

Metadata on SDGs Indicator 11.5.1

Indicator category: Tier II

Goal 11: Make cities and human settlements inclusive, safe, resilient and sustainable.

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.

Indicator 11.5.1: Number of deaths, missing persons and directly affected persons attributed to disaster per 100,000 population



LAST REVIEWED: MARCH 2018

An open-ended intergovernmental expert-working group on indicators and terminology relating to disaster risk reduction (OIEWG) established by the UN General Assembly (A/RES/69/284) has developed a set of 38 indicators to measure global progress in the implementation of the Sendai Framework, which concluded its work in November 2016. The indicators reflect the agreements on the Sendai Framework for disaster risk reduction.

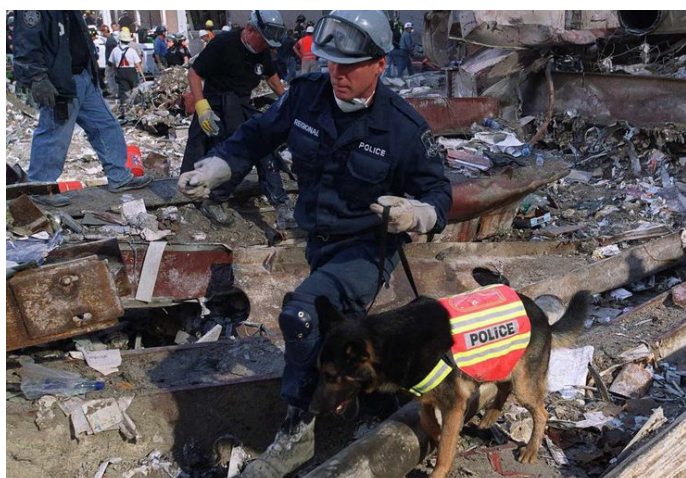
1. Definition and method of computation

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



Tay Bridge memorial, Dundee, Scotland © i2-prod.dailyrecord.co.uk.

Missing the number of people whose whereabouts is unknown since the hazardous event. It includes people who are presumed dead although there is no physical evidence. The data on number of deaths and number of missing are mutually exclusive.



Search and rescue after the earthquake in Haiti © i-piming.com

Affected people: People who are affected by a hazardous event.

Comment: People can be affected directly or indirectly. Affected people may experience short-term or long-term consequences to their lives, livelihoods or health and in the economic, physical, social, cultural and environmental assets.

Directly affected: 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.



Hurricane Harvey aftermath © indianexpress

Indirectly affected: People who have suffered consequences, other than or in addition to direct effects, over time due to disruption or changes in economy, critical infrastructures, basic services, commerce, work or social, health and physiological consequences.



Destroyed buildings after the massive earthquake, Haiti © timedotcom.files.wordpress.com

Given the difficulties in assessing the full range of all affected (directly and indirectly), UNISDR proposes the use of an indicator that would estimate “directly affected” as a proxy for the number of affected. While not perfect, data is widely available for estimating the number of people “directly affected” and could be used consistently across countries over time to measure the achievement of the Target B.

From the perspective of data availability and measurability, it is proposed to build a composite indicator, which consists of “directly affected”, or those who are

- Injured or ill,
- Evacuated,
- Relocated and to measure the number who suffered direct damage to their livelihoods or assets,
- People whose houses were damaged or destroyed
- People who received food relief aid.

Injured or ill: The number of people suffering from physical injuries, trauma or cases of disease requiring immediate medical assistance as a direct result of a hazardous event.

Evacuated: The number of people who temporarily moved from where they were (including their place of residence, work places, schools and hospitals) to safer locations in order to ensure their safety.

Relocated: The number of people who moved permanently from their homes to new sites due to hazardous event. Note: This definition excludes preventive relocation before the event.



Affected Haitians living in makeshift tents on a soccer field © newhaiti.files.wordpress.com

People whose houses were damaged or destroyed due to hazardous events: The estimated number of inhabitants previously living in the houses (housing units) that were damaged or destroyed. All the inhabitants of these houses (housing units) are assumed to be affected being in their dwelling or by direct consequence of the destruction/damage to their housings (housing units). An average number of inhabitants per house (housing unit) in the country can be used to estimate the value.

Houses destroyed: Houses (housing units) levelled, buried, collapsed, washed away or damaged to the extent that they are no longer habitable.

Houses damaged: Houses (housing units) with minor damage, not structural or architectural, which may continue to be habitable, although they may require some repair or cleaning.



