

Background Paper

Indicators to Monitor Global Targets of the Sendai Framework for Disaster Risk Reduction
2015-2030: A Technical Review

Prepared by

An expert group meeting of scientific and academic organizations, civil sector, private sector
and United Nations agencies

Organized by the United Nations Office for Disaster Risk Reduction

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Indicators to monitor global targets of the Sendai Framework for Disaster Risk Reduction 2015-2030: A technical review

I. Purpose

The purpose of this document is to support discussion by Member States on the selection of indicators to monitor achievement of the global targets of the Sendai Framework for Disaster Risk Reduction 2015-2030.

The document contains a technical review of suggested indicators for six of the seven global targets; excluding target (f) on international cooperation. This document has been drafted by the United Nations Office for Disaster Risk Reduction following an Expert Group meeting held in Geneva on July 27–29, 2015. It also discusses a number of broad critical issues on monitoring the global targets that will have to be examined and discussed by the Member States.

II. Background

In 2011, General Assembly Resolution A/RES/66/199 called on UNISDR to facilitate the development of a post-2015 framework for disaster risk reduction. In 2013, the Fourth Session of the Global Platform for Disaster Risk Reduction called for an immediate start of work to be led by UNISDR to develop targets and indicators to monitor the reduction of disaster risk and the implementation of the post-2015 framework for disaster risk reduction. In November 2013, UNISDR produced a document containing initial ideas on a system of indicators for monitoring progress, based on a rigorous analysis of challenges reported by countries in implementing the Hyogo Framework for Action (2005-2015) (HFA).¹

Following an Expert Group meeting in February 2014 and consultations with Member States, a technical background paper entitled “*Post 2015 Framework for disaster risk reduction: a proposal for monitoring progress*”² was produced to support the technical workshop on indicators, monitoring and review process for the post-2015 framework at the first meeting of the Preparatory Committee for the Third World Conference on Disaster Risk Reduction, Geneva, Switzerland, 14-15 July. The document was also presented and discussed at the Asian Ministerial Conference on Disaster Risk Reduction and at the second meeting of the Preparatory Committee on 17-18 November 2014.

¹ UNISDR, 2014. *Progress and Challenges in Disaster Risk Reduction: A contribution towards the development of policy indicators for the Post-2015 Framework on Disaster Risk Reduction*.

http://www.unisdr.org/files/40967_40967progressandchallengesindisaste.pdf

² UNISDR, 2014. *Post 2015 Framework for disaster risk reduction: a proposal for monitoring progress*.

http://www.wcdrr.org/documents/wcdrr/prepcom1/Indicator%20system%20for%20Post%202015%20Framework%20June%202015_v2.pdf

At the 3rd World Conference on Disaster Risk Reduction a working session on “Measuring and Reporting Progress” and a technical side event were organized to receive further inputs from Member states and experts.

The Informal Working Group on Targets and Indicators formulated a set of seven global targets, which were adopted as an integral part of the Sendai Framework for Disaster Risk Reduction 2015-2030. Paragraph 18 of the Sendai Framework states: *“To support the assessment of global progress in achieving the outcome and goal of the present Framework, seven global targets have been agreed. These targets will be measured at the global level and will be complemented by work to develop appropriate indicators. National targets and indicators will contribute to the achievement of the outcome and goal of the present Framework.”*

Following the adoption of the Sendai Framework, the technical proposal developed by UNISDR in 2014 was adapted to address the outcome, goal, global targets, and Priorities for Action of the framework. It was also informed by the development of disaster risk reduction related targets for the Sustainable Development Goals (SDGs) through the Open Working Group (OWG) mechanism and Inter Agency Expert Group (IAEG). Synergies were sought between the targets and indicators proposed for the SDGs and the indicators proposed for the Sendai Framework. In early July 2015, UNISDR, in coordination with 16 UN agencies, submitted the proposal on disaster risk reduction related indicators to the IAEG.

On 27-29 July, UNISDR organized an Expert Meeting inviting UN agencies, scientific and academic organizations, civil sector, and private sector to examine and discuss indicator proposals to monitor the Sendai Framework. More than 60 experts participated in the meeting and/or provided written inputs³.

