) International Bank for Reconstruction and Development;
- (6) International Finance Corporation;
- (7) African Development Bank;
- (8) Asian Development Bank;
- (9) Inter-American Development Bank;
- (10) World Trade Organization; and
- (11) Financial Stability Board.

There is no established convention for the designation of *developing countries* in the UN system. But, in common practice, developing countries refer to all other countries besides Japan, Canada, the United States of America, Australia, New Zealand and European countries. The aggregation across all institutions is currently done according to the United Nations M.49 statistical standard which includes designation of “developed regions” and “developing regions”.

Rationale and Interpretation:

The United Nations is based on the principle of sovereign equality of all its member states (Article 2, UN Charter). This indicator aims to measure the degree to which states enjoy equal representation in different international organizations.

Data Sources and Collection Method

Annual reports of each of the international organizations are used as sources of data. Membership and voting rights information are published every year.

Method of Computation and Other Methodological Considerations

Computation Method:

The following formula is used for each organization to calculate the percentage of voting rights to developing countries (PV_{Dev}):

$$PV_{Dev} = \frac{\text{Number of voting rights allocated to developing countries}}{\text{Total number of voting rights}} \times 100$$

The following formula is used for each organization to calculate the percentage of members from developing countries (PM_{Dev}):

$$PM_{Dev} = \frac{\text{Number of members from developing countries}}{\text{Total number of members}} \times 100$$

The same formulas can be used to calculate the percentage of the membership for each country or the percentage of voting rights for

each country.

Comments and limitations:

As a structural indicator, only small changes will be observed over time which reflect agreement on new States joining as members, suspension of voting rights, membership withdrawal and negotiated voting rights changes. Cross-institutional comparisons need to pay attention to the different memberships of intuitions. Voting rights and memberships in their institutions are agreed to by the member states themselves.

Proxy, alternative and additional indicators: N/A

Data Disaggregation

As only States can be members there is no disaggregation by sex, gender, age, disability, etc.

References

Official SDG Metadata URL

<https://unstats.un.org/sdgs/metadata/files/Metadata-10-06-01.pdf>

Other references

<https://developmentfinance.un.org/strengthening-global-governance>

International Organization(s) for Global Monitoring

This document was prepared based on inputs from the Financing for Sustainable Development Office, DESA.

For focal point information for this indicator, please visit <https://unstats.un.org/sdgs/dataContacts/>

Indicator 16.9.1

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Indicator Name, Target and Goal

Indicator 16.9.1: Proportion of children under 5 years of age whose births have been registered with a civil authority, by age

Target 16.9: By 2030, provide legal identity for all, including birth registration

Goal 16: Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels

Definition and Rationale

Definition:

This indicator is defined as the percentage of children under 5 years of age whose births have been registered with a civil authority.

Concepts:

Birth registration: Birth registration is defined as ‘the continuous, permanent and universal recording, within the civil registry, of the occurrence and characteristics of births in accordance with the legal requirements of a country’.

Civil authority: Official authorized to register the occurrence of a vital event and to record the required details.

Rationale and Interpretation:

Registering children at birth is the first step in securing their recognition before the law, safeguarding their rights, and ensuring any violation of their rights does not go unnoticed. Children’s right to a name and nationality is enshrined in the Convention on the Rights of the Child (CRC) under Article 7. Registration of birth is one of the foundations of legal identity which ensures access to basic services such as healthcare and education. It also provides a legal basis for age. This indicator is, therefore, a direct measure of the progress on target 16.9.

Data Sources and Collection Method

Civil registration systems that are functioning effectively compile vital statistics that are used to compare the estimated total number of births in a country with the absolute number of registered births during a given period. These data normally refer to live births that were registered within a year or the legal time frame for registration applicable in the country.

In cases where civil registration systems are unavailable or do not function effectively, nationally representative household surveys that collect data on birth registration can provide data on this indicator. Internationally coordinated household surveys such as the Multiple Indicator Cluster Survey (MICS) and Demographic and Health Survey (DHS) also collect data on this indicator.

Method of Computation and Other Methodological Considerations

Computation Method:

The percentage of children under 5 years of age whose births have been registered with a civil authority (P_{reg}) can be calculated as:

$$P_{reg} = \frac{\text{No. of children under 5 whose births are reported as registered}}{\text{Total no. of children under 5}} \times 100$$

Comments and limitations:

This indicator should ideally be calculated using vital statistics obtained from civil registration systems. However, this remains a challenge in many countries due to a lack of functioning systems; furthermore, data obtained from CRVS differ slightly from the SDG indicator since it typically refers to the proportion of births that have been registered (within a specific timeframe). As a result, household surveys have become a key source of data to monitor levels and trends in birth registration in many low- and middle-income countries.

Proxy, alternative and additional indicators: N/A

Data Disaggregation

Disaggregation by age is required for this indicator. It can also be disaggregated by sex, income, place of residence (rural/urban), and geographic location. In addition to these standard levels of disaggregation, this indicator can be usefully disaggregated in some surveys by mother’s level of education, ethnicity, religion, child functional difficulty and mother’s functional difficulties. There is typically more potential to disaggregate survey data as opposed to statistics derived from civil registration systems.

References

Official SDG Metadata URL

<https://unstats.un.org/sdgs/metadata/files/Metadata-16-09-01.pdf>

Internationally agreed methodology and guideline URL

For information on calculation of the indicator and to access MICS module on birth registration, see: <https://data.unicef.org/topic/child-protection/birth-registration/>

Other references

UNICEF Briefing Notes on SDG Indicators:

UNICEF. *Briefing notes on SDG global indicators related to children*. Available at <https://data.unicef.org/resources/sdg-global-indicators-related-to-children/>

Additional References:

UNICEF. *Data: Monitoring the Situation of Children and Women*. Internet site: <http://data.unicef.org/topic/child-protection/birth-registration/>

Country examples

N/A

International Organization(s) for Global Monitoring

This document was prepared based on inputs from United Nations Children's Fund (UNICEF).

For focal point information for this indicator, please visit <https://unstats.un.org/sdgs/dataContacts/>

Indicator 16.a.1

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Indicator Name, Target and Goal

Indicator 16.a.1: Existence of independent national human rights institutions in compliance with the Paris Principles

Target 16.a: Strengthen relevant national institutions, including through international cooperation, for building capacity at all levels, in particular in developing countries, to prevent violence and combat terrorism and crime

Goal 16: Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels

Definition and Rationale

Definition:

This indicator assesses the existence of independent national human rights institutions with the Principles relating to the Status of National Institutions (The Paris Principles), which were adopted by the General Assembly (resolution 48/134) based on the rules of procedure of the Global Alliance of National Human Rights Institutions (GANHRI, formerly the International Coordinating Committee of National Institutions for the Promotion and Protection of Human Rights or ICC).

Concepts:

A *National Human Rights Institution* (NHRI) is an independent administrative body set up by a country with a constitutional or legislative mandate to promote and protect human rights. They are a part of the national administration but operate independently from the government. The general role of NHRIs is to address discrimination in all its forms, as well as to promote the protection of civil, political, economic, social and cultural rights. Core functions of NHRIs include complaint handling, human rights education and making recommendations on law reform. An independent NHRI has 'A level' accreditation to the Paris Principles.