Hazards and natural-disasters © garsidej.files.wordpress.com

People who received food relief aid: The number of persons who received food /nutrition, by a government or as humanitarian aid, during or in the aftermath of a hazardous event.

Hazardous event: The occurrence of a natural or human-induced phenomenon in a particular place during a particular period of time due to the existence of a hazard.

Hazard: A potentially damaging physical event, phenomenon or human activity that may cause the loss of life or injury, property damage, social and economic disruption or environmental degradation.

UNISDR recommends setting NO threshold for recording hazardous event in order to monitor all hazardous events. Small-scale but frequent hazardous events that are not registered in international disaster loss databases account for an important share of damages and losses when they are combined, and often go unnoticed by the national and international community. These events, when accumulated, are often a source of poverty in developing countries but can be effectively addressed by well-designed policies. The scope of the Sendai Framework for Disaster Risk Reduction 2015-2030 is “the risk of small-scale and large-scale, frequent and infrequent, sudden and slow-onset disasters, caused by natural or man-made hazards as well as relate environmental, technological and biological hazards and risks”.

UNISDR will discuss with WHO and other organizations regarding the inclusion of biological and environmental hazards in natural hazards category and whether and how to integrate man-made hazards. For example, WHO would be in a better position in terms of data, knowledge and relationship with Member States and other stakeholders to monitor biological events including epidemics. However, we generally do not expect biological disasters will cause physical damages to facilities.

Note: *Terminology discussed and finalized in the Open-ended Intergovernmental Working Group for Sendai Framework for Disaster Risk Reduction.*

1.1 Method of computation

Summation of data on related indicators from national disaster loss databases. Make the sum a relative figure by using global population data (World Bank or UN Statistics information). Relativity is important because population growth (expected to be 9 billion in 2050) may translate into increased hazard exposure of population.

The Expert Group recommends not using the indicators related with the people whose houses were damaged/destroyed in the computation. UNISDR and IRDR groups recommend using them as they can be estimated from widely available and verifiable data and reflect vulnerability and livelihood issues. Data on housing damaged and destroyed is essential for economic loss, so using these indicators would not impose additional data collection burden.

Double counting: From a practical perspective, double counting of affected people is unavoidable (for example, injured and relocated) in many countries. Minimum double counting is summing “number of injured” and Number of people whose housings were damaged or destroyed. Relocated is a sub-set of number of people whose housings were destroyed.

The data can be disaggregated by hazard type. When applied to proposed targets 13.1 and 15.3, hydrological, meteorological, climatological, and indirectly biological disasters are monitored.



Flood in Thailand © Flickr/ Romromo

2. Rationale and Interpretation

Cities around the world, as well as rural populations, witness growing disaster risks. Impacts of climate change on sustainable development are observed through both slow-onset events (e.g. sea level rise, increasing temperatures, ocean acidification, glacial retreat and related impacts, salinization, land and forest degradation, loss of biodiversity and desertification) and extreme weather events. Human loss can be measured by the number of deaths, missing, injured or ill, evacuated, relocated, people whose houses were damaged/destroyed and people who received food relief aid as a direct result of the hazardous events. (Mainly based on TST Issue Brief 2, 5, 20 and 23-26):

Cities are some of the most vulnerable areas to natural disasters. Unplanned urban development (e.g. informal settlements, overcrowding, inadequate infrastructures) exacerbates urban vulnerability to climate change impacts and hydro-meteorological and geological hazards. Over half of all coastal areas are urbanized and 21 of the world's 33 mega cities lie in coastal flood zones. SIDS and coastal regions are particularly affected by sea level rise, coastal flooding and erosion, and extreme events (e.g. tsunamis and storm surges) due to undermining natural protective barriers, low levels of development combined with rapid population growth in low lying coastal areas and inadequate capacity to adapt. Poor urban populations must often resort to unsustainable coping strategies and mechanisms.

Large numbers of people remain perilously close to falling into poverty, experiencing shocks that they are unable to cope with. For the poor, a shock of even a relatively short duration can have long-term consequences. Several dimensions of poverty are closely related to environment, which is often affected by natural disasters. The poverty reduction agenda could include well-designed social protection schemes to help protecting the poor against sudden shocks and the development of capacities to better predict and prepare for such shocks. Better management of natural resources can themselves strengthen the resilience of the poor, by both reducing the likelihood of natural hazardous events and offering resources to help cope with them.

