



# ICT indicators for the SDG monitoring framework

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## Technical information sheet for the proposed SDG indicator “Proportion of households with broadband Internet access, by urban/rural”

### Goal and target addressed

Goal 1: End poverty in all its forms everywhere

Target 1.4: By 2030, ensure that all men and women, in particular the poor and the vulnerable, have equal rights to economic resources, as well as access to basic services, ownership and control over land and other forms of property, inheritance, natural resources, appropriate new technology and financial services, including microfinance.

### Definition and method of computation

This indicator *proportion of households with broadband Internet access, by urban/rural* is defined as the proportion of households with broadband Internet access using different types of broadband services. Broadband is defined as technologies that deliver advertised download speeds of at least 256 kbit/s. The main types of broadband services are:

- Fixed (wired) broadband network, such as DSL, cable modem, high speed leased lines, fibre-to-the-home/building, powerline and other fixed (wired) broadband
- Terrestrial fixed (wireless) broadband network, such as WiMAX, fixed CDMA
- Satellite broadband network (via a satellite connection)
- Mobile broadband network (at least 3G, e.g. UMTS) via a handset
- Mobile broadband network (at least 3G, e.g. UMTS) via a card (e.g. integrated SIM card in a computer) or USB modem

The *Internet* is a worldwide public computer network. It provides 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 (not assumed to be only via a computer – it may also be by mobile telephone, tablet, PDA, games machine, digital TV etc.). Access can be via a fixed or mobile network.

Data for this indicator can be collected through an official national household survey, by asking about household access to the Internet, broken down by type of Internet service (which can also include narrowband Internet access). The number of in-scope households with Internet access by a given type of service is calculated by aggregating the weighted responses for each type of service. Proportions are expressed as percentages and are calculated by dividing the number of in-scope households with a given type of Internet service by either the total number of in-scope households with Internet or by the total number of in-scope households, and then multiplying the result by 100.

## Rationale and interpretation

Internet access, and in particular broadband Internet access, has become a key infrastructure, a key pillar to industrialization and a fundamental driver for innovation. It is an important driver for economic growth and development and can help foster well-being, in particular by delivering a growing number of services and applications, including in the areas of business, health, education and governance. The number of Internet users has increased substantially over the last decade and access to the Internet has changed the way people live, communicate, work and do business. Internet uptake is a key indicator tracked by policy makers and others to measure track development.

Despite growth in networks, services and applications, information and communication technology (ICT) access and use is still far from equally distributed, and many people cannot yet benefit from the potential of the Internet. By 2015, less than 50 per cent of households in the world had access to the Internet, and thus limiting the benefits that Internet access can deliver. The indicator highlights the importance of Internet use as a development enabler and helps to measure the digital divide, which, if not properly addressed, will aggravate inequalities in all development domains.

A breakdown of this indicator by urban/rural households can help identify digital divides between urban and rural areas. This information can contribute to the design of targeted policies to overcome those divides.

## Sources and data collection

The indicator on *proportion of households with broadband Internet access, by urban/rural* is based on an internationally agreed definition and methodology, which have been developed under the coordination of ITU, through its Expert Groups and following an extensive consultation process with countries. It is also a core indicator of the Partnership on Measuring ICT for Development's Core List of Indicators, which has been endorsed by the UN Statistical Commission (last time in 2014). The *percentage of households with Internet access* is also included in the ITU ICT Development Index, and thus considered a key metric for international comparisons of ICT developments.

Data on the *proportion of households with broadband Internet access, by urban/rural* are collected through an annual questionnaire that ITU sends to national statistical offices (NSO). In this questionnaire ITU collects absolute values. The percentages are calculated a-posteriori. The survey methodology is verified to ensure that it meets adequate statistical standards. The data are verified to ensure consistency with previous years' data and situation of the country for other related indicators (ICT and economic).

Some countries conduct a household survey where the question on *households with broadband Internet access* is included every year. For others, the frequency is every two or three years. Overall, the indicator is available for 53 countries at least from one survey in the years 2011-2014.

ITU produces data on the *proportion of households with Internet access* (not broken down by narrowband/broadband) for almost 200 economies. Survey data for the *proportion of households with Internet access* is available for 101 countries. For the other countries, ITU estimates the *proportion of households with Internet access* based on other (mainly subscription) data.

## Disaggregation

For countries that collect this indicator through an official survey, and if data allow breakdown and disaggregation, the indicator can be broken down by the following household characteristics:

- Breakdown by region, such as geographical areas, urban/ rural.
- Breakdown by household characteristics, such as household composition and size, and whether the household has access to electricity.
- Breakdown by characteristics of the head of the household/household reference person, such as sex, level of education, occupation or status in the labour force.
- Other breakdowns or classifications, where relevant variables or questions are used in the questionnaire, such as household income.

## Comments and limitations

Proposed categories of broadband and technical terms will probably vary between countries and therefore questions included in national household surveys/questionnaires must be adapted to the local context. For further information, see the [ITU Manual for Measuring ICT Access and Use by Households and Individuals 2014](#).

## Gender equality issues

Information can be produced on the breakdown by characteristics of the head of the household/household reference person, including sex, but ITU does not collect this information at the international level.

## Data for global and regional monitoring

Regional and global aggregates can be produced for the *proportion of households with Internet access* since ITU produces data for this indicator for almost 200 economies. In cases where these data are not produced through official household surveys, ITU estimates the *proportion of households with Internet access* based on subscription data. Recent data for the *proportion of households with broadband Internet access* is available for 53 countries and regional and global estimates cannot be produced, although more countries are expected to collect data for this indicator in the future.

## **Supplementary information**

Year-end data on the *proportion of households with Internet access* are usually released in June of the following year through the ITU World Telecommunication/ICT Indicators Database. Data are also available at no cost through the ITU ICT Eye, see: <http://www.itu.int/ITU-D/ict/>.

## **References:**

- [ITU Manual for Measuring ICT Access and Use by Households and Individuals 2014](#)

## **Targets for which indicator is relevant:**

5.b, 9.1, 9.c, 11.1, 16.10, 17.8

## Technical information sheet for the proposed SDG indicator “Proportion of individuals with ICT skills, by type of skills”

### Goal and target addressed:

Goal 4: Ensure inclusive and equitable quality education and promote life-long learning opportunities for all

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

### Definition and method of computation:

The indicator on the *proportion of individuals with ICT skills, by type of skills* refers to individuals that have undertaken certain computer-related activities in the last three months. Computer-related activities to measure ICT skills are as follows:

- Copying or moving a file or folder
- Using copy and paste tools to duplicate or move information within a document
- Sending e-mails with attached files (e.g. document, picture, video)
- Using basic arithmetic formulae in a spreadsheet
- Connecting and installing new devices (e.g. a modem, camera, printer)
- Finding, downloading, installing and configuring software
- Creating electronic presentations with presentation software (including text, images, sound, video or charts)
- Transferring files between a computer and other devices
- Writing a computer program using a specialized 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, and devices with telephony as their primary function, such as smartphones.