Paris Principles were adopted by the UN General Assembly in Resolution 48/134 on 20th December 1993, and provide the international standards on the independent functioning of NHRI. These standards serve as the basis on which NHRIs are accredited by the Global Alliance of National Human Rights Institutions (GANHRI). For more information, see: <http://www.ohchr.org/EN/ProfessionalInterest/Pages/StatusOfNationalInstitutions.aspx>

GANHRI is the international association of NHRIs which promotes and strengthens NHRIs to be in accordance with the Paris Principles and provides leadership in the promotion and protection of human rights (ICC Statute, Art. 5).

Accreditation by GANHRI entails determination whether NHRI are compliant, both in law and in practice, with the Paris principles. The process is conducted by the Sub-Committee on Accreditation (SCA) of the GANHRI.

Rationale and Interpretation:

Accreditation of NHRIs shows that the government has a strong commitment to realize human rights in the country. Effective NHRIs are an important link between government and civil society. They contribute significantly to bridging the “protection gap” between the human rights of individuals and the State’s obligations under international law. Six models of NHRIs exist across all regions of the world today, namely: human rights commissions, human rights ombudsperson institutions, hybrid institutions, consultative and advisory bodies, institutes and centres and multiple institutions. This indicator expresses whether any of these models exist in a country and is independently functioning to protect and promote human rights, including by preventing and redressing their violations.

Data Sources and Collection Method

The data for this indicator is collected from the administrative records of the GANHRI on the accreditation status of all NHRI.

Method of Computation and Other Methodological Considerations

Computation Method:

This indicator is based on the level of accreditation of NHRI by the SCA of the GANHRI. The levels of accreditation are as follows:

- (1) A: Full compliance with Paris Principles;
- (2) B: Not fully in compliance with the Paris Principles or insufficient information provided to make a determination; and
- (3) C: Non-compliant with the Paris Principles.

Decisions on the classifications of NHRIs are conducted by GANHRI based on their submitted documents such as:

- (1) Copy of legislation or other instrument by which it is established and empowered in its official or published format (e.g. statute, and /or constitutional provisions, and/or presidential decree;
- (2) Outline of organizational structure including details of staff and annual budget;
- (3) Copy of recent published annual report; and
- (4) Detailed statement showing how it complies with the Paris Principles.

The SCA reviews NHRIs that hold ‘A’ and ‘B’ statuses every five years. Civil society organizations may also provide relevant information to OHCHR pertaining to any accreditation matter, which are included in the assessments provided to the SCA.

Comments and limitations:

The important and constructive role of national institutions for the promotion and protection of human rights has been acknowledged in different United Nations instruments and resolutions, including the Final Document and Programme of Action of the 1993 World Conference on Human Rights in Vienna, GA resolutions A/RES/63/172 (2008) and A/RES/64/161 (2009) on national institutions for the promotion and protection of human rights. In addition, creation and strengthening of NHRIs have also been encouraged. For example, the 1993 GA resolution 48/134 ‘affirms the priority that should be accorded to the development of appropriate arrangements at the national level to ensure the effective implementation of international human rights standards’ while the 2008 GA resolution A/RES/63/169 encouraged states ‘to consider the creation or the strengthening of independent and autonomous Ombudsman, mediator and other national human rights institutions’. The Human Rights Council in HRC resolution 5/1, 2007 also called for the effective participation of national human rights institutions in its institution building package.

While this is a global indicator, it can be monitored at country and regional levels. Data on status of accreditation of NHRIs are shared with individual NHRI and regional NHRI networks and publically available (<https://www.ohchr.org/Documents/Issues/HRIndicators/NHRI.pdf>). National statistical offices may obtain the data directly from their NHRI counterparts or from OHCHR/GANHRI. Similarly, UN regional economic commissions may get the data from regional NHRI networks or OHCHR/GANHRI.

Proxy, alternative and additional indicators: N/A

Data Disaggregation

This indicator is not required to be disaggregated.

References

Official SDG Metadata URL

<https://unstats.un.org/sdgs/metadata/files/Metadata-16-0A-01.pdf>

Internationally agreed methodology and guideline URL

http://www.ohchr.org/Documents/Issues/HRIndicators/Metadata_16.a.1_3_March2016.pdf

Other references

UNOHCHR. *Human Rights Indicators*. Internet site: <http://www.ohchr.org/EN/Issues/Indicators/Pages/HRIndicatorsIndex.aspx>

GANHRI. *Global Alliance of National Human Rights Institutions*. Internet site: <https://nhri.ohchr.org/EN/Pages/default.aspx>

UNOHCHR. *National Human Rights Institutions*. Internet site: <http://ohchr.org/EN/Countries/NHRI/Pages/NHRIMain.aspx>

UNOHCHR. *Principles Relating to the Status of National Institutions (The Paris Principles)*. General Assembly Resolution 48/134 of 20 December 1993. Available at: <http://www.ohchr.org/EN/ProfessionalInterest/Pages/StatusOfNationalInstitutions.aspx>

Country examples

N/A

International Organization(s) for Global Monitoring

This document was prepared based on the approved indicator metadata and inputs from Office of the United Nations High Commissioner for Human Rights (OHCHR).

For focal point information for this indicator, please visit <https://unstats.un.org/sdgs/dataContacts/>

Goal 17

Strengthen the means of implementation and revitalize the global partnership for sustainable development

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In this goal:

United Nations Statistics Division (UNSD) worked in consultation with each indicators' custodian agency(ies) to prepare these chapters. For indicators that do not have chapters here yet, they are currently being prepared and they will be uploaded here as soon as they become available.

If you have any questions on the e-Handbook, do not hesitate to contact Shaswat Sapkota (sapkotas@un.org).

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Indicator Name, Target and Goal

Indicator 17.1.1: Total government revenue as a proportion of GDP, by source

Target 17.1: Strengthen domestic resource mobilization, including through international support to developing countries, to improve domestic capacity for tax and other revenue collection

Goal 17: Strengthen the means of implementation and revitalize the Global Partnership for Sustainable Development

Definition and Rationale

Definition:

This indicator is defined as the share of total central government revenue expressed as a proportion of the GDP.

Concepts:

Revenue is defined in Chapter 4 (paragraph 4.23) of Government Finance Statistics Manual (GFSM) 2014 as an increase in net worth resulting from a transaction. It is a fiscal indicator for assessing the sustainability of fiscal activities. General government units have four types of revenue. The major types of revenue are taxes (GFS code 11), social contributions (GFS code 12), grants (GFS code 13), and other revenue (GFS code 14). Of these, compulsory levies and transfers are the main sources of revenue for most general government units. In particular, taxes are compulsory, unrequited amounts receivable by government units from institutional units. Social contributions are actual or imputed revenue receivable by social insurance schemes to make provision for social insurance benefits payable. Grants are transfers receivable by government units from other resident or nonresident government units or international organizations, and that do not meet the definition of a tax, subsidy, or social contribution. Other revenue is all revenue receivable excluding taxes, social contributions, and grants. Other revenue comprises: (i) property income; (ii) sales of goods and services; (iii) fines, penalties, and forfeits; (iv) transfers not elsewhere classified; and (v) premiums, fees, and claims related to nonlife insurance and standardized guarantee schemes.