Taking into account the discussion on indicators before the adoption of the Sendai Framework, the work of the Informal Working Group on Targets and Indicators and the on-going process of SDG indicator development, the present document offers a technical review of suggested indicators to monitor the global targets in the Sendai Framework and is provided by UNISDR as an input to the work of the OEIWG.

III. Critical issues on monitoring the global targets

UNISDR and the Expert Group have identified a number of broad but critical issues for consideration by the OEIWG.

1. Scope of the indicators

Paragraph 15 of the Sendai Framework broadens the scope of disaster risk reduction as applied to “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”. This raises two issues.

³ See Annex A “List of Expert Group”.

- a) **Hazard category:** Each of the hazard categories mentioned in the Sendai Framework can be defined in different ways. For example, should aviation, maritime or traffic accidents be considered as “man-made” hazards or should the scope be restricted to disasters with both natural and man-made causes (for example the Fukushima nuclear disaster)? **It is recommended that a clearly defined and standardized list of hazards should be agreed under each of the categories defined in the Sendai Framework.**
- b) **Data collection:** Currently most national disaster loss databases⁴ collect information primarily on disasters associated with natural hazards. As the Sendai Framework broadens the range of hazards this implies that **the scope of national disaster loss database will have to be enlarged to collect data on other hazards and that when available non-natural hazard related data should be integrated from other data sources, and then combined with data from the national disaster loss databases.**
- c) **Threshold:** Paragraph 15 of the Sendai Framework also addresses “*the risk of small-scale and large-scale, frequent and infrequent, sudden and slow-onset disasters*”. Small-scale but frequent events are not registered in international disaster loss databases but account for an important share of total global disaster loss and damage. Most national disaster loss databases collect all disaster related-losses without a threshold, and therefore capture all small-scale losses. While some international and national databases currently have thresholds or other criteria for including data (e.g. official declarations of disaster and emergency) **it is recommended that to respond adequately to the scope of the Sendai Framework not threshold should be adopted.**

2. Normalization

In some countries a high proportion of disaster mortality is concentrated in a very small number of infrequent intensive disasters: for example those associated with the 2004 Indian Ocean tsunami in Indonesia or the 2010 earthquake in Haiti. These infrequent catastrophic disasters occur over very long return periods (500 years for example), meaning that they would skew or distort loss trends established with a few decades of historical records. While, it is recommended that countries collect data on all disasters, large and small, **the measurement of trends will require the application of an appropriate statistical normalization technique to minimize the distorting effect of these outlier disasters.** This may combine the use of a 10-year moving average to smooth trends together with a procedure to filter out losses associated with long-return period events.

3. Temporal issues in Targets (a) through (d)

It will also be critical to clearly define the time-frame for recording disaster loss data, particularly for slow-onset disasters such as drought. **It is recommended that in the case of multi-annual disasters such as those associated with major droughts, losses are imputed and recorded on an annual basis.**

Data on disaster mortality, affected people and damage recorded immediately after a disaster should also be updated periodically once more definitive assessments have been made.

⁴ DesInventar website: http://www.desinventar.net/index_www.html

4. Terminology and indicators

There is a need to ensure consistency between the definitions of terms proposed by the STAG Terminology Expert Group⁵ and to be discussed by the OEIWG and the definition of the indicators used to monitor the global targets. However, in practice it may not be possible to measure the full range of attributes described in the terminology. Therefore, it is recommended that while consistency should be pursued to the maximum degree, **the definition of indicators should be guided by considerations of measurability and practicality.** However, the relationship between the agreed terminology and the definitions used for indicators should be made explicit.