Most individuals will have carried out more than one activity and therefore multiple responses are expected. The tasks are broadly ordered from less complex to more complex, although there is no requirement for a respondent to select simpler tasks before selecting a more complex task.

Countries can collect data on this indicator through national household surveys, and the indicator is calculated as the proportion of in-scope computer users who have carried out each computer-related activity. The indicator is expressed as a percentage.

## Rationale and interpretation

ICT skills determine the effective use that is made of ICTs and the lack of ICT skills continues to be one of the key barriers keeping people from fully benefitting from the potential of information and communication technologies. Currently, there is little data and even fewer gender-disaggregated data available for measuring ICT-specific skills especially in developing countries. Researchers and policy-makers continue to rely on proxy indicators to measure this important enabler of ICT development and to track gaps in ICT skills. The information derived from this indicator will help make the link between ICT usage and impact and help measure and track the level of proficiency of ICT users, and identify differences between men and women, and people of different age groups. This information could be used, for example, to adapt ICT literacy courses in schools and for life-long education, identify barriers to certain uses of computers as well as potential applications and services that could be accessed over the Internet.

## Sources and data collection

This indicator is relatively new but based on an internationally agreed definition and methodology, which have been developed under the coordination of ITU, through its Expert Groups and following an extensive consultation process with countries. It is also a core indicator of the Partnership on Measuring ICT for Development's Core List of Indicators, which has been endorsed by the UN Statistical Commission (in 2014). Data on the *proportion of individuals with ICT skills, by type of skills* are collected through an annual questionnaire that ITU sends to national statistical offices (NSO) and the first data collection took place in 2014. In its questionnaire ITU collects absolute values. The percentages are calculated a-posteriori. The survey methodology is verified to ensure that it meets adequate statistical standards. The data are verified to ensure consistency with previous years' data and situation of the country for other related indicators (ICT and economic).

By 2015, data for this indicator were available for only 3 developing countries although OECD countries have been collecting data for this indicator for a number of years. Since this indicator was only added to the Partnership's core list of indicators in 2014, more countries are expected to collect data in the near future.

## Disaggregation

Since data for the indicator on the *proportion of individuals with ICT skills, by type of skills* are collected through a survey, classificatory variables for individuals can provide further information on the differences in ICT skills among men/women, children/adults (age groups), employed/unemployed, etc. These data may be used to inform targeted policies to improve ICT skills, and thus contribute to the development of an inclusive information society.

## Comments and limitations

Based on the types and number of ICT tasks that individuals have performed, it may be possible to construct a metric. For example, Eurostat categorized individuals into low, medium and high levels of computer skills depending on how many tasks individuals had performed (the level of difficulty of tasks is not taken into account). However, that categorization was under review.

## Gender equality issues

The indicator on the *proportion of individuals with ICT skills, by type of skills* can be broken down by sex to identify gender equality issues.

## Data for global and regional monitoring

Since the indicator on the *proportion of individuals with ICT skills, by type of skills* is relatively new, only few countries collect data and it is not (yet) possible to produce regional and global aggregates. More countries are expected to collect data for this indicator in the future.

## Supplementary information

Year-end estimates are usually released in December of the following year through the ITU World Telecommunication/ICT Indicators Database.

## References:

- [ITU Manual for Measuring ICT Access and Use by Households and Individuals 2014](#)

## Targets for which indicator are relevant:

4.3, 4.5, 5.b, 8.5, 8.6, 8.b, 9.2, 9.c

## Technical information sheet for the proposed SDG indicator “Proportion of individuals owning a mobile phone, by sex”

### Goal and target addressed:

Goal 5: Achieve gender equality and empower all women and girls

Target 5.b: enhance the use of enabling technology, in particular information and communications technology, to promote women’s empowerment

### Definition and method of computation:

This indicator is defined as the ‘proportion of individuals who own a mobile telephone, by sex’. 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. Mobile cellular phones supplied by employers that can be used for personal reasons (to make personal calls, access the Internet, etc.) are included. Individuals who have only active SIM card(s) and not a mobile phone device are excluded. Individuals who have a mobile phone for personal use that is not registered under his/her name are also included. An active SIM card is a SIM card that has been used in the last three months.

*A mobile (cellular) telephone* refers to a portable telephone subscribing to a public mobile telephone service using cellular technology, which provides access to the PSTN. This includes analogue and digital cellular systems and technologies such as IMT-2000 (3G) and IMT-Advanced. Users of both postpaid subscriptions and prepaid accounts are included.

Countries can collect data on this indicator through national household surveys. This indicator is calculated by dividing the total number of in-scope individuals who own a mobile phone by the total number of in-scope individuals.

### 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. A number of studies have highlighted the link between mobile phone ownership and empowerment, and productivity growth.

Existing data on the proportion of women owning a mobile phone suggest that less women than men own a mobile phone. This indicator highlights the importance of mobile phone ownership to track and to improve gender equality, and monitoring will help design targeted policies to overcome the gender divide. The collection of this indicator was proposed by the Task Group on Gender of the Partnership on Measuring ICT for Development.

## Sources and data collection

This indicator is a newly developed ITU indicator that was approved by the World Telecommunication/ICT Indicators Symposium (WTIS) 2014. The indicator definition and methodology were developed under the coordination of ITU, through its Expert Groups and following an extensive consultation process with countries. Data for the proportion of individuals owning a mobile phone will be collected through an annual questionnaire that ITU sends to national statistical offices (NSO), starting in 2015. In this questionnaire, through which ITU already collects a number of ICT indicators, ITU collects absolute values. The percentages are calculated a-posteriori. The survey methodology is verified to ensure that it meets adequate statistical standards. The data are verified to ensure consistency with previous years' data and other relevant country-level indicators (ICT and economic).

Data are usually not adjusted, but discrepancies in the definition, age scope of individuals, reference period or the break in comparability between years are noted in a data note. For this reason, data are not always strictly comparable.

A number of countries already collect this indicator through official surveys but data will only be collected at the international level as of 2015.

## Disaggregation

For countries that collect this indicator through a national household survey, and if data allow breakdown and disaggregation, the indicator can be broken down not only by sex but also by region (geographic and/or urban/rural), by age group, by educational level, by labour force status, and by occupation. ITU will collect data for all of these breakdowns from countries.

## Comments and limitations

While the data on the 'proportion of individuals who own a mobile telephone' currently only exist for very few countries, ITU is encouraging all countries to collect data on this indicator through national household surveys and the indicator is expected to be added to the Partnership on Measuring ICT for Development's Core List of Indicators. The number of countries with official data for this indicator is expected to increase in the near future.

## Gender equality issues

Discrepancies exist between the proportion of men and women that access, own, use, and benefit from ICTs and this indicator is important to track the gender digital divide. Mobile phone ownership (as opposed to shared ownership), in particular, is important for a person's independence and autonomy, and increases the potential to fully benefit from mobile communications.

## **Data for global and regional monitoring**

Data collection for this indicator will only commence in 2015 and no regional or global figures are available (yet).