The transactions and the associated classifications are detailed in Chapter 5 of GFSM 2014 and are structured to demonstrate how general government (and public sector) units raise revenue. Only those taxes and social insurance contributions that are evidenced by tax assessments and declarations, customs declarations, and similar documents are considered to create revenue for government units. The analytic framework of GFSM 2014 (like that of the GFSM 2001) builds on the GFSM 1986 framework, and extends it by incorporating additional elements that are useful in assessing fiscal policy.

An important example is the treatment of nonfinancial assets, where the sale of such assets is no longer included in revenue. The disposal of a nonfinancial asset by sale or barter is not revenue because it has no effect on net worth. Rather, it changes the composition of the balance sheet by exchanging one asset (the nonfinancial asset) for another (the proceeds of the sale). Similarly, amounts receivable from loan repayments and loan disbursements are not revenue. In general, transactions that increase net worth result from current operations. Capital transfers are an exception. In GFSM 2014, capital transfers receivable are classified as revenue because they increase the recipient's net worth and they are often indistinguishable from current transfers in their effect on government operations.

In recording cash-based accounting revenue transactions, data representing the tax payments received by government, net of refunds paid out during the period covered should be reported. These data will include taxes paid after the original assessment, taxes paid or refunds deducted from taxes after subsequent assessments, and taxes paid or refunds deducted after any subsequent reopening of the accounts. Therefore, total tax revenue could be presented on a gross basis as the total amount of all taxes accrued, or on a net basis as the gross amount minus tax refunds. Revenue categories are presented gross of expense categories for the same or related category. In particular, interest revenue is presented gross rather than as net interest expense or net interest revenue. Similarly, social benefits and social contributions, grant revenue and expense, and rent revenue and expense are presented gross. Also, sales of goods and services are presented gross of the expenses incurred in their production. In cases of erroneous or unauthorized transactions, revenue categories are presented net of refunds of the relevant revenue, and expense categories are presented net of inflows from the recovery of the expense. For example, refunds of income taxes may be paid when the amount of taxes withheld or otherwise paid in advance of the final determination exceeds the actual tax due. Such refunds are recorded as a reduction in tax revenue. For this reason, tax revenue is presented net of non-payable tax credits (see GFSM 2014 paragraphs 5.29–5.32).

Rationale and Interpretation:

Fiscal policy is the use of the level and composition of the general government and public sectors' spending and revenue—and the related accumulation of government assets and liabilities—to achieve such goals as the stabilization of the economy, the reallocation of resources, and the redistribution of income. In addition to revenue mobilization, government units may also finance a portion of their activities in a specific period by borrowing or by acquiring funds from sources other than compulsory transfers—for example, interest revenue, incidental sales of goods and services, or the rent of subsoil assets. Indicator 17.1.1 supports understanding countries' domestic revenue mobilization in the form of tax and nontax sources. The indicator will provide analysts with a cross-country comparable dataset that highlights the relationship between the four main types of revenue as well as the relative "tax burden" (revenue in the form of taxes) and "fiscal burden" (revenue in the form of taxes plus social contributions).

Data Sources and Collection Method

Annual GFS series are normally compiled from accounting records, budget execution reports, and financial statements. In some instances, compilers may need surveys and other means of obtaining data where suitable accounting records, financial statements or budget execution reports are not available, for example, for data on local governments. Approaches using these sources are further outlined in Chapter 7 and 8 of the "Government Finance Statistics: Compilation Guide for Developing Countries", available at <https://www.imf.org/external/pubs/ft/gfs/manual/gfs.htm>. Staff of the IMF Statistics Department, Government Finance Division may be contacted for additional guidance.

Method of Computation and Other Methodological Considerations

Computation Method:

The indicator is expressed as annual GFS revenue as a percent of Gross Domestic Product (GDP).

"Classification of the GFSM 1986 Data to the GFSM 2014 Framework", available at <https://www.imf.org/external/pubs/ft/gfs/manual/com.p.htm>, can be referenced with the aim of obtaining the key GFSM 2014 Revenue categories:

Total Revenue (% GDP)	<i>of which : Taxes</i>							<i>of which :</i>	<i>of which :</i>	<i>of which :</i>
	Taxes on income, profits, and capital gains	Taxes on payroll and workforce	Taxes on property	Taxes on goods and services	Taxes on international trade and transactions	Other taxes	Total	Social contributions	Grants	Other revenue

Section B of the document (pages 7-13) provides a detailed mapping. Experience gained through many years of GFS Training and Technical Assistance aimed at building the capacity of national authorities has demonstrated that all components related to GFSM 1986 total revenue and grants may be classified to the GFSM 2014 aggregate revenue, except for the sales of fixed capital assets, (strategic) stocks, and land and intangible assets, which are classified to the net investment in nonfinancial assets (disposals/sales).

Indicator 17.1.1 can be derived using series that are basic to the GFS reporting framework. Each revenue transaction is classified according to whether it is a tax or another type of revenue. GFS revenue aggregates are summations of individual entries and elements in this particular class of flows and allow for these data to be arranged in a manageable and analytically useful way. For example, tax revenue is the sum of all flows that are classified as taxes. Conceptually, the value for each main revenue aggregate is the sum of the values for all items in the relevant category.

Comments and limitations:

In principle, GFS should cover all entities that materially affect fiscal policies. Cross-country comparisons are ideally made with reference to the consolidated general government sector. However, for most developing and many emerging market economies, compiling data for the consolidated general government and its subsectors is problematic owing to limitations in the availability and/or timeliness of source data. For example, a country may have one central government; several state, provincial, or regional governments; and many local governments. Countries may also have social security funds. The GFSM 2014 recommends that statistics should be compiled for all such general government units.

Some countries report data for the consolidated general government with one or more sub-sectors not separately reported. Similarly, there are some countries that report "consolidated central government" without necessarily providing the budgetary central government subsector separately. For many emerging market and low-income countries with limited statistical capacity, budgetary central government is considered the most appropriate level of institutional coverage for comparison purposes. Budgetary central government, as described in GFSM 2014 (paragraph 2.81), is an institutional unit of the general government sector particularly important in terms of size and power, particularly the power to exercise control over many other units and entities. This component of general government is usually covered by the main (or general) budget. The budgetary central government's revenue (and expense) are normally regulated and controlled by a ministry of finance, or its functional equivalent, by means of a budget approved by the legislature.

Proxy, alternative and additional indicators: N/A

Data Disaggregation

The four types of revenue: Taxes, Social contributions, Grants and Other revenue can be further disaggregated, as outlined in Chapter 5, GFSM 2014.

References

Official SDG Metadata URL

<https://unstats.un.org/sdgs/metadata/files/Metadata-17-01-01.pdf>

Internationally agreed methodology and guideline URL

The GFSM 2014. Available at: <http://www.imf.org/external/np/sta/gfsm/>

Other references

IMF World Economic Outlook database. Available at: <http://www.imf.org/external/ns/cs.aspx?id=28>

Country examples

N/A

International Organization(s) for Global Monitoring

This document was prepared based on inputs from International Monetary Fund (IMF).