5. Disaggregation in Targets (a) and (b)

Both the Sendai Framework and the SDGs calls for an inclusive approach based on data disaggregated by sex, age and disability (Para 19 g.). However, before the Sendai Framework was adopted, the Informal Working Group on Targets and Indicators had concluded that the decision on disaggregation should be a national responsibility⁶. **In spatial terms it is recommended that all disaster loss data is collected at the lowest possible administrative unit (municipality or similar), which is currently the practice in most national disaster databases.** With respect to age, sex, and disability currently very few countries collect disaster loss data disaggregated in that way. To enhance disaggregated data collection, beginning with sex and age, will require considerable additional time and resources. Therefore, while **it is recommended that indicators on mortality and affected people are disaggregated by age, sex and disability at the national level in order to inform better policy and decision making, it is unlikely, that consistent global level, disaggregated disaster loss data will be available in the short term to establish the baseline (2005-2015) necessary to monitor targets (a) and (b).**

6. Affected people

People may be directly or indirectly affected by hazardous events. For example, people relocated due to housing destruction would be considered to be directly affected. Those whose incomes are reduced due to an interruption of commercial activities would be considered to be indirectly affected. **In order to ensure global comparability it is recommended that indicators should be chosen to measure the number of people directly affected in disasters, rather than indirectly affected.**

7. Direct economic loss

Target (c) clearly addresses “direct” economic loss. However, direct economic loss is currently recorded in a non-standardized way in disaster databases, making global comparison difficult. **It is recommended that to facilitate global comparability direct economic loss be calculated using**

⁵ UNISDR draft August 2015 based on consultative process “Proposed updated Terminology on Disaster Risk Reduction”.

⁶ Informal Working group on Targets and Indicators, Seventh Meeting Friday 9 January 2015, Facilitator’s Report. <http://www.wcdrr.org/uploads/Report-7th-meeting-of-the-IWG-on-Targets-and-Indicators.pdf>

standardized proxy values for the replacement costs of most damaged or destroyed assets, such as housing, agricultural production, roads, etc. The replacement costs of major infrastructure, industrial and commercial facilities, should be calculated nationally on the basis of damage and loss assessments and added to the proxy values.

8. Indirect economic loss

Collecting consistent data on indirect economic loss is complicated from the perspective of practical measurability and global scale comparability. At the same time, indirect losses in one geographical region may result from a hazardous event in another (for example, the 2011 Thailand floods caused supply chain disruptions in Europe and the USA). **As such, in the case of Target (c) it is recommended that while data on indirect economic loss should be collected nationally it should not be used to monitor global progress.**

9. Damage to critical infrastructure and facilities and disruption of basic services

In the case of Target (d), indicators on damage to critical infrastructure and disruption of basic services provide a proxy measurement of indirect social and economic impacts. **It is recommended that while comprehensive data on damage and disruption is collected nationally, a set of minimum indicators should be defined to make global comparison possible.**

10. National Disaster Loss Database

Most of the data required to measure targets (a) to (d) will be derived from national disaster loss databases. Currently only 86 countries are covered by standardized national disaster loss databases based on a methodology facilitated by UNISDR and UNDP. While national disaster loss databases should be tailored to meet national requirements, **it is recommended that a set of “basic requirements for recording and reporting disaster loss” be defined and agreed as a universally applicable minimum standard to facilitate global comparability. Capacity building will be required in many countries that currently do not have national disaster loss databases, including for the institutionalization and sustainability of data collection and recording. All disaster data used for the purpose of monitoring the global targets of the Sendai Framework or the SDGs should be officially endorsed.**

11. National self-assessment

Most of the data required to measure progress towards targets (e) and (g) will have to be generated through national government self-assessment. **It is recommended that a core set of minimum standardized indicators be agreed that would be included in periodic national self-assessments, together with other nationally appropriate targets and indicators.**

12. Coherence with SDGs and Climate Change convention:

It is recommended that coherence with the indicators proposed for the SDGs should be pursued to the extent possible to minimize the reporting burden on countries and to facilitate comparability and cross-analysis. However, it is likely that the Sendai Framework will require more detailed indicators than the SDGs where disaster risk reduction is only one of many topics and there is a need to limit the total number of indicators in order to monitor 169 SDG targets. The development of indicators for the Climate Change Convention is still incipient.

13. Coherence with other official national statistics and data set owned by sectors:

It is recommended that coherence and linkage with other official statistics such as case registry (Paragraph 33 (n) of the Sendai Framework), System of National accounting (SNA), emerging System of Environmental Economic Accounting (SEEA) should be promoted in collaboration with National Statistics Office. In particular, many of the indicators required for Targets (b), (c) and (d) will depend on access to and usability of sectoral data. This in turn implies the strengthening of institutional mechanisms to coordinate data collection across sectors.