## **Supplementary information**

Once ITU has included this indicator in its regular data collection, year-end estimates will be released in December of the following year through the ITU World Telecommunication/ICT Indicators Database.

## **References:**

Since the definition and methodology of this indicator will only be collected as of 2015, the indicator is not yet included in the [ITU Manual for Measuring ICT Access and Use by Households and Individuals 2014](#). It will be included in the next version of the Manual.

For a discussion on the importance of this indicators, see also the [UNCTAD, Measuring ICT and gender: an assessment](#).

## **Targets for which indicator are relevant:**

1.4, 2.c, 11.b, 12.8, 13.1, 16.10, 17.8

## Technical information sheet for the proposed SDG indicator “Proportion of individuals with ICT skills, by type of skills, by sex”

### Goal and target addressed:

Goal 5: Achieve gender equality and empower all women and girls

Target 5.b: enhance the use of enabling technology, in particular information and communications technology, to promote women’s empowerment

### Definition and method of computation:

The indicator on the *proportion of individuals with ICT skills, by type of skills* refers to individuals that have undertaken certain computer-related activities in the last three months. Computer-related activities to measure ICT skills are as follows:

- Copying or moving a file or folder
- Using copy and paste tools to duplicate or move information within a document
- Sending e-mails with attached files (e.g. document, picture, video)
- Using basic arithmetic formulae in a spreadsheet
- Connecting and installing new devices (e.g. a modem, camera, printer)
- Finding, downloading, installing and configuring software
- Creating electronic presentations with presentation software (including text, images, sound, video or charts)
- Transferring files between a computer and other devices
- Writing a computer program using a specialized 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, and devices with telephony as their primary function, such as smartphones.

Most individuals will have carried out more than one activity and therefore multiple responses are expected. The tasks are broadly ordered from less complex to more complex, although there is no requirement for a respondent to select simpler tasks before selecting a more complex task.

Countries can collect data on this indicator through national household surveys, and the indicator is calculated as the proportion of in-scope computer users who have carried out each computer-related activity. The indicator is expressed as a percentage.

## Rationale and interpretation

ICT skills determine the effective use that is made of ICTs and the lack of ICT skills continues to be one of the key barriers keeping people, and in particular women, from fully benefitting from the potential of information and communication technologies. Currently, there is little data and even fewer gender-disaggregated data available for measuring ICT-specific skills especially in developing countries. Researchers and policy-makers continue to rely on proxy indicators to measure this important enabler of ICT development and to track gender-based gaps in ICT skills. The information derived from this indicator will help make the link between ICT usage and impact and help measure and track the level of proficiency of ICT users, and identify differences between men and women. This information could be used, for example, to adapt ICT literacy courses in schools, identify barriers to certain uses of computers as well as potential applications and services that could be accessed over the Internet.

Gender-related ICT statistics were discussed extensively in the Partnership on Measuring ICT for Development's Task Group on Gender and the indicator on the *proportion of individuals with ICT skills, by type of skills* was identified as one of the key indicators that should be included to track Target 5.b.

## Sources and data collection

This indicator is relatively new but based on an internationally agreed definition and methodology, which have been developed under the coordination of ITU, through its Expert Groups and following an extensive consultation process with countries. It is also a core indicator of the Partnership on Measuring ICT for Development's Core List of Indicators, which has been endorsed by the UN Statistical Commission (in 2014). Data on the *proportion of individuals with ICT skills, by type of skills*, are collected through an annual questionnaire that ITU sends to national statistical offices (NSO) and the first data collection took place in 2014. In its questionnaire ITU collects absolute values. The percentages are calculated a-posteriori. The survey methodology is verified to ensure that it meets adequate statistical standards. The data are verified to ensure consistency with previous years' data and situation of the country for other related indicators (ICT and economic).

By 2015, data for this indicator were available for only 3 developing countries although OECD countries have been collecting data for this indicator for a number of years. Since this indicator was only added to the Partnership's core list of indicators in 2014, more countries are expected to collect data in the near future.

## Disaggregation

Since data for the indicator on the *proportion of individuals with ICT skills, by type of skills* are collected through a survey, classificatory variables for individuals can provide further information on the differences in ICT skills among men/women, children/adults, employed/unemployed, etc. These data may be used to inform targeted policies to improve ICT skills, and thus contribute to the development of an inclusive information society.

## Comments and limitations

Based on the types and number of ICT tasks that individuals have performed, it may be possible to construct a metric. For example, Eurostat categorized individuals into low, medium and high levels of computer skills depending on how many tasks individuals had performed (the level of difficulty of tasks is not taken into account). However, that categorization was under review.

## Gender equality issues

The indicator on the *proportion of individuals with ICT skills, by type of skills* can be broken down by sex to identify gender equality issues.

## Data for global and regional monitoring

Since the indicator on the *proportion of individuals with ICT skills, by type of skills* is relatively new, only few countries collect data and it is not (yet) possible to produce regional and global aggregates. More countries are expected to collect data for this indicator in the future.

## Supplementary information

Year-end estimates are usually released in December of the following year through the ITU World Telecommunication/ICT Indicators Database.

## References:

- [ITU Manual for Measuring ICT Access and Use by Households and Individuals 2014](#)

## Targets for which indicator are relevant:

4.3, 4.4, 4.5, 8.5, 8.6, 8.b, 9.2, 9.c

# Technical information sheet for the proposed SDG indicator “Proportion of households with broadband Internet access, by urban/rural”

## Goal and target addressed

Goal 9: Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation

Target 9.1: develop quality, reliable, sustainable and resilient infrastructure, including regional and transborder infrastructure, to support economic development and human well-being, with a focus on affordable and equitable access for all

## Definition and method of computation

This indicator *proportion of households with broadband Internet access, by urban/rural* is defined as the proportion of households with broadband Internet access using different types of broadband services. Broadband is defined as technologies that deliver advertised download speeds of at least 256 kbit/s. The main types of broadband services are:

- Fixed (wired) broadband network, such as DSL, cable modem, high speed leased lines, fibre-to-the-home/building, powerline and other fixed (wired) broadband
- Terrestrial fixed (wireless) broadband network, such as WiMAX, fixed CDMA
- Satellite broadband network (via a satellite connection)
- Mobile broadband network (at least 3G, e.g. UMTS) via a handset
- Mobile broadband network (at least 3G, e.g. UMTS) via a card (e.g. integrated SIM card in a computer) or USB modem

The *Internet* is a worldwide public computer network. It provides 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 (not assumed to be only via a computer – it may also be by mobile telephone, tablet, PDA, games machine, digital TV etc.). Access can be via a fixed or mobile network.

Data for this indicator can be collected through an official national household survey, by asking about household access to the Internet, broken down by type of Internet service (which can also include narrowband Internet access). The number of in-scope households with Internet access by a given type of service is calculated by aggregating the weighted responses for each type of service. Proportions are expressed as percentages and are calculated by dividing the number of in-scope households with a given type of Internet service by either the total number of in-scope households with Internet or by the total number of in-scope households, and then multiplying the result by 100.