For focal point information for this indicator, please visit <https://unstats.un.org/sdgs/dataContacts/>

Indicator 17.1.2

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Indicator Name, Target and Goal

Indicator 17.1.2: Proportion of domestic budget funded by domestic taxes

Target 17.1: Strengthen domestic resource mobilization, including through international support to developing countries, to improve domestic capacity for tax and other revenue collection

Goal 17: Strengthen the means of implementation and revitalize the Global Partnership for Sustainable Development

Definition and Rationale

Definition:

This indicator is defined as the percentage of domestic budgetary central government expenditure that is funded by tax revenue.

Concepts:

Budgetary central government refers to the central government that encompasses the fundamental activities of the national executive, legislative, and judiciary powers.

Expenditure is the sum of two key aggregates: expense and the net investment in non-financial assets; it is presented as an additional aggregate in the GFS Statement of Operations.

Revenue is an increase in net worth resulting from a transaction. The major types of revenue for the budgetary central government are taxes, social contributions, grants, and other revenue.

The key concepts and terms associated with the indicator are outlined in *Government Finance Statistics Manual (GFSM) 2014*.

Rationale and Interpretation:

The indicator highlights the relationship between the executed national budget and the country's capacity to mobilize needed resources through its revenue/tax administration. By focusing on the contribution of taxation as opposed to all sources of government revenue, the indicator can represent domestic non-earmarked resource mobilization that is under direct control of the national authorities.

As such, this indicator supports an understanding of the extent to which countries' recurrent and capital outlays (expenditures) are actually covered by domestic resource mobilization in the form of taxation. It is also a direct measure of the countries' tax collection capacity.

Data Sources and Collection Method

GFS are compiled and maintained by central government agencies such as the Ministry of Finance, Central Bank or National Statistical Offices.

Government revenue and expenditure data is also reported to the International Monetary Fund (IMF) by member countries and compiled (and disseminated) in a global GFS database. Historical series have been aligned with the GFSM 2014 classifications.

Method of Computation and Other Methodological Considerations

Computation Method:

The percentage of domestic budgetary central government expenditure that is funded by tax revenue (P_{tax}) is calculated as:

$$P_{tax} = \frac{\text{Total tax collected}}{\text{Total expenditure}} \times 100$$

Comments and limitations:

In principle, Government Financial Statistics (GFS) should cover all entities (general government units) that materially affect fiscal policies. However, for most developing and many emerging market economies, compiling data for the consolidated general government and its subsectors is problematic owing to limitations in the availability and/or timeliness of source data. A country may have one central government; several state, provincial, or regional governments; and many local or municipal governments, and the GFSM 2014 recommends that statistics should be compiled for all such general government units. Where possible, and particularly among advanced and key emerging market economies, comparisons should be made using consolidated general government series.

Proxy, alternative and additional indicators: N/A

Data Disaggregation

Data can be disaggregated according to the components and aggregates of the GFS classification structure, for instance by types of revenue and types of government expenditure.

References

Official SDG Metadata URL

<https://unstats.un.org/sdgs/metadata/files/Metadata-17-01-02.pdf>

Internationally agreed methodology and guideline URL

<http://www.imf.org/external/Pubs/FT/GFS/Manual/2014/gfsfinal.pdf>

Other references

IMF (2014). *Government Finance Statistics Manual 2014*. Washington, D.C. Available at: <http://www.imf.org/external/np/sta/gfsm/>

Country examples

N/A

International Organization(s) for Global Monitoring

This document was prepared based on inputs from International Monetary Fund (IMF).

For focal point information for this indicator, please visit <https://unstats.un.org/sdgs/dataContacts/>

Indicator 17.2.1

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Indicator Name, Target and Goal

Indicator 17.2.1: Net official development assistance, total and to least developed countries, as a proportion of the Organization for Economic Cooperation and Development (OECD) Development Assistance Committee donors' gross national income (GNI)

Target 17.2: Developed countries to implement fully their official development assistance commitments, including the commitment by many developed countries to achieve the target of 0.7 per cent of gross national income for official development assistance (ODA/GNI) to developing countries and 0.15 to 0.20 per cent of ODA/GNI to least developed countries; ODA providers are encouraged to consider setting a target to provide at least 0.20 per cent of ODA/GNI to least developed countries

Goal 17: Strengthen the means of implementation and revitalize the Global Partnership for Sustainable Development

Definition and Rationale

Definition:

This indicator is defined as the percentage of the Gross National Incomes (GNI) of the OECD's Development Assistance Committee's (DAC) donor members that is disbursed as Official Development Assistance (ODA) to all developing countries and least developed countries.

Concepts:

The DAC defines *ODA* as those flows to countries and territories on the DAC list of ODA recipients and multilateral institutions which are:

- (1) Provided by official agencies, including state and local governments, or by their executive agencies; and
- (2) Each transaction of which:
 - a. is administered with the promotion of the economic development and welfare of developing countries as its main objective; and
 - b. is concessional in character and conveys a grant element of at least 25 percent (calculated at a rate of discount of 10%).

Gross National Income (GNI) is defined as the sum of a country's gross domestic product plus net income received from overseas.

Rationale and Interpretation:

Target 17.2 measures the commitment by many developed countries to achieve the target of 0.7 per cent of ODA/GNI and 0.15-0.20 per cent of ODA/GNI to the least developed countries.

Data Sources and Collection Method

The OECD/DAC has been collecting data on official and private resource flows from 1960 at an aggregate level and 1973 at an activity level through the CRS (CRS data are considered complete from 1995 for commitments at an activity level and 2002 for disbursements).

A statistical reporter is responsible for the collection of DAC statistics in each providing country/agency. This reporter is usually located in the national aid agency, the Ministry of Foreign Affairs or Finance etc.

Method of Computation and Other Methodological Considerations

Computation Method:

The percentage of GNI disbursed as ODA (P_{ODA}) is calculated using the following formula:

$$P_{ODA} = \frac{ODA_i}{GNI} \times 100$$

where i denotes net ODA Disbursements.

This indicator is calculated for each DAC member donor country as well as other non-DAC providers that report their ODA to the OECD.

Comments and limitations:

The data are available in OECD DAC aggregate databases from 1960.

Proxy, alternative and additional indicators: N/A

Data Disaggregation

This indicator can be disaggregated by donor, recipient country, type of finance, type of aid, sub sector, etc.

References

Official SDG Metadata URL

<https://unstats.un.org/sdgs/metadata/files/Metadata-17-02-01.pdf>

Internationally agreed methodology and guideline URL

<http://www.oecd.org/dac/stats/methodology.htm>

Other references

OECD. *Financing for Sustainable Development*. Internet site: <http://www.oecd.org/dac/financing-sustainable-development/>

Country examples

N/A

International Organization(s) for Global Monitoring

This document was prepared based on inputs from Organization for Economic Co-operation and Development (OECD).

For focal point information for this indicator, please visit <https://unstats.un.org/sdgs/dataContacts/>

Indicator 17.6.2

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Indicator Name, Target and Goal

Indicator 17.6.2: Fixed internet broadband subscriptions per 100 inhabitants, by speed

Target 17.6: Enhance North-South, South-South and triangular regional and international cooperation on and access to science, technology and innovation and enhance knowledge-sharing on mutually agreed terms, including through improved coordination among existing mechanisms, in particular at the United Nations level, and through a global technology facilitation mechanism

Goal 17: Strengthen the means of implementation and revitalize the Global Partnership for Sustainable Development

Definition and Rationale

Definition:

This indicator is defined as the number of fixed internet broadband connections/subscriptions of different speed tiers per 100 inhabitants of a country. The speed tiers considered are advertised downstream speeds of:

- (1) 256 Kilobits per second (Kbps) to 2Megabits per second (Mbps);
- (2) 2Mbps to 10 Mbps; and
- (3) Greater than 10 Mbps.