14. Baseline development:

Collecting historic loss data for the period 2005-2015 to build baseline for Targets (a) through (d) will require an investment of time and resources. However, **it is recommended that this constraint should not limit the potential to propose new loss indicators (e.g. damage to industrial and commercial facilities as important elements of direct economic loss) currently not included in existing disaster loss databases.** This implies that countries may have to include additional historic loss data to enhance already existing disaster loss databases.

15. Evolution of data collection:

As disaster loss reporting improves so does the availability and quality of data. **It is recommended that the indicators chosen should be reviewed and the baseline adjusted periodically over the period of the Sendai Framework.** The impact of improved data availability will also have to be addressed in identifying trends and this may introduce distortions and skewing.

16. Roles and responsibilities

National governments will have the primary responsibility for collecting the data required for the agreed set of indicators, both through national disaster loss databases and periodic national self-assessment. **It is recommended that the global analysis of the data should be carried out by UNISDR in accordance with paragraph 48 (c) of the Sendai Framework and the results reviewed and endorsed by an inter-governmental panel to be agreed by Member States.**

IV. List of suggested global indicators

The following table lists suggested global indicators. Annex B compiles the details of each suggested indicator including definition, method of computation, rationale and interpretation, source and data collection, disaggregation, comments and limitations and main linkage with the SDG targets. Annex B also includes additional suggested indicators discussed and recommended by the Expert Group.

Target A: Substantially reduce global disaster mortality by 2030, aiming to lower average per 100,000 global mortality between 2020-2030 compared to 2005-2015			
A-1	Number of deaths and missing due to hazardous events per 100,000. (This indicator should be computed based on indicators A-2, A-3 and population figures)	SDG Proposal	Detail: Annex B pp. 19-22
A-2	Number of deaths due to hazardous events	SDG Proposal	pp. 23-24
A-3	Number of missing due to hazardous events	SDG Proposal	pp. 25-26
Target B: Substantially reduce the number of affected people globally by 2030, aiming to lower the average global figure per 100,000 between 2020-2030 compared to 2005-2015			
- Most of the current proposals are based on data from national disaster loss database.			
B-1	Number of affected people per 100,000. (This indicator should be computed based on indicators B-2 to B-6 and population figures.)	SDG proposal	pp. 28-31
B-2	Number of injured or ill people due to hazardous events	SDG proposal	pp. 32-33
B-3	Number of people who left their places of residence due to hazardous events (This indicator should be computed based on indicators B-3a and B-3b)	-	pp. 34-36
B-3a	Number of evacuated people due to hazardous events Note: Evacuated addresses the people <i>temporarily</i> moved from their place of residence. This indicator can be interpreted as proxy for success indicator of early warning system and risk information accessibility in the Target (g).	SDG proposal	pp. 37-39
B-3b	Number of relocated people due to hazardous events Note: Relocated addresses the people <i>permanently</i> moved from their place of residence. This indicator excludes preventive relocation before the event.	SDG proposal	pp. 40-41