## Rationale and interpretation

Internet access, and in particular broadband Internet access, has become a key infrastructure, a key pillar to industrialization and a fundamental driver for innovation. It is an important driver for economic growth and development and can help foster well-being, in particular by delivering a growing number of services and applications, including in the areas of business, health, education and governance. The number of Internet users has increased substantially over the last decade and access to the Internet has changed the way people live, communicate, work and do business. Internet uptake is a key indicator tracked by policy makers and others to measure track development.

Despite growth in networks, services and applications, information and communication technology (ICT) access and use is still far from equally distributed, and many people cannot yet benefit from the potential of the Internet. By 2015, less than 50 per cent of households in the world had access to the Internet, and thus limiting the benefits that Internet access can deliver. The indicator highlights the importance of Internet use as a development enabler and helps to measure the digital divide, which, if not properly addressed, will aggravate inequalities in all development domains.

A breakdown of this indicator by urban/rural households can help identify digital divides between urban and rural areas. This information can contribute to the design of targeted policies to overcome those divides.

## Sources and data collection

The indicator on *proportion of households with broadband Internet access, by urban/rural* is based on an internationally agreed definition and methodology, which have been developed under the coordination of ITU, through its Expert Groups and following an extensive consultation process with countries. It is also a core indicator of the Partnership on Measuring ICT for Development's Core List of Indicators, which has been endorsed by the UN Statistical Commission (last time in 2014). The *percentage of households with Internet access* is also included in the ITU ICT Development Index, and thus considered a key metric for international comparisons of ICT developments.

Data on the *proportion of households with broadband Internet access, by urban/rural* are collected through an annual questionnaire that ITU sends to national statistical offices (NSO). In this questionnaire ITU collects absolute values. The percentages are calculated a-posteriori. The survey methodology is verified to ensure that it meets adequate statistical standards. The data are verified to ensure consistency with previous years' data and situation of the country for other related indicators (ICT and economic).

Some countries conduct a household survey where the question on *households with broadband Internet access* is included every year. For others, the frequency is every two or three years. Overall, the indicator is available for 53 countries at least from one survey in the years 2011-2014.

ITU produces data on the *proportion of households with Internet access* (not broken down by narrowband/broadband) for almost 200 economies. Survey data for the *proportion of households with Internet access* is available for 101 countries. For the other countries, ITU estimates the *proportion of households with Internet access* based on other (mainly subscription) data.

## Disaggregation

For countries that collect this indicator through an official survey, and if data allow breakdown and disaggregation, the indicator can be broken down by the following household characteristics:

- Breakdown by region, such as geographical areas, urban/ rural.
- Breakdown by household characteristics, such as household composition and size, and whether the household has access to electricity.
- Breakdown by characteristics of the head of the household/household reference person, such as sex, level of education, occupation or status in the labour force.
- Other breakdowns or classifications, where relevant variables or questions are used in the questionnaire, such as household income.

## Comments and limitations

Proposed categories of broadband and technical terms will probably vary between countries and therefore questions included in national household surveys/questionnaires must be adapted to the local context. For further information, see the [ITU Manual for Measuring ICT Access and Use by Households and Individuals 2014](#).

## Gender equality issues

Information can be produced on the breakdown by characteristics of the head of the household/household reference person, including sex, but ITU does not collect this information at the international level.

## Data for global and regional monitoring

Regional and global aggregates can be produced for the *proportion of households with Internet access* since ITU produces data for this indicator for almost 200 economies. In cases where these data are not produced through official household surveys, ITU estimates the *proportion of households with Internet access* based on subscription data. Recent data for the *proportion of households with broadband Internet access* is available for 53 countries and regional and global estimates cannot be produced, although more countries are expected to collect data for this indicator in the future.

## **Supplementary information**

Year-end data on the *proportion of households with Internet access* are usually released in June of the following year through the ITU World Telecommunication/ICT Indicators Database. Data are also available at no cost through the ITU ICT Eye, see: <http://www.itu.int/ITU-D/ict/>.

## **References:**

- [ITU Manual for Measuring ICT Access and Use by Households and Individuals 2014](#)

## **Targets for which indicator is relevant:**

1.4, 5.b, 9.c, 11.1, 16.10, 17.8

## Technical information sheet for the proposed SDG indicator “Percentage of the population covered by a mobile network, broken down by technology”

### Goal and target addressed:

Goal 9: Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation

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

### Definition and method of computation:

The indicator *percentage of the population covered by a mobile network, broken down by technology*, refers to the percentage of inhabitants living within range of a mobile-cellular signal, irrespective of whether or not they are mobile phone subscribers or users. This is calculated by dividing the number of inhabitants within range of a mobile-cellular signal by the total population and multiplying by 100.

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. Coverage should refer to broadband (3G and more) and narrowband (2G) mobile-cellular technologies and include:

- 2G mobile population coverage: Mobile networks with access to data communications (e.g. Internet) at downstream speeds below 256 kbit/s. This includes mobile-cellular technologies such as GPRS, CDMA2000 1x and most EDGE implementations. The indicator refers to the theoretical ability of subscribers to use non-broadband speed mobile data services, rather than the number of active users of such services.
- 3G and above mobile-population coverage: Refers to the number of mobile-cellular subscriptions with access to data communications (e.g. the Internet) at broadband downstream speeds (defined here as greater than or equal to 256 kbit/s). The indicator refers to the theoretical ability of subscribers to use broadband speed mobile data services, rather than the number of active users of such services. This includes all high-speed mobile-cellular telephone subscriptions with access to data communications, and includes mobile-cellular technologies such as WCDMA (UMTS) and associated technologies such as HSPA, CDMA2000 1x EV-DO, mobile WiMAX 802.16e and LTE. It excludes low-speed mobile-broadband subscriptions and fixed (wired) Internet subscriptions.

As technologies evolve and as more and more countries will deploy and commercialize more advanced mobile-broadband networks (4G, 5G etc.), the indicator will include further breakdowns.

ITU collects data for this indicator through an annual questionnaire from national telecommunication regulatory authorities or Information and Communication Technology (ICT) Ministries, who collect the data from licensed mobile-cellular operators. However, they are likely to have different levels and locations of coverage. Another method would be to request each operator's coverage maps, which can be overlaid with maps showing the population of the country.

## **Rationale and interpretation**

The percentage of the population covered by a mobile cellular network can be considered as a minimum indicator for ICT access since it provides people with the possibility to subscribe to and use mobile-cellular services to communicate. Over the last decade, mobile-cellular networks have expanded rapidly and helped overcome very basic infrastructure barriers that existed when fixed-telephone networks – often limited to urban and highly populated areas - were the dominant telecommunication infrastructure.

While 2G (narrowband) mobile-cellular networks offer limited (and mainly voice-based) services, higher-speed networks provide increasingly high-speed, reliable and high-quality access to the Internet and its increasing amount of information, content, services, and applications. Mobile networks are therefore essential to overcoming infrastructure barriers, helping people join the information society and benefit from the potential of ICTs, in particular in least developed countries.