Concepts:

Fixed internet broadband refers to subscriptions to high-speed access to public internet at downstream speeds greater than 256Kbps. It includes cable modem, DSL, fiber-to-the-home, other fixed (wired) broadband, satellite broadband and terrestrial fixed wireless broadband. It does not include internet access through mobile-cellular networks, and includes both residential and organizational subscriptions.

Advertised downstream speeds refers to the speed advertised by the Internet service providers at which data (including files, web sites, pictures, music, movies, etc) could be delivered to Internet subscribers. The advertised speed can differ from the actual speed of connection that a user may experience at the time of Internet use.

Rationale and Interpretation:

The internet has become an increasingly important tool to provide access to information that can help foster and enhance regional and international cooperation and access, particularly in the contexts of science, technology, innovations, through knowledge sharing. Limits to broadband connections is a barrier to target 17.6, and therefore, the measurement of the number of broadband connections provides insight into the level of enabling environment for such cooperation.

Data Sources and Collection Method

National regulatory authorities or Information and Communication Technology (ICT) ministries collect this data from the administrative systems of internet service providers. This data is then aggregated to get national-level figures.

Method of Computation and Other Methodological Considerations

Computation Method:

The number of fixed internet broadband connections/subscriptions per 100 inhabitants of a country ($N_{broadband}$) can be calculated as:

$$N_{broadband} = \frac{\text{Number of fixed internet broadband subscriptions}}{\text{Total population of the country}} \times 100$$

This indicator is to be calculated for the three suggested downstream speed brackets separately.

Comments and limitations:

Since most internet service providers offer plans linked to download speed, the indicator is easy to disaggregate by speed. It is possible that the speed brackets that are used by countries for this indicator may be different than what are proposed here. For such countries, it is advised to collect data for more speed categories such that it can be aggregated easily to the suggested brackets.

Proxy, alternative and additional indicators: N/A

Data Disaggregation

Disaggregation by speed and subscription type is recommended, as well as by geographic location (urban/rural),

References

Official SDG Metadata URL

<https://unstats.un.org/sdgs/metadata/files/Metadata-17-06-02.pdf>

Internationally agreed methodology and guideline URL

https://www.itu.int/dms_pub/itu-d/opb/ind/D-IND-ITC_IND_HBK-2011-PDF-E.pdf

Other references

ITU (2011). *Handbook for the Collection of Administrative Data on Telecommunications/ICT*. Available at: https://www.itu.int/dms_pub/itu-d/opb/ind/D-IND-ITC_IND_HBK-2011-PDF-E.pdf

ITU. *ICT Statistics*. Internet site: <https://www.itu.int/en/ITU-D/Statistics/Pages/default.aspx>

Country examples

N/A

International Organization(s) for Global Monitoring

This document was prepared based on inputs from International Telecommunication Union (ITU).

For focal point information for this indicator, please visit <https://unstats.un.org/sdgs/dataContacts/>

Indicator 17.8.1

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Indicator Name, Target and Goal

Indicator 17.8.1: Proportion of individuals using the internet

Target 17.8: Fully operationalize the technology bank and science, technology and innovation capacity building mechanism for least developed countries by 2017 and enhance the use of enabling technology, in particular information and communications technology

Goal 17: Strengthen the means of implementation and revitalize the Global Partnership for Sustainable Development

Definition and Rationale

Definition:

This indicator is defined as the percentage of people who have used the internet from any location in the last three months, using any internet-capable device

Concepts:

Internet access refers to the utilization of the world wide web, e-mail, news, entertainment and data files, and other services using the worldwide public computer network using any device (not just a computer), via a fixed or mobile-cellular network.

Rationale and Interpretation:

The proportion of individuals using the internet is an established indicator that is considered a key metric for international comparisons of ICT developments. It is a direct measure of the level of enhancement to the use of development enabling information and communication technologies.

Data Sources and Collection Method

The data for this internet is collected through nationally representative household surveys that are conducted by the national statistical offices or the ministries of ICT of countries.

There are various types of household surveys that can be used to collect data on individuals using the Internet. Two main types can be distinguished: stand-alone surveys focused on ICT, and other household surveys that may contain some questions on ICT topics.

1. Stand-alone household surveys dealing with ICT access and use allow for more details to be collected than is usually possible in an existing survey vehicle designed for investigating other topics. An ICT household survey can have a customized sample design, while the information gathered through other surveys will depend on the design of those surveys. The advantages and disadvantages of specific ICT surveys compared to the inclusion of ICT questions in existing survey vehicles are discussed below.
2. Surveys not specific to ICT include, such as:
 - Multipurpose household surveys that collect data on more than one subject via a single household survey. Such as the World Bank's Living Standard Measurement Survey (LSMS). Other than the LSMS, particular surveys that are sometimes used for collecting ICT household data in developing economies include Demographic and Health Surveys (DHS), the Multiple Indicator Cluster Survey (MICS) funded by UNICEF, and other multi-topic surveys carried out by national statistical offices.
 - Household budget surveys. Household expenditure (budget) surveys are designed to measure household expenditure and are also used by a number of countries to identify household access to ICT equipment and services. Some countries include questions on household income in their household expenditure surveys.

Population censuses. Population censuses can be used to collect a small number of ICT access and/or use data items. Although this is usually an expensive option and population censuses are infrequent (usually once in a decade), it remains a good alternative in countries that have never collected any ICT household data and are not planning to do so in the near future. In addition, population censuses provide very good detail about the variables collected and can provide a basis for the design of samples for future ICT-specific surveys.

The international Telecommunication Union (ITU) gathers this data from national focal points in countries, and also estimates values for countries that have not conducted surveys, employing methods such as time-series forecasts, hot-deck imputation and regression models, by utilizing socio-economic indicators like the number of internet subscriptions, Gross National Income per capita etc.

Method of Computation and Other Methodological Considerations

Computation Method:

The percentage of people who have accessed the internet from any location in the last three months ($P_{internet}$) can be calculated as:

$$P_{internet} = \frac{\text{Number of people that accessed the internet in the last three months}}{\text{Total number of people}} \times 100$$

Comments and limitations:

This indicator is currently estimated for countries that do not yet collect this data through household surveys. ITU encourages all countries to collect data on this indicator through official surveys.

Proxy, alternative and additional indicators: N/A

Data Disaggregation

This indicator can be disaggregated by geographic location (rural/urban), sex, age group, educational level, labour force status and occupation.

References

Official SDG Metadata URL

<https://unstats.un.org/sdgs/metadata/files/Metadata-17-08-01.pdf>

Internationally agreed methodology and guideline URL

<https://www.itu.int/pub/D-IND-ITCMEAS-2014>

Other references

ITU. *Manual for Measuring ICT Access and Use by Households and Individuals*. Available at: <https://www.itu.int/pub/D-IND-ITCMEAS-2014>

Country examples

N/A

International Organization(s) for Global Monitoring

This document was prepared based on inputs from International Telecommunication Union (ITU).