B-4	Number of people whose houses were damaged due to hazardous events Note: B-4 and B-5 use the same data set as C-5 and C-6. Note2: B-4 and B-5 are mutually exclusive.	-	pp. 42-44
B-5	Number of people whose houses were destroyed due to hazardous events	-	pp. 45-47
B-6	Number of people who received food relief aid due to hazardous events Note: This indicator may be restricted only for the case of droughts. The indicator is not easily comparable inter-temporarily and inter-nationally due to the influence of national and international relief policy.	-	pp. 48-50
Target C: Reduce direct disaster economic loss in relation to global gross domestic product (GDP) by 2030 - Economic valuation and compounding methodology will be developed and discussed at the later stage.			
C-1	Direct economic loss due to hazardous events in relation to global gross domestic product. (This indicator should be computed based on indicators C-2 to C-7 and GDP figures).	SDG proposal	pp. 52-53
C-2	Direct agricultural loss due to hazardous events The indicator measures (1) crops (estimated by agricultural land) and (2) livestock.	SDG proposal	pp. 54-56
C-3	Direct economic loss due to industrial facilities damaged or destroyed by hazardous events Note: Countries are required to report number of industrial facilities damaged or destroyed.	-	pp. 57-58
C-4	Direct economic loss due to commercial facilities damaged or destroyed by hazardous events Note: Countries are required to report number of commercial facilities damaged or destroyed.	-	pp. 59-60
C-5	Direct economic loss due to houses damaged by hazardous events Note: C-5 and C-6 are mutually exclusive. Note: Countries are required to report number of housing facilities damaged.	SDG proposal	pp. 61-62
C-6	Direct economic loss due to houses destroyed by hazardous events Note: Countries are required to report number of housing facilities destroyed.	SDG proposal	pp. 63-64
C-7	Direct economic loss due to damage to critical infrastructure caused by hazardous events (This indicator should be computed based on indicators D-2, D-3 and D-4 (road).)	SDG proposal	pp. 65-67

Target D: Substantially reduce **disaster damage to critical infrastructure and disruption of basic services**, among them health and educational facilities, including through developing their resilience by 2030

- Current proposals are mostly based on data from national disaster loss database.
- Compounding methodology will be developed and discussed at the later stage.

D-1	Damage to critical infrastructure due to hazardous events (This index should be computed based on indicators D-2, D-3 and D-4 (road).)	SDG proposal	pp. 69-71
D-2	Number of health facilities destroyed or damaged by hazardous events	SDG proposal	pp. 72-73
D-3	Number of educational facilities destroyed or damaged by hazardous events	SDG proposal	pp. 74-75
D-4	Number of transportation infrastructures destroyed or damaged by hazardous events Note: the indicator measures (1) road (in kilometres of paved/unpaved), (2) railway (in kilometres), (3) port (number of facilities) and (4) airport (number of facilities).	SDG proposal	pp. 76-78
D-5	Number of time basic services have been disrupted due to hazardous events Note: Sectors monitored include healthcare services, education services, transport sector, ICT, water supply, sewage system, solid waste management, power/energy system and emergency response.	-	pp. 79-81

Target E: Substantially increase the number of countries with **national and local disaster risk reduction strategies** by 2020

E-1	Number of countries that adopt and implement national DRR strategies in line with the Sendai Framework for Disaster Risk Reduction 2015-2030 Note: the DRR strategies need to be based on risk information and assessments.	SDG proposal	pp. 83-84
E-2	Percentage of local governments that adopt and implement local DRR strategies in line with the Sendai Framework for Disaster Risk Reduction 2015-2030 Note: the DRR strategies need to be based on risk information and assessments.	SDG proposal	pp. 85-86
E-3	Number of countries that integrate climate and disaster risk into development planning Note: This indicator also functions as indicator contributing to the outcome of the Target C “economic loss”	-	pp. 87-88

E-4	Number of countries that adopt and implement critical infrastructure protection plan Note: This indicator directly supports progress of Target (d) and indirectly contributes to reduction of affected people (Target (b)) and economic loss (Target (c)).	SDG proposal	pp. 89-91
Target F: Substantially enhance <i>international cooperation</i> to developing countries through adequate and sustainable support to complement their national actions for implementation of this framework by 2030			
	(Under examination by UNISDR)	-	-
Target G: Substantially increase the availability of and access to <i>multi-hazard early warning systems</i> and <i>disaster risk information and assessments</i> to the people by 2030			
<ul style="list-style-type: none"> - A people-centred early warning system necessarily comprises four key elements: knowledge of the risks (disaster risk information and assessments); monitoring, analysis and forecasting of the hazards; communication or dissemination of alerts and warnings; and local capabilities to respond to the warnings received (UNISDR Terminology 2009) - Compounding methodology will be developed and discussed at the later stage. 			
G-1	Number of countries that have multi-hazard early warning system (This index should be computed based on indicators G-2 through G-4 and G-6)	SDG proposal	pp. 101-102
G-2	Number of countries that have multi-hazard monitoring and forecasting system	-	pp. 103-104
G-3	Number of people who are covered by multi-hazard early warning system	-	pp. 105-106
G-4	Percentage of local governments having preparedness plan (including EWS response and evacuation components) or evacuation plan	-	pp. 107-108
G-5	Number of countries that have multi-hazard national risk assessment with results in an accessible, understandable and usable format for stakeholders and people	SDG proposal	pp. 109-110
G-6	Percentage of local governments that have multi-hazard risk assessment, with results in an accessible, understandable and usable format for stakeholders and people	-	pp. 111-112