The indicator highlights the importance of mobile networks in providing basic, as well as advanced communication services and will help design targeted policies to overcome remaining infrastructure barriers, and address the digital divide. Many governments track this indicator and have set specific targets in terms of the mobile population coverage (by technology) that operators must achieve.

## **Sources and data collection**

This indicator is based on an internationally agreed definition and methodology, which have been developed under the coordination of ITU, through its Expert Groups and following an extensive consultation process with countries. It is also a core indicator of the Partnership on Measuring ICT for Development's Core List of Indicators, which has been endorsed by the UN Statistical Commission (last time in 2014).

ITU collects data for this indicator through an annual questionnaire from national regulatory authorities or Information and Communication Technology Ministries, who collect the data from Internet service providers. By 2014, data on 2G mobile population coverage were available for about 144 countries, from developed and developing regions, and covering all key global regions. Data on 3G mobile population coverage were available for 135 countries. ITU publishes data on this indicator yearly.

## **Disaggregation**

Based on the data for the *percentage of the population covered by a mobile network, broken down by technology*, and on rural population figures, countries can produce estimates on rural and urban population coverage. ITU produces global estimates for the rural population coverage, by technology.

## **Comments and limitations**

Some countries have difficulty calculating overall mobile-cellular population coverage. In some cases, data refer only to the operator with the largest coverage, and this may understate the true coverage.

## **Data for global and regional monitoring**

ITU produces regional and global aggregates for the *'percentage of the population covered by a mobile network, broken down by technology'*.

Year-end data are released in December of the following year through the ITU World Telecommunication/ICT Indicators Database.

## **References:**

- ITU Handbook for the collection of Administrative Data on Telecommunications/ICT, 2011 (and revisions and new indicators)

## **Targets for which indicator are relevant:**

1.4, 2.3, 2.c, 9.1, 11.b, 13.1,

# Technical information sheet for the proposed SDG indicator “Broadband Internet prices”

## Goal and target addressed:

Goal 9: Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation

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

## Definition and method of computation:

The indicator *broadband Internet prices* refers to the price of a monthly subscription to an entry-level (fixed or mobile) broadband plan, based on the offer by the operator with the largest market share in the country. The price is based on a monthly data usage of (a minimum of) 1 Gigabyte (GB). The minimum speed of a broadband connection is 256kbit/s.

ITU collects data for this indicator (in the currency in which prices are advertised) through an annual questionnaire from national regulatory authorities or Information and Communication Technology (ICT) Ministries, who collect the data from national operators/Internet service providers. Prices are collected based on a set of clear rules to ensure the comparability between countries. For countries that do not respond to the questionnaire, ITU collects data on the broadband Internet prices directly from operators/Internet service providers' websites.

To compare prices across countries, fixed- and mobile-broadband plans should be collected and compared, separately. In addition to the local currency, the price of a monthly subscription will be shown as follows:

- In USD, converted (from local currency), using the IMF's average annual rate of exchange
- In PPP\$ using the World Bank's conversion factors
- As a percentage of Gross National Income per capita (GNI p.c.), using GNI p.c. values from the World Bank (Atlas Method)

## Rationale and interpretation:

Target 9.c recognizes that the price, and affordability, of ICT services remains a determining factor for ICT uptake, particularly in the world Least Developed Countries. There is ample evidence that the relatively high price of ICT services remains a major barrier to ICT usage. Policy makers in most countries regulate wholesale prices, and retail prices are regulated in some countries. In addition, countries, as well as international and regional organizations, are monitoring the price of ICT services. To increase the level of broadband uptake and allow more people to benefit from the information society, the Broadband Commission for Digital

Development has highlighted the importance of making broadband more affordable and set a clear target to bring down prices.

Broadband Internet prices remain particularly high and unaffordable in the large majority of LDCs and policies must be geared towards bringing down prices if more people are to join the information society.

## Sources and data collection

The indicator on *broadband Internet prices* is based on an internationally agreed definition and methodology, which have been developed under the coordination of ITU, through its Expert Groups and following an extensive consultation process with countries. It is also a core indicator of the Partnership on Measuring ICT for Development's Core List of Indicators, which has been endorsed by the UN Statistical Commission (last time in 2014). Data on *broadband Internet prices* are also included in the ITU ICT Price Basket (IPB) and published yearly in the ITU's *Measuring the Information Society Report*, and thus considered a key metric for international comparisons of ICT developments.

ITU collects data for this indicator through an annual questionnaire from national regulatory authorities or Information and Communication Technology Ministries, who collect the data from operators/Internet service providers. By 2014, data were available for 160 economies, from developed and developing regions, and covering all key global regions.

## Disaggregation

Not applicable to this indicator.

## Comments and limitations

There are some comparability issues linked to the indicator on *broadband Internet prices* since some operators offer broadband Internet services that include other services (for example free telephone calls). In addition, the indicator is not always comparable because the speed of the minimum broadband entry-level plan (the cheapest plan with a download speed of at least 256 kbit/s) varies between countries. Another factor that may affect comparability is the practice in some countries or operators of separating the broadband access charge from the Internet access charge. The data should refer only to the price of the Internet access. For mobile broadband prices, the data volume included in the monthly allowance (the data cap) may vary between countries, and not always correspond to exactly 1GB (but include more than 1GB).

## Gender equality issues

Data cannot be broken down by gender.

## Data for global and regional monitoring

Data for the indicator *broadband Internet prices* are available for about 160 economies and ITU produces regional and global aggregates, annually.

## Supplementary information

Year-end data are released in June of the following year through the ITU World Telecommunication/ICT Indicators Database.

## References:

- ITU Handbook for the Collection of Administrative Data on Telecommunications/ICT, 2011 (and revisions and new indicators)
- [ITU ICT Price Basket Rules](#)
- [ITU Measuring the Information Society Report](#)

## Targets for which indicator are relevant:

9.1

## Technical information sheet for the proposed SDG indicator “Proportion of individuals using the Internet”

### Goal and target addressed:

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

Target 16.10: ensure public access to information and protect fundamental freedoms, in accordance with national legislation and international agreements

### Definition and method of computation:

The indicator *proportion of individuals using the Internet* is defined as the proportion of individuals who used the Internet from any location in the last three months. The *Internet* is a worldwide public computer network. It provides 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 (not assumed to be only via a computer – it may also be by mobile telephone, tablet, PDA, games machine, digital TV etc.). Access can be via a fixed or mobile network.

For countries that collect data on this indicator through an official survey, this indicator is calculated by dividing the total number of in-scope individuals using the Internet (from any location) in the last 3 months by the total number of in-scope individuals. For countries that have not carried out an official survey, data are estimated (by ITU) based on the number of Internet subscriptions and other socioeconomic indicators such as for example GNI per capita, and on the time series data of the indicator.

### Rationale and interpretation

The Internet has become an increasingly important tool to access public information, which is a relevant means to protect fundamental freedoms. The number of Internet users has increased substantially over the last decade and access to the Internet has changed the way people live, communicate, work and do business. Internet uptake is a key indicator tracked by policy makers and others to measure the development of the information society and the growth of Internet content – including user-generated content – provides access to increasing amounts of information and services.