For focal point information for this indicator, please visit <https://unstats.un.org/sdgs/dataContacts/>

Indicator 17.15.1

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Indicator Name, Target and Goal

Indicator 17.15.1: Extent of use of country-owned results frameworks and planning tools by providers of development cooperation

Target 17.15: Respect each country's policy space and leadership to establish and implement policies for poverty eradication and sustainable development

Goal 17: Strengthen the means of implementation and revitalize the Global Partnership for Sustainable Development

Definition and Rationale

Definition:

This indicator measures the extent to which, and the ways in which, all concerned development partners use country-led results frameworks (CRFs) to plan development cooperation efforts and assess their performance.

Concepts:

CRFs define a country's approach to results and its associated monitoring and evaluation systems focusing on performance and achievement of development results. Using a minimal definition, these results frameworks include agreed objectives and results indicators. They also set targets to measure progress in achieving the objectives defined in the government's planning documents. Some examples of CRF are long term vision plans; national development strategies; joint government-multi-donor plans; government's sector strategies, policies and plans; subnational planning instruments, as well as other frameworks (e.g. budget support performance matrices, sector-wide approaches). In contrast, planning and priority setting documents produced outside the government, such as country strategies prepared by providers, are not considered CRFs. The definition of country-led results framework used here allows the possibility to use equivalent priority-setting mechanisms at the country level since not all countries articulate their priorities through consistent, integrated CRFs.

Rationale and Interpretation:

Measuring the alignment of development partners' support to country priorities in terms of intervention design and type of results-reporting mechanisms provides a relevant assessment regarding the degree of "respect for each country's policy space and leadership to establish and implement country-owned policies for poverty eradication and sustainable development".

Data Sources and Collection Method

At country level, data are reported by relevant government entities (e.g. the Ministry of finance/budget department for national budget information) and by development partners and stakeholders. More details on the data collection process can be found in the related monitoring guidance at http://effectivecooperation.org/pdf/2018_Monitoring_Guide_National_Coordinator.pdf.

OECD and UNDP are supporting countries in collecting relevant data on a biennial basis through the Global Partnership monitoring framework, and these organisations lead data aggregation and quality assurance at the global level. Data and evidence generated through the country-led monitoring process are disseminated through the online [Global Partnership Monitoring Dashboard](#).

Method of Computation and Other Methodological Considerations

Computation Method:

To provide a comprehensive measure on the use of country-owned results frameworks and other government-led planning tools, the indicator calculates the degree to which objectives, results indicators and monitoring frameworks associated with new development interventions (US\$ 100,000 and above) are drawn from government sources –including national, sector and subnational planning tools.

The following table shows the three dimensions on which this is assessed, and their unit of assessment:

For each development intervention of significant size (US\$ 1 million and above) approved during the year of reference		
Q ₁	Whether objectives are drawn from government-led results frameworks, plans and strategies	0/1
Q ₂	Share of results (outcome) indicators that are drawn from government-led results frameworks, plans and strategies	%
Q ₃	Share of results (outcome) indicators that will rely on sources of data provided by existing country-led monitoring systems or national statistical services to track project progress	%

Step 1:

Below are the formulae for the computation of the values for each of the three dimensions:

$$Q^1 = \begin{cases} 0, & \text{Objectives are not drawn from government – led results frameworks, plans and strategies} \\ 1, & \text{Objectives are drawn from government – led results frameworks, plans and strategies} \end{cases}$$

Q^1 is a binary indicator which takes the value of 0 or 1 based on the above criteria.

Q^2 and Q^3 are calculated as below:

$$Q^2 = \frac{n_r}{n}, \text{ and } Q^3 = \frac{n_s}{n}$$

where n_r is the number of outcome indicators drawn from existing government results frameworks and/or other planning documents; n_s is the number of outcome indicators to be tracked using government ongoing statistics, data sources or M&E systems (i.e. not project-specific sources); n is the total number of outcome indicators included in the project's results framework.

Step 2:

For this step, Q^1_j , Q^2_j , Q^3_j denotes the values for Q^1 , Q^2 , and Q^3 for project j , respectively.

For the year of reference:

(1) Aggregated averages per developing country provide an assessment of the country's available policy space and leadership (I_c). For a country c , the indicator I takes the value:

$$I_c = \frac{\sum_{j=1}^{n_c} \{Q^1_j + Q^2_j + Q^3_j\}}{3n_c}$$

where, n_c is the number of new development cooperation projects reported for country c . In the formula above, the indicator is obtained by taking the average of the three dimensions of alignment with country's priorities and goals and then aggregating across all new development cooperation projects within the country.

(2) Aggregated averages per provider of development cooperation will indicate the percentage of alignment with country-led priority

setting mechanisms (I_p). For a provider p , the indicator (I) takes the value:

$$I_p = \frac{\sum_{j=1}^{n_p} \{Q_j^1 + Q_j^2 + Q_j^3\}}{3n_p}$$

where, n_p is the number of new development cooperation projects reported for provider p . Similar to the previous formula, the indicator is obtained by taking the average of the three dimensions of alignment with country's priorities and goals and then aggregating across all new development cooperation projects for the provider.

Step 3:

A global aggregate for the indicator is obtained by averaging the three dimensions of alignment with country's priorities and goals across all new interventions for the reporting year:

$$I = \frac{\sum_{j=1}^n \{Q_j^1 + Q_j^2 + Q_j^3\}}{3n}$$

Comments and limitations:

When aggregating, the size of the development cooperation project/intervention is not considered as a weight in order to give the same level of importance to the extent of use of country-owned results frameworks and planning tools in medium-sized vs. larger projects. This is because this indicator tries to capture the overall behaviour of providers in designing new interventions in a given country. Weighting by project size would otherwise overrepresent infrastructure projects and underrepresent interventions focused on influencing policies and institutional arrangements. Nevertheless, data on project size is available.

Current monitoring exercises are collecting data beyond the scope of the proposed indicator, including aspects such as provider government engagement in project planning and programme evaluations. This may be refined further.

Proxy, alternative and additional indicators: N/A

Data Disaggregation

This indicator can be disaggregated at the country, provider, sector and the development project level.

References

Official SDG Metadata URL

<https://unstats.un.org/sdgs/metadata/files/Metadata-17-15-01.pdf>

Internationally agreed methodology and guideline URL

http://effectivecooperation.org/pdf/2018_Monitoring_Guide_National_Coordinator.pdf

Other references

Ocampo, Jose Antonio (2015). *A Post-2015 Monitoring and Accountability Framework*. UNDESA: CDP Background Paper No. 27. ST/ESA/2015/CDP/27 Available at: <https://www.un.org/development/desa/dpad/wp-content/uploads/sites/45/publication/CDP-bp-2015-27.pdf>

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International Organization(s) for Global Monitoring

This document was prepared based on inputs from Organization for Economic Co-operation and Development (OECD) and United

Nations Development Programme (UNDP).