V. V. Suggested basic set of requirements for recording and reporting disaster loss from countries to UNISDR in order to monitor the Targets (a) through (d)

Data to monitor the Sendai Framework should be gathered, entered and validated by/with government. This set of requirements is established for countries to obtain the minimum data required for reporting to the Sendai Framework and at the same time leaves the countries with a data product that can be used for many purposes in DRR practice, based on their needs and contexts.

Countries are asked to examine each requirement in recording and reporting disaster losses. The detailed guidelines are under development by UNISDR.

1. **All loss indicators** defined by the OEIWG decision should be recorded and reported.
2. National disaster loss data collection should have **no data entry threshold**.
3. Disaster loss data should be reported at the minimum scale of **national level**.
4. Disaster loss data should be recorded and reported by each **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.(Proposed updated Terminology on Disaster Risk Reduction, August 2015)
5. Disaster loss data should be recorded and reported by **hazard(s)** that triggered the event.
6. **UNISDR (including IRDR) Hazard classification** should be followed. (Note: need to examine man-made hazard classification).
7. Human related loss (mortality and affected) should be recorded and reported by **disaggregation** defined by the OEIWG. When possible data had better be also disaggregated by other characteristics as relevant as possible.
8. Disaster loss data ideally should be recorded on a scale of specific **geographic unit**, ideally units similar to a **municipality**.
9. Disaster loss data should specify the **temporal span (starting and ending dates)** of each event.

Table: Image of disaster loss recording

Event no.	Hazard	Province	Municipality	Starting Date (YMD)	Date	Ending Date (YMD)	Deaths (Female)	Houses destroyed	Houses Damaged
71021	STORM	Western Region	Tanahu	1971/4/21		1971/4/25	1 (0)		
71025	EPIDEMIC	Central Region	Sindhupalchoke	1971/4/25		1971/5/2	1 (1)		

Annex A

List of experts

Name	Organisation
Alasdair Hainsworth	WMO
Andres Velasquez	OSSO Corporation
Andrew Rzepa	Gallup
Aniket Shah	Financing for Sustainable Development Initiative
Anthony Craig	WFP
Ara Nazinyan	Consultant (Armenia)
Butch Bacani	UNEP Finance Initiative
Craig Davis	Los Angeles Department of Water and Power
Cynthia S. Regalado	Philippine Statistics Authority
Dagmar Schumacher	UNWOMEN
Daniele Ehrlich	EC-JRC
Debarati Guha Sapi	CRED
Debbie Hillier	OXFAM
Elisabeth Mansilla	La Red
Emilie Maurice	UNWOMEN
Eve de la Monthe Karoubi	UNSDSN
Fadi Hamdan	DRM Centre, Lebanon
Fcadi Farasin	SESRIC
Hiorshi Murakami	International Steering Committee for Global Mapping
Hisaya Sawano	ICHARM
Jane M. Chun	UNICEF
Jochen Luther	WMO
Jonathan Abraham	WHO
Jude Padayachy	UNAIDS
Junko Mochizuki	IIASA
Kelvin Berryman	GNS Science
Liliana Carreno	CIMNE
Lindsey Jones	ODI
Litea Biukoto	Pacific Community
Louis Gritz	FM Global
Luc St-Pierre	UNOOSA
Mahefasoa	Peri Peri Network of African Universities
Randrianalijaona	
Marc Levy	Earth Institute
Marco Merens	ICAO
Michael Nagy	UNECE
Michelle Yonetani	IDMC
Miroslav Petkov	Standard and Poor's

