

Metadata on SDGs Indicator 11.5.2

Indicator category: Tier I

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 11.5.2: Direct economic loss in relation to global GDP, damage to critical infrastructure and number of disruption of basic services, attributed to disasters



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1. Definition and method of computations

Direct economic loss: Direct loss is nearly equivalent to physical damage. The monetary value of total or partial destruction of physical assets existing in the affected area. Examples include loss of physical assets such as damaged housings, factories and infrastructure. Direct losses usually happen during the event or within the first, few hours after the event and are often assessed soon after the event to estimate recovery cost and claim insurance payments. These are tangible and relatively easy to measure. Direct economic loss in this indicator framework consists of agriculture loss, damage to industrial and commercial facilities, damage to housings and critical infrastructures.

We limit the economic loss to direct economic loss, excluding indirect loss (e.g. loss due to interrupted production) and macro-economic loss. The reason is that there is not yet universally standardized methodology to measure indirect and macro-economic loss while direct loss data monitoring is relatively simpler and more standardized.

Global gross domestic product: Summation of GDP of countries. GDP definition according to the World Bank.

Hazardous event: The occurrence of a natural or human-induced phenomenon in a particular place during a particular period 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 related 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*.



Abandoned city due to flooding, Epecuén, Argentina © Facundo Siracusa Flickr.

1.1 Method of computation

The original national disaster loss databases usually register physical damage value (housing unit loss, infrastructure loss etc.). Need conversion from physical value to monetary value according to the UNISDR methodology. After conversion, divide global direct economic loss by global GDP (inflation adjusted, constant USD) calculated from World Bank Development Indicators.

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. The economic loss indicator would track loss to agricultural, industrial and commercial sectors and damage to housing and critical infrastructure (Mainly based on TST Issue Brief 2, 3, 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.



Flames from a backfire operation burns through a grove of trees as firefighters try to head off the Rocky Fire on August 3, 2015 near Clearlake, California © CNN

The environment for food production is increasingly challenging, particularly for smallholders, due to environmental and climate-related factors. Similar to extreme income poverty, food insecurity continues to be predominantly concentrated in rural areas of developing countries, and disproportionately affects poor farmers, agricultural workers, pastoralists and rural communities. Common conditions for protracted crises include frequent or continued exposure to shocks that undermine livelihoods, food and market systems. Special consideration needs to be given to population living in areas prone to environmental and natural disaster shocks.

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 direct physical loss expressed in economic term. 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 direct economic loss is included in the Sendai Framework global targets and will be monitored under the Sendai Framework Monitoring Mechanism.

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 asset loss category.

Ideally, in addition, by sub-national administrative unit.

4. Sources and data collection processes

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 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 suggested indicator is currently under review by the Member States and UNISDR is receiving written inputs from the Member States.

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. In total, 85 countries are covered but 32 more 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.

6.Data for global and regional monitoring:

Summation of data from national disaster loss databases and World Bank Development Indicators

6.1 Main linkage with SDG 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 2.4:

By 2030, ensure sustainable food production systems and implement resilient agricultural practices that increase productivity and production, that help maintain ecosystems, that strengthen capacity for adaptation to climate change, extreme weather, drought, flooding and other disasters and that progressively improve land and soil quality

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.d:

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

Target 13.b:

Promote mechanisms for raising capacities for effective climate change-related planning and management, in least developed countries, including focusing on women, youth, local and marginalized communities

6.2 Supplementary information:

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

Reduce direct disaster economic loss in relation to global gross domestic product (GDP) by 2030.

Sendai Framework for Disaster Risk Reduction 2015-2030:

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



Floods in Congotown, Liberia. © UN-Habitat /William Ross



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