Despite growth in networks, services and applications, information and communication technology (ICT) access and use is still far from equally distributed, and many people cannot yet benefit from the potential of the Internet. This indicator highlights the importance of Internet use as a development enabler and helps to measure the digital divide, which, if not properly addressed, will aggravate inequalities in all development domains. Classificatory variables for individuals using the Internet – such as age, sex, education level or labour force status – can

help identify digital divides in individuals using the Internet. This information can contribute to the design of targeted policies to overcome those divides.

The *proportion of individuals using the Internet* is an established indicator and also one of the three ICT-related Millennium Development Goal (MDG) indicators (for Target 8F). It is part of the Partnership on Measuring ICT for Development's Core List of Indicators, which has been endorsed by the UN Statistical Commission (last time in 2014). It is also included in the ITU ICT Development Index, and thus considered a key metric for international comparisons of ICT developments.

## Sources and data collection

The indicator *proportion of individuals using the Internet* is based on an internationally agreed definition and methodology, which have been developed under the coordination of ITU, through its Expert Groups and following an extensive consultation process with countries. It is also a core indicator of the Partnership on Measuring ICT for Development's Core List of Indicators, which has been endorsed by the UN Statistical Commission (last time in 2014). Data on individuals using the Internet are collected through an annual questionnaire that ITU sends to national statistical offices (NSO). In this questionnaire ITU collects absolute values. The percentages are calculated a-posteriori. The survey methodology is verified to ensure that it meets adequate statistical standards. The data are verified to ensure consistency with previous years' data and situation of the country for other related indicators (ICT and economic).

For most developed and an increasing number of developing countries, percentage of individuals using the Internet data are based on methodologically sound household surveys conducted by national statistical agencies. If the NSO has not collected Internet user statistics, then ITU estimates the percentage of individuals using the Internet.

Data are usually not adjusted, but discrepancies in the definition, age scope of individuals, reference period or the break in comparability between years are noted in a data note. For this reason, data are not always strictly comparable.

Some countries conduct a household survey where the question on Internet use is included every year. For others, the frequency is every two or three years. Overall, the indicator is available for 100 countries at least from one survey in the years 2011-2014.

ITU makes the indicator available for each year for 200 economies by using survey data and estimates for almost all countries of the world.

## Disaggregation

For countries that collect this data on the *proportion of individuals using the Internet* through an official survey, and if data allow breakdown and disaggregation, the indicator can be broken down by region (geographic and/or urban/rural), by sex, by age group, by educational level, by

labour force status, and by occupation. ITU collects data for all of these breakdowns from countries.

## **Comments and limitations**

While the data on the percentage of individuals using the Internet are very reliable for countries that have collected the data through official household surveys, they are less reliable in cases where the number of Internet users is estimated by ITU. ITU is encouraging all countries to collect data on this indicator through official surveys and the number of countries with official data for this indicator is increasing.

## **Gender equality issues**

Discrepancies exist between the proportion of men and women that use the Internet and it is important to track this gender divide. For countries that collect this indicator through an official survey, and if data allow breakdown and disaggregation, the indicator can be broken down by sex. About 70 countries have sex-disaggregated data for this indicator for at least one year in the period 2011-2014 and more countries are expected to produce these data over the next years.

## **Data for global and regional monitoring**

Regional and global aggregates of the number of Internet users are calculated as unweighted sums of the country values. Regional and global values for the percentage of individuals using the Internet are averages of the country values weighted by the population of the countries and regions. They are widely available since ITU produces data for this indicator for 200 economies, covering the large majority of developed and developing countries, and all regions.

## **Supplementary information**

Discrepancies between global and national figures may arise when countries use a different definition than the one agreed internationally and used by ITU. Discrepancies may also arise in cases where the age scope of the surveys differs, or when the country only provides data for a certain age group and not the total population.

Year-end estimates are usually released in June of the following year through the ITU World Telecommunication/ICT Indicators Database. Data are also available at no cost through the ITU ICT Eye, see: <http://www.itu.int/ITU-D/ict/>

## **References:**

- [ITU Manual for Measuring ICT Access and Use by Households and Individuals 2014](#)

**Targets for which indicator are relevant:**

1.4, 2.c, 5.b, 9.c, 10.3, 12.8, 16.10, 16.6, 16.7, 16.10, 17.6, 17.8,

## Technical information sheet for the proposed SDG indicator “Fixed Internet broadband subscriptions broken down by speed”

### Goal and target addressed:

Goal 17: Strengthen the means of implementation and revitalize the global partnership for sustainable development

Target 17.6: enhance North-South, South-South and triangular regional and international cooperation on and access to science, technology and innovations, and enhance knowledge sharing on mutually agreed terms, including through improved coordination among existing mechanisms, particularly at the United Nations level, and through a global technology facilitation mechanism

### Definition and method of computation:

The indicator *fixed Internet broadband subscriptions, by speed*, refers to the number of fixed-broadband subscriptions to the public Internet, split by advertised download speed.

Fixed Internet broadband subscriptions refer to subscriptions to high-speed access to the public Internet (a TCP/IP connection), at downstream speeds equal to, or greater than, 256 kbit/s. This includes cable modem, DSL, fibre-to-the-home/building, other fixed (wired)-broadband subscriptions, satellite broadband and terrestrial fixed wireless broadband. This total is measured irrespective of the method of payment. It excludes subscriptions that have access to data communications (including the Internet) via mobile-cellular networks. It should include fixed WiMAX and any other fixed wireless technologies. It includes both residential subscriptions and subscriptions for organizations.

The Internet is a worldwide public computer network. It provides access to a number of communication services including the World Wide Web and carries e-mail, news, entertainment and data files.

The indicator is currently broken down by the following subscription speeds:

- **256 kbit/s to less than 2 Mbit/s subscriptions:** Refers to all fixed broadband Internet subscriptions with advertised downstream speeds equal to, or greater than, 256 kbit/s and less than 2 Mbit/s.
- **2 Mbit/s to less than 10 Mbit/s subscriptions:** Refers to all fixed -broadband Internet subscriptions with advertised downstream speeds equal to, or greater than, 2 Mbit/s and less than 10 Mbit/s.
- **Equal to or above 10 Mbit/s subscriptions (4213\_G10).** Refers to all fixed -broadband Internet subscriptions with advertised downstream speeds equal to, or greater than, 10 Mbit/s.

ITU collects data for this indicator through an annual questionnaire from national regulatory authorities or Information and Communication Technology (ICT) Ministries, who collect the data from national Internet service providers. The data can be collected by asking each Internet service provider in the country to provide the number of their fixed-broadband subscriptions by the speeds indicated. The data are then added up to obtain the country totals.

## Rationale and interpretation

The Internet has become an increasingly important tool to provide access to information, and can help foster and enhance regional and international cooperation on, and access to, science, technology and innovations, and enhance knowledge sharing. High-speed Internet access is important to ensure that Internet users have quality access to the Internet and can take advantage of the growing amount of Internet content – including user-generated content –, services and information.