Biodiversity provides ecosystem resilience and contributes to the ability to respond to unpredictable global changes and natural disasters. Healthy ecosystems act as buffers against natural hazards, providing valuable yet underutilized approaches for climate change adaptation, enhancing natural resilience and reducing the vulnerability of people, for example to floods and the effects of land degradation. These ecosystem services improve the sustainability and economic efficiency of built infrastructure, and are critical for sustainable and resilient urban areas.

This indicator will track human-related loss. The disaster loss data (particularly mortality) are significantly influenced by large-scale catastrophic event, which represent important outliers. UNISDR recommends countries to report the data by event, so complementary analysis can be done by both including and excluding such catastrophic events.

The indicator will build bridge between SDGs and the Sendai Framework for Disaster Risk Reduction because the reduction of human related loss is included in the Sendai Framework global targets and will be monitored under the Sendai Framework Monitoring Mechanism.



Bhaktapur, Nepal © Flickr / British Red Cross.

3. Disaggregation

By country, by event, by hazard type (e.g. disaggregation by climatological, hydrological, meteorological, geophysical, biological and extra-terrestrial for natural hazards is possible following IRDR* classification), by death/missing/injured or ill/evacuated/relocated/people whose houses were damaged/people whose houses were destroyed/people who received food relief aid.

Additionally, the Expert Group recommended disaggregation by age, sex, location of residence and other characteristics (e.g. disability) as relevant and possible. Aggregation of “location of residence”: ideally by sub-national administrative unit similar to municipality.

4. Sources and Data Collection Process

National disaster loss database, reported to UNISDR.

5. Comments and limitations

This indicator is proposed by UNISDR based on our experience and knowledge built in the period under the Hyogo Framework for Action (2005-2015). The proposed indicator was further reviewed and examined by other UN agencies including FAO, GFDRR, IOM, UNCCD, UNDP, UNESCAP, UNESCO, UNFPA, UNHCR, UNOCHA, UNOOSA, UNOPS, UNU, UNWOMEN, WHO and WMO (though not all organizations listed here provided comments for this indicator) and submitted to the IAEG process in early-July 2015. It was further again reviewed by the Technical Expert Group consisting of more than 60 experts from UN system, academic and research, civil sector and private sector in 27-29 July 2015 and submitted and examined by the Member States in the first Open-ended Intergovernmental Expert Working Group on Indicators and Terminology on Disaster Risk Reduction held in 29-30 September 2015.

The proposed indicators will also be used to monitor Sendai Framework global targets and therefore the detailed definitions will be discussed and agreed in the Open-ended Intergovernmental Expert Working Group on Indicators and Terminology on Disaster Risk Reduction, as outlined in Sendai Framework for Disaster Reduction 2015-2030. The Working Group is likely to finalize the discussion and submit the final report to the GA in December 2016.

Not every country has a comparable national disaster loss database that is consistent with the UNISDR guidelines (current coverage is 85 countries. Additional 32 countries are expected to be covered in 2015-16). Therefore, by 2020, it is expected that all countries will build/adjust the database according to the UNISDR guidelines and report the data to UNISDR.

Data for global and regional monitoring: Summation of data from national disaster loss databases.

6. Relation with other SDG indicator Targets:

This indicator is proposed as “multi-purpose indicator”.

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.

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

Target 13.1:

Strengthen resilience and adaptive capacity to climate-related hazards and natural disasters in all countries

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

Target 14.2:

By 2020, sustainably manage and protect marine and coastal ecosystems to avoid significant adverse impacts, including by strengthening their resilience, and take action for their restoration in order to achieve healthy and productive oceans

Target 15.3:

By 2030, combat desertification, restore degraded land and soil, including land affected by desertification, drought and floods, and strive to achieve a land-degradation-neutral world

Target 3.9:

By 2030, substantially reduce the number of deaths and illnesses from hazardous chemicals and air, water and soil pollution and contamination

Target 3.6:

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

Target 3.d:

Strengthen the capacity of all countries, in particular developing countries, for early warning, risk reduction and management of national and global health risks

6.1 Supplementary information:

Related targets in the Sendai Framework for Disaster Risk Reduction 2015-2030:

Substantially reduce global disaster mortality by 2030, aiming to lower average per 100,000 global mortalities from 2020-2030 compared to 2005-2015.

Substantially reduce the number of affected people globally by 2030, aiming to lower the average global figure per 100,000 from 2020-2030 compared to 2005-2015.

Sendai Framework for Disaster Risk Reduction 2015-2030:

(http://www.preventionweb.net/files/43291_sendaiframeworkfordrren.pdf)



Haiti regeneration (4 years later) © Flickr /British Red Cross



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