Moa Herrard	Children and Youth
Monica Trujillo	FAO
Nicolo Lombardi	FAO
Omar Dario Cardona	CIMNE
P.G.Dhar Chakrabarti	The Energy and Resources Institute
Rajeev Issar	UNDP
Robert Muir-Wood	RMS
Robert P Ndugwa	UN-HABITAT
Roberto Rudari	CIMA
Sandra Averous Monnery	UNEP-DITE
Sarah K. Brown	Bristol University
Satoru Nishikawa	Japan Water Agency
Scott Hook	Pacific Island Forum Secretariat
Soichiro Yasukawa	UNESCO
Stu Solomon	GNDR
Sumati Rajput	World Bank
Tafadzwa Irvine Dube	World Bank
Tania Maria Sausen	Geodesastres-Sul , Brazil
Tsuneki Hori	IADB
Virginia Murray	STAG
Vitor Silva	GEM
Xabier de Radigues	WHO
Zehra Zumrut Selcuk	SESRIC

Summary of the proposal

Target A: Substantially reduce global disaster <i>mortality</i> by 2030, aiming to lower average per 100,000 global mortality between 2020-2030 compared to 2005-2015			
A-1	Number of deaths and missing due to hazardous events per 100,000. (This indicator should be computed based on indicators A-2, A-3 and population figures)	SDG Proposal	pp. 19-22
A-2	Number of deaths due to hazardous events	SDG Proposal	pp. 23-24
A-3	Number of missing due to hazardous events	SDG Proposal	pp. 25-26
Target B: Substantially reduce the number of <i>affected people</i> globally by 2030, aiming to lower the average global figure per 100,000 between 2020-2030 compared to 2005-2015			
- Most of the current proposals are based on data from national disaster loss database.			
B-1	Number of affected people per 100,000. (This indicator should be computed based on indicators B-2 to B-6 and population figures.)	SDG proposal	pp. 28-31
B-2	Number of injured or ill people due to hazardous events	SDG proposal	pp. 32-33
B-3	Number of people who left their places of residence due to hazardous events (This indicator should be computed based on indicators B-3a and B-3b)	-	pp. 34-36
B-3a	Number of evacuated people due to hazardous events Note: Evacuated addresses the people <i>temporarily</i> moved from their place of residence. This indicator can be interpreted as proxy for success indicator of early warning system and risk information accessibility in the Target (g).	SDG proposal	pp. 37-39
B-3b	Number of relocated people due to hazardous events Note: Relocated addresses the people <i>permanently</i> moved from their place of residence. This indicator excludes preventive relocation before the event.	SDG proposal	pp. 40-41
B-4	Number of people whose houses were damaged due to hazardous events Note: B-4 and B-5 use the same data set as C-5 and C-6. Note2: B-4 and B-5 are mutually exclusive.	-	pp. 42-44
B-5	Number of people whose houses were destroyed due to hazardous events	-	pp. 45-47
B-6	Number of people who received food relief aid due to hazardous events Note: This indicator may be restricted only for the case of Droughts. The indicator is not easily comparable inter-temporarily and inter-nationally due to the influence of national and international relief policy.	-	pp. 48-50