For focal point information for this indicator, please visit <https://unstats.un.org/sdgs/dataContacts/>

Indicator 17.16.1

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Indicator Name, Target and Goal

Indicator 17.16.1: Number of countries reporting progress in multi-stakeholder development effectiveness monitoring frameworks that support the achievement of the sustainable development goals

Target 17.16: Enhance the Global Partnership for Sustainable Development, complemented by multi-stakeholder partnerships that mobilize and share knowledge, expertise, technology and financial resources, to support the achievement of the Sustainable Development Goals in all countries, in particular developing countries

Goal 17: Strengthen the means of implementation and revitalize the Global Partnership for Sustainable Development

Definition and Rationale

Definition:

This indicator tracks the number of countries reporting progress in multi-stakeholder monitoring frameworks that track the implementation of development effectiveness commitments supporting the achievement of Sustainable Development Goals (SDGs).

Concepts:

“Multi-stakeholder development effectiveness monitoring frameworks” that track effective development cooperation are monitoring frameworks:

- whose indicators have been agreed on a voluntary basis; whose indicators measure the strength of the relationship between development actors;
- where data collection and review is led by the countries themselves; and where participation in data collection and review involves relevant multi-stakeholder representing, at minimum, the public sector, the private sector and civil society organizations.

The Global Partnership for Effective Development Cooperation (Global Partnership) is an example of development effectiveness monitoring frameworks.

Rationale and Interpretation:

Achieving the Sustainable Development Goals requires mobilizing and strengthening multi-stakeholder partnerships that can bring and effectively use all the available knowledge, expertise, technology and financial resources for sustainable development. The quality of the relationship between all the relevant partners defines the strength of the global partnership for sustainable development.

This indicator provides a measure of countries' efforts to enhance such multi-stakeholder partnerships, and by extension the Global Partnership for Sustainable Development, by looking at progress made on a set of indicators that track how well country providers and recipients of development co-operation are working together towards sustainable development.

Reflecting the spirit of the global partnership for sustainable development, and the universal nature of the SDGs, the indicator monitors the contribution and behaviour of both provider and recipient countries in establishing more effective, inclusive multi-stakeholder partnerships to support and sustain the implementation of the 2030 Agenda. It does so by measuring their respective but differentiated commitments to strengthen the quality of their development partnerships.

Data Sources and Collection Method

Country governments receiving development co-operation lead and coordinate data collection and validation. At country level, data are reported by relevant government entities (e.g. the Ministry of finance/budget department for national budget information) and by development partners and stakeholders. OECD and UNDP are supporting countries in collecting relevant data on a biennial basis through the Global Partnership monitoring framework, and these organisations lead data aggregation and quality assurance at the global level. More details on the data collection process can be found in the Monitoring Guide at http://effectivecooperation.org/pdf/2018_Monitoring_Guide_National_Coordinator.pdf

Complementarily, the United Nations Department of Economic and Social Affairs has been conducting regular surveys for the Development Cooperation Forum in partnership with UNDP to identify national progress in mutual accountability and transparency. Synergies with the measurement of indicator 7 of the Global Partnership monitoring framework are being used.

Method of Computation and Other Methodological Considerations

Computation Method:

To reflect the universal nature of target 17.16, this indicator is presented as the global aggregate number of countries reporting progress. For any country reporting towards one (or more) multi-stakeholder development effectiveness framework(s), the country is considered to be reporting progress when, for the year of reference, the number of indicators within the framework(s) that show a positive trend is greater than the number of indicators that show a negative trend.

Countries providing development co-operation funding and reporting in multi-stakeholder development effectiveness monitoring frameworks are assessed against the following elements:

1. *Aligning to country-defined development objectives*: Percentage of new development interventions whose objectives are drawn from country-led results frameworks.
2. *Using country-led results frameworks*: Percentage of results indicators contained in new development interventions, which are drawn from country-led results frameworks.
3. *Using national monitoring and statistical systems*: Percentage of results indicators which will be monitored using government sources and monitoring systems.
4. *Using national evaluation systems*: Percentage of new interventions that plan a final evaluation with country government involvement.
5. *Transparency of development co-operation*: Public availability of information on development cooperation according to international reporting standards;
6. *Annual predictability of development co-operation*: Proportion of development co-operation disbursed as development partners had scheduled at the beginning of the year.
7. *Medium-term predictability of development co-operation*: forward-looking spending plans made available to the partner government (indicative annual amounts of development co-operation support to be provided over the one-to-three years)
8. *Development co-operation on budgets subject to parliamentary oversight*: share of development co-operation funds planned to/for the country's public sector that are recorded in the annual budget submitted for legislative approval.
9. *Development co-operation delivered through country systems*: Proportion of development cooperation disbursed to a given country according to national regulations and systems for public financial management (i.e. budgeting, financial reporting, auditing) and procurement.
10. *Untied Aid*: Proportion of development co-operation that is untied.

Countries receiving development co-operation funding and reporting in multi-stakeholder development effectiveness monitoring frameworks are assessed against the following elements:

1. *Leading in setting up national priorities*: Countries strengthen their national results frameworks.
2. *Creating an enabling environment for civil society organisations*: Civil society organizations operate within an environment that maximises their engagement in and contribution to development.
3. *Promoting private sector engagement and contribution to development*: Quality of public-private dialogue.
4. *Recording development co-operation on budgets subject to parliamentary oversight*: share of development co-operation funds planned to/for the country's public sector that are recorded in the annual budget submitted for legislative approval.
5. *Strengthening mutual accountability*: Mutual accountability among development actors is strengthened through inclusive reviews
Strengthening gender equality and women's empowerment: Countries have systems to track and make public allocations for gender equality and women's empowerment.
6. *Strengthening domestic institutions*: Quality of the country's Public Financial Management Systems

Countries providing and receiving development co-operation funding and reporting in multi-stakeholder development effectiveness monitoring frameworks.

For countries reporting both as providers and recipients of development co-operation, progress is calculated separately based on the respective set of indicators described above. Disaggregated results will show the detailed performance in each category. For the ultimate count of the number of countries making progress, dual countries are accounted as making progress if progress is made as recipient **or** as provider of development co-operation.

Comments and limitations:

Data collection for the Global Partnership monitoring framework is led by low and middle-income countries receiving development co-operation. Progress of countries providing development co-operation in implementing development effectiveness commitments is captured through their partnership behaviour in those low and middle-income countries. Depending on each case, middle-income

countries that currently are both recipient and providers of development cooperation opt to report in their role as recipient and/or provider of development cooperation.

Data Disaggregation

The indicator presented as a global aggregate is generated through a bottom-up approach whereby data is collected at the country level and can therefore be disaggregated back at the level of countries (for both development cooperation providers and recipients) for national analysis and mutual dialogue. The data can also be further disaggregated according to individual indicators (i.e. specific dimensions of effective development cooperation) that are included within the multi-stakeholder frameworks.

References

Official SDG Metadata URL

<https://unstats.un.org/sdgs/metadata/files/Metadata-17-16-01.pdf>

Internationally agreed methodology and guideline URL

http://effectivecooperation.org/pdf/2018_Monitoring_Guide_National_Coordinator.pdf

Other references

Coppard, D. and C. Culey (2015). *The Global Partnership for Effective Development Co-operation's Contribution to the 2030 Agenda for Sustainable Development*. Plenary Session 1 Background Paper. Busan Global Partnership Forum, Korea. Available at: http://effectivecooperation.org/wp-content/uploads/2015/11/Plenary-1_Contribution-to-the-2030-Agenda-for-Sustainable-Development_FULL.pdf

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International Organization(s) for Global Monitoring

This document was prepared based on inputs from Organization for Economic Co-operation and Development (OECD) and United Nations Development Programme (UNDP).