While the number of fixed-broadband subscriptions has increased substantially over the last years and while service providers offer increasingly higher speeds, fixed Internet broadband can vary tremendously by speed, thus affecting the quality and functionality of Internet access. Many countries, especially in the developing world, have not only a very limited amount of fixed-broadband subscriptions, but also at very low speeds. This limitation is a barrier to the Target 17.6 and the indicator highlights the potential of the Internet (especially through high-speed access) to enhance cooperation, improve access to science, technology and innovation, and share knowledge. The indicator also highlights the importance of Internet use as a development enabler and helps to measure the digital divide, which, if not properly addressed, will aggravate inequalities in all development domains. Information on fixed broadband subscriptions by speed will contribute to the design of targeted policies to overcome those divides.

## Sources and data collection

The indicator *fixed Internet broadband subscriptions, by speed* is based on an internationally agreed definition and methodology, which have been developed under the coordination of ITU, through its Expert Groups and following an extensive consultation process with countries. It is also a core indicator of the Partnership on Measuring ICT for Development's Core List of Indicators, which has been endorsed by the UN Statistical Commission (last time in 2014). The indicator on fixed Internet broadband subscriptions is also included in the ITU ICT Development Index (IDI), and thus considered a key metric for international comparisons of ICT developments. In the future, as more countries collect data on this indicator broken down by speed, breakdowns could be included and used to calculate the IDI.

ITU collects data for this indicator through an annual questionnaire from national regulatory authorities or Information and Communication Technology Ministries, who collect the data from Internet service providers. By 2014, data were available for about 80 economies, from developed and developing regions, and covering all key global regions. Data on fixed-

broadband subscriptions (not broken down by speed) exist for almost 200 economies in the world. ITU publishes data on this indicator yearly.

### **Disaggregation**

Since data for this indicator are based on administrative data from operators, no information on individual subscribers is available and therefore the data cannot be broken down by any individual characteristics. Data could in theory be broken down by geographic location and urban/rural, but ITU does not collect this information.

### **Comments and limitations**

Since most Internet service providers offer plans linked to download speed, the indicator is relatively straightforward to collect. Countries may use packages that do not align with the speeds used for this group of indicators. Countries are encouraged to collect the data in more speed categories so as to allow aggregation of the data according to the split shown above. In the future, ITU might start to include higher-speed categories, reflecting the increasing demand and availability of higher-speed broadband subscriptions.

### **Gender equality issues**

Data cannot be broken down by gender.

### **Data for global and regional monitoring**

Regional and global aggregates of the number of *fixed Internet broadband subscriptions, by speed* have not yet been produced since data exist for about 80 economies (in 2014). However, more countries are expected to provide information on this indicator over the next few years, which will allow ITU to produce regional and global estimates. Data on fixed-broadband subscriptions not broken down by speed are widely available, and regional and global aggregates can easily be produced.

### **Supplementary information**

Year-end data are released in December of the following year through the ITU World Telecommunication/ICT Indicators Database.

### **References:**

- ITU Handbook for the Collection of Administrative Data on Telecommunications/ICT, 2011, (and revisions and new indicators)

### **Targets for which indicator are relevant:**

8.2, 9.1, 9.c, 17.8

## Technical information sheet for the proposed SDG indicator “Proportion of individuals using the Internet”

### Goal and target addressed:

Goal 17: Strengthen the means of implementation and revitalize the global partnership for sustainable development

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

### Definition and method of computation:

The indicator *proportion of individuals using the Internet* is defined as the proportion of individuals who used the Internet from any location in the last three months. The *Internet* is a worldwide public computer network. It provides 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 (not assumed to be only via a computer – it may also be by mobile telephone, tablet, PDA, games machine, digital TV etc.). Access can be via a fixed or mobile network.

For countries that collect data on this indicator through an official survey, this indicator is calculated by dividing the total number of in-scope individuals using the Internet (from any location) in the last 3 months by the total number of in-scope individuals. For countries that have not carried out a survey, data are estimated (by ITU) based on the number of Internet subscriptions and other socioeconomic indicators (GNI per capita) and on the time series data.

### Rationale and interpretation

The Internet has become an increasingly important tool to access public information, which is a relevant means to protect fundamental freedoms. The number of Internet users has increased substantially over the last decade and access to the Internet has changed the way people live, communicate, work and do business. Internet uptake is a key indicator tracked by policy makers and others to measure the development of the information society and the growth of Internet content – including user-generated content – provides access to increasing amounts of information and services.

Despite growth in networks, services and applications, information and communication technology (ICT) access and use is still far from equally distributed, and many people cannot yet benefit from the potential of the Internet. This indicator highlights the importance of Internet use as a development enabler and helps to measure the digital divide, which, if not properly addressed, will aggravate inequalities in all development domains. Classificatory variables for individuals using the Internet –

such as age, sex, education level or labour force status – can help identify digital divides in individuals using the Internet. This information can contribute to the design of targeted policies to overcome those divides.

The *proportion of individuals using the Internet* is an established indicator and also one of the three ICT-related Millennium Development Goal (MDG) indicators (for Target 8F). It is part of the Partnership on Measuring ICT for Development's Core List of Indicators, which has been endorsed by the UN Statistical Commission (last time in 2014). It is also included in the ITU ICT Development Index, and thus considered a key metric for international comparisons of ICT developments.

## Sources and data collection

The indicator *proportion of individuals using the Internet* is based on an internationally agreed definition and methodology, which have been developed under the coordination of ITU, through its Expert Groups and following an extensive consultation process with countries. It is also a core indicator of the Partnership on Measuring ICT for Development's Core List of Indicators, which has been endorsed by the UN Statistical Commission (last time in 2014). Data on individuals using the Internet are collected through an annual questionnaire that ITU sends to national statistical offices (NSO). In this questionnaire ITU collects absolute values. The percentages are calculated a-posteriori. The survey methodology is verified to ensure that it meets adequate statistical standards. The data are verified to ensure consistency with previous years' data and situation of the country for other related indicators (ICT and economic).

For most developed and an increasing number of developing countries, percentage of individuals using the Internet data are based on methodologically sound household surveys conducted by national statistical agencies. If the NSO has not collected Internet user statistics, then ITU estimates the percentage of individuals using the Internet.

Data are usually not adjusted, but discrepancies in the definition, age scope of individuals, reference period or the break in comparability between years are noted in a data note. For this reason, data are not always strictly comparable.

Some countries conduct a household survey where the question on Internet use is included every year. For others, the frequency is every two or three years. Overall, the indicator is available for 100 countries at least from one survey in the years 2011-2014.

ITU makes the indicator available for each year for 200 economies by using survey data and estimates for almost all countries of the world.

## Disaggregation

For countries that collect this data on the *proportion of individuals using the Internet* through an official survey, and if data allow breakdown and disaggregation, the indicator can be broken

down by region (geographic and/or urban/rural), by sex, by age group, by educational level, by labour force status, and by occupation. ITU collects data for all of these breakdowns from countries.