For focal point information for this indicator, please visit <https://unstats.un.org/sdgs/dataContacts/>

Indicator 17.18.3

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Indicator Name, Target and Goal

Indicator 17.18.3: Number of countries with a national statistical plan that is fully funded and under implementation, by source of

funding

Target 17.18: By 2020, enhance capacity-building support to developing countries, including for least developed countries and small island developing States, to increase significantly the availability of high quality, timely and reliable data disaggregated by income, gender, age, race, ethnicity, migratory status, disability, geographic location and other characteristics relevant in national contexts

Goal 17: Strengthen the means of implementation and revitalize the Global Partnership for Sustainable Development

Definition and Rationale

Definition:

The indicator is defined as the number of countries with a national statistical plan that is fully funded and under implementation, as reported in the annual status reports on National Strategies for the Development of Statistics.

Concepts:

Fully funded means ...the total amount of the National Statistics Plan's budget has been secured (committed or disbursed) and there is no funding gap remaining.

National statistical plan is defined as an NSDS or similar national policy document that covers the development and ownership of statistics in a country.

A National Strategy for the Development of Statistics (NSDS) is a national framework, process and product for statistics development aimed at mainstreaming statistics into national policy and planning process; producing information responding to the needs of the various users; mainstreaming sectors and other players into the National Statistics System (NSS); coordinating the entire NSS; responding to data challenges; delivering a country-led data revolution; and building statistical capacity across the "the statistical value chain". The NSDS spans a five to ten year implementation period.

Rationale and Interpretation:

This indicator is a direct measurement of the number of countries that are working towards enhancing their statistical capacity so that high quality, timely and reliable data is available to track progress on the SDGs.

Data Sources and Collection Method

Data for this indicator can come from national focal points based in country's national statistical offices (NSO). Information is collected annually.

PARIS21 collects this data as well, liaising directly with the national focal points.

Method of Computation and Other Methodological Considerations

Computation Method:

This indicator is calculated as a global aggregate through a simple addition of countries that are (1) implementing a strategy, (2) designing a strategy, or (3) awaiting adoption of a strategy in the current year. The level of funding of the plan is measured by aggregating the funding committed by the different funders. If the total committed equals the total fund required for the plan, then it is fully funded, otherwise it is partially funded.

Comments and limitations: N/A

Proxy, alternative and additional indicators: N/A

Data Disaggregation

This indicator can be disaggregated by geographical area.

References

Official SDG Metadata URL

<https://unstats.un.org/sdgs/metadata/files/Metadata-17-18-03.pdf>

Internationally agreed methodology and guideline URL

<http://nsdsguidelines.paris21.org/>

Other references

Paris21. *NSDS Guidelines Update Process and the Guidelines 2.3*. Internet site: <http://nsdsguidelines.paris21.org/>

Paris21. *NSDS Status Reports*. Internet site: <http://www.paris21.org/nsds-status>

Country examples

N/A

International Organization(s) for Global Monitoring

This document was prepared based on inputs from Partnership in Statistics for Development in the 21st Century (Paris 21).

For focal point information for this indicator, please visit <https://unstats.un.org/sdgs/dataContacts/>

Indicator 17.19.1

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Indicator Name, Target and Goal

Indicator 17.19.1: Dollar value of all resources made available to strengthen statistical capacity in developing countries

Target 17.19: By 2030, build on existing initiatives to develop measurements of progress on sustainable development that complement gross domestic product, and support statistical capacity-building in developing countries

Goal 17: Strengthen the means of implementation and revitalize the Global Partnership for Sustainable Development

Definition and Rationale

Definition:

This indicator is defined as the total US dollar value of all resources that are made available to strengthen statistical capacity in developing countries. It is based on the Partner Report on Support to Statistics (PRESS) which are designed and administered by PARIS21.

Concepts:

Resources are defined as all funding allocated to project/programs defined by the Creditor Reporting System (CRS) as statistical capacity building as well as technical assistance, training, goods and equipment, facilities etc. within such projects. ([1] CRS Purpose Code 16062: Statistical capacity building: Both in national statistical offices and any other government ministries.)

Statistical capacity building is the process through which a country's national statistical system, its organisations and individuals obtain, strengthen and maintain their abilities to collect, produce, analyse and disseminate high quality and reliable data to meet users' needs.

PRESS is one of PARIS21's flagship publications. It presents data on technical and financial support to statistical development worldwide and is thus a valuable tool for collaboration.

Rationale and Interpretation:

This indicator is a direct measure of the global effort to support statistical capacity-building in developing countries.

Data Sources and Collection Method

This indicator relies upon three sources of data:

- (1) OECD's CRS, which records ODA and Other Official Flows (OOF) data from the Development Assistance Committee's (DAC) members and some non-members, and provides comprehensive accounting of ODA. Any ODA and OOF reported by donors for Statistical Capacity Building (SCB) is designated by code 16062;
- (2) In cases where SCB is a part of a larger project and is not directly captured by the CRS under code 16062, PARIS21 searches project descriptions for an SCB component, and adds it to the total disbursements for SCB; and
- (3) A voluntary online questionnaire that is completed by a global network of reporters. The reporters are countries that do not report to the CRS, as well as multilateral institutions that have large portfolios of statistical projects.

Recipient countries are not required to provide data to the three sources. Donors are encouraged to provide budget-allocation information at sector-level. Multi-lateral donors work closely with PARIS21 to complete the online questionnaire to feed better and more complete data to source (3).

Method of Computation and Other Methodological Considerations

Computation Method:

This indicator is calculated as the sum of all project/program disbursements for statistical capacity building in developing countries in a given year. All values are converted to US dollars using the average currency conversion rate of the time period (given year) for which the indicator is being calculated.

Comments and limitations:

Financial figures presented in the PRESS are drawn from the OECD's Creditor Reporting System (CRS) for Official Development Assistance (ODA) commitments, supplemented by voluntary reporting from other donors. Therefore, full coverage of all programs is uncertain.

The reported comments are also an upper-bound to the actual support to statistics. This is because of three reasons: (1) double counting of projects may occur when the donor and project implementer report on the same project or when all project co-financers report project totals; (2) the reported numbers may be inflated by working with project totals for multi-sector projects that have a small statistics component; and (3) the PRESS reports on donor-side commitments which do not always translate to actual disbursements to the recipient countries.

The indicator only captures international support to statistics and does not account for domestic resources.

Due to different fiscal calendars among donors, the data has a 2-year lag.

Proxy, alternative and additional indicators: N/A

Data Disaggregation

This indicator can be disaggregated by geographical area, ODA sectors, area of statistics and method of financing (e.g. grant, loan etc.).

References

Official SDG Metadata URL

<https://unstats.un.org/sdgs/metadata/files/Metadata-17-19-01.pdf>

Internationally agreed methodology and guideline URL

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International Organization(s) for Global Monitoring

This document was prepared based on inputs from Partnership in Statistics for Development in the 21st Century (Paris 21).

For focal point information for this indicator, please visit <https://unstats.un.org/sdgs/dataContacts/>