## **Comments and limitations**

While the data on the percentage of individuals using the Internet are very reliable for countries that have collected the data through official household surveys, they are less reliable in cases where the number of Internet users is estimated by ITU. ITU is encouraging all countries to collect data on this indicator through official surveys and the number of countries with official data for this indicator is increasing.

## **Gender equality issues**

Discrepancies exist between the proportion of men and women that use the Internet and it is important to track this gender divide. For countries that collect this indicator through an official survey, and if data allow breakdown and disaggregation, the indicator can be broken down by sex. About 70 countries have sex-disaggregated data for this indicator for at least one year in the period 2011-2014 and more countries are expected to produce these data over the next years

## **Data for global and regional monitoring**

Regional and global aggregates of the number of Internet users are calculated as unweighted sums of the country values. Regional and global values for the percentage of individuals using the Internet are averages of the country values weighted by the population of the countries and regions. They are widely available since ITU produces data for this indicator for 200 economies, covering the large majority of developed and developing countries, and all regions.

## **Supplementary information**

Discrepancies between global and national figures may arise when countries use a different definition than the one agreed internationally and used by ITU. Discrepancies may also arise in cases where the age scope of the surveys differs, or when the country only provides data for a certain age group and not the total population. Year-end estimates are usually released in June of the following year through the ITU World Telecommunication/ICT Indicators Database. Data are also available at no cost through the ITU ICT Eye, see: <http://www.itu.int/ITU-D/ict/>

## **References:**

- [ITU Manual for Measuring ICT Access and Use by Households and Individuals 2014](#)

## **Targets for which indicator are relevant:**

1.4, 2.c, 4.3, 4.4, 5.b, 9.c, 10.3, 12.8, 16.10, 16.6, 16.7, 16.10, 17.6

## Technical information sheet for the proposed SDG indicator “International Internet bandwidth per inhabitant (bits/second/inhabitant)”

### Goal and target addressed:

Goal 17: Strengthen the means of implementation and revitalize the global partnership for sustainable development

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

### Definition and method of computation:

*International Internet bandwidth* refers to the total capacity of international telecommunication links provisioned to carry Internet traffic, in megabits per second (Mbit/s). If capacity is asymmetric (i.e. more incoming (downlink) than outgoing (uplink) capacity), then the incoming (downlink) capacity should be provided. Data on international Internet bandwidth refers to the used international Internet bandwidth (traffic) and to the average traffic load (expressed in Mbit/s) of international fibre-optic cables and radio links for carrying Internet traffic. The average should be calculated over the 12-month period of the reference year, and should take into consideration the traffic of all international Internet links. The combined average traffic load of different international Internet links can be reported as the addition of the average traffic load of each link.

The Internet is a worldwide public computer network. It provides access to a number of communication services including the World Wide Web and carries e-mail, news, entertainment and data files.

ITU collects data for this indicator through an annual questionnaire sent to national regulatory authorities or Information and Communication Technology Ministries, who collect the data from Internet Service Providers and/or wholesale Internet connectivity providers. The data can be collected by asking the operators that own the international fibre-optic cables and radio links about the bandwidth data from their links, excluding any leased capacity from third parties. Data can also be collected by asking retail Internet service providers about the international Internet bandwidth they use to carry the traffic from their users, irrespective of whether this capacity is owned or leased. Data are then added up to obtain the country totals.

This indicator refers to the used capacity of international connections between countries for transmitting Internet traffic. Out of the total international bandwidth available in the country (i.e. the *potential* capacity of the connections), there is a part that corresponds to the lit or equipped capacity, i.e. capacity currently available for use and for which the necessary equipment has been deployed and is operational at both ends of the link. Only the part of the

lit/equipped capacity that has been actually used to carry Internet traffic during the reference period is counted as used capacity.

Data on international Internet bandwidth are multiplied by 1 million and divided by the population to derive the international Internet bandwidth per inhabitant (bits/second/inhabitant). Data are presented in relative terms to the population of the country in order to ascertain to what extent the current international Internet bandwidth suffices the whole population in a country.

## **Rationale and interpretation**

The Internet has become an increasingly important tool to provide access to information, and can help operationalize the Technology Bank and STI (Science, Technology and Innovation) capacity building mechanism, and enhance knowledge sharing. International Internet bandwidth is an important building block in providing high-speed Internet access and to ensure that Internet users have quality access to the global Internet and can take advantage of the growing amount of Internet content – including user-generated content –, services and information. Moreover, the lack of international Internet bandwidth has been a historical bottleneck in the broadband provision chain in developing countries, and therefore merits particular policy attention and monitoring.

Domestic and international backbones are important building blocks of Internet infrastructure. Backbone transmission networks typically revolve around fibre-optic, satellite and microwave infrastructure. Backbone transmission bandwidth affects the speed at which information is delivered to, and sent from, Internet users. It is measured in the number of bits that can be transferred per second. A common benchmark is bits per second per capita, obtained by dividing the Internet bandwidth by the population.

Several countries in the world, and in particular LDCs, have only a very limited amount of international Internet bandwidth, which severely limits the potential of the Internet. The indicator also highlights the importance of Internet use as a development enabler and helps to measure the digital divide, which, if not properly addressed, will aggravate inequalities in all development domains. Information on these indicators will contribute to the design of targeted policies to overcome those divides.

## **Sources and data collection**

The *International Internet bandwidth per inhabitant* indicator is based on an internationally agreed definition and methodology, which have been developed under the coordination of ITU, through its Expert Groups and following an extensive consultation process with countries. It is also a core indicator of the Partnership on Measuring ICT for Development's Core List of Indicators, which has been endorsed by the UN Statistical Commission (last time in 2014). Data on international Internet bandwidth are also used in the calculation of the ITU ICT Development

Index (IDI), and thus considered a key metric for international comparisons of ICT developments.

ITU collects data for the indicator through an annual questionnaire sent to national regulatory authorities or Information and Communication Technology Ministries, who collect the data from Internet Service Providers and/or wholesale Internet connectivity providers. For countries that do not provide the information, ITU estimates the indicator based on information provided by operators/ISPs, and based on subscription data. By 2014, data are available for about 200 economies.

### **Disaggregation**

Not applicable for this indicator.

### **Comments and limitations**

There exist different measurements of international Internet bandwidth, such as potential, lit/equipped, purchased and used capacity. The harmonization of the data reported into a single common metric remains a challenge. ITU is working towards the harmonization of the data on international Internet bandwidth through the work of the ITU Expert Group on Telecommunication/ICT Indicators (EGTI).

### **Gender equality issues**

Not applicable for this indicator.

### **Data for global and regional monitoring**

ITU produces regional and global aggregates of International Internet bandwidth per inhabitant, as well as for LDCs.

### **Supplementary information**

Year-end estimates are usually released in June of the following year through the ITU World Telecommunication/ICT Indicators Database.

### **References:**

- ITU Handbook for the collection of Administrative Data on Telecommunications/ICT, 2011 (and revisions and new indicators)

### **Targets for which indicator are relevant:**

9.1, 9.a, 9.c, 17.6