<p>Target C: Reduce direct disaster economic loss in relation to global gross domestic product (GDP) by 2030</p> <ul style="list-style-type: none"> - Economic valuation and compounding methodology will be developed and discussed at the later stage. 			
C-1	<p>Direct economic loss due to hazardous events in relation to global gross domestic product. (This indicator should be computed based on indicators C-2 to C-7 and GDP figures).</p>	SDG proposal	pp. 52-53
C-2	<p>Direct agricultural loss due to hazardous events</p> <p>The indicator measures (1) crops (estimated by agricultural land) and (2) livestock.</p>	SDG proposal	pp. 54-56
C-3	<p>Direct economic loss due to industrial facilities damaged or destroyed by hazardous events</p> <p>Note: Countries are required to report number of industrial facilities damaged or destroyed.</p>	-	pp. 57-58
C-4	<p>Direct economic loss due to commercial facilities damaged or destroyed by hazardous events</p> <p>Note: Countries are required to report number of commercial facilities damaged or destroyed.</p>	-	pp. 59-60
C-5	<p>Direct economic loss due to houses damaged by hazardous events</p> <p>Note: C-5 and C-6 are mutually exclusive. Note: Countries are required to report number of housing facilities damaged.</p>	SDG proposal	pp. 61-62
C-6	<p>Direct economic loss due to houses destroyed by hazardous events</p> <p>Note: Countries are required to report number of housing facilities destroyed.</p>	SDG proposal	pp. 63-64
C-7	<p>Direct economic loss due to damage to critical infrastructure caused by hazardous events (This indicator should be computed based on indicators D-2, D-3 and D-4 (road).)</p>	SDG proposal	pp. 65-67
<p>Target D: Substantially reduce disaster damage to critical infrastructure and disruption of basic services, among them health and educational facilities, including through developing their resilience by 2030</p> <ul style="list-style-type: none"> - Current proposals are mostly based on data from national disaster loss database. - Compounding methodology will be developed and discussed at the later stage. 			
D-1	<p>Damage to critical infrastructure due to hazardous events (This index should be computed based on indicators D-2, D-3 and D-4 (road).)</p>	SDG proposal	pp. 69-71

D-2	Number of health facilities destroyed or damaged by hazardous events	SDG proposal	pp. 72-73
D-3	Number of educational facilities destroyed or damaged by hazardous events	SDG proposal	pp. 74-75
D-4	Number of transportation infrastructures destroyed or damaged by hazardous events Note: the indicator measures (1) road (in kilometres of paved/unpaved), (2) railway (in kilometres), (3) port (number of facilities) and (4) airport (number of facilities).	SDG proposal	pp. 76-78
D-5	Number of time basic services have been disrupted due to hazardous events Note: Sectors monitored include healthcare services, education services, transport sector, ICT, water supply, sewage system, solid waste management, power/energy system and emergency response.	-	pp. 79-81
Target E: Substantially increase the number of countries with <i>national and local disaster risk reduction strategies</i> by 2020			
E-1	Number of countries that adopt and implement national DRR strategies in line with the Sendai Framework for Disaster Risk Reduction 2015-2030 Note: the DRR strategies need to be based on risk information and assessments.	SDG proposal	pp. 83-84
E-2	Percentage of local governments that adopt and implement local DRR strategies in line with the Sendai Framework for Disaster Risk Reduction 2015-2030 Note: the DRR strategies need to be based on risk information and assessments.	SDG proposal	pp. 85-86
E-3	Number of countries that integrate climate and disaster risk into development planning Note: This indicator also functions as indicator contributing to the outcome of the Target C “economic loss”	-	pp. 87-88
E-4	Number of countries that adopt and implement critical infrastructure protection plan Note: This indicator directly supports progress of Target (d) and indirectly contributes to reduction of affected people (Target (b)) and economic loss (Target (c)).	SDG proposal	pp. 89-91
<i>Additional indicators discussed and recommended by the Expert Groups:</i>			
E-5	Number of countries with cross-sectoral bodies/forums, with clear roles and responsibilities identified across state institutions, civil society, private sector and international actors, in the implementation and review of DRR measures	-	pp. 92-93
E-6	Number of countries accounting for future risk in public and private balance sheets, setting financial targets to inform investment strategies	-	pp. 94-96

	for reducing risk and enhancing future prosperity		
E-7	Number of countries and local governments conducting (independent) periodic outcome reviews of the implementation of national and local DRR strategies	-	pp. 97-98
Target F: Substantially enhance <i>international cooperation</i> to developing countries through adequate and sustainable support to complement their national actions for implementation of this framework by 2030			
	<i>(Under examination by UNISDR)</i>	-	-
Target G: Substantially increase the availability of and access to <i>multi-hazard early warning systems</i> and <i>disaster risk information and assessments</i> to the people by 2030			
<ul style="list-style-type: none"> - A people-centred early warning system necessarily comprises four key elements: knowledge of the risks (disaster risk information and assessments); monitoring, analysis and forecasting of the hazards; communication or dissemination of alerts and warnings; and local capabilities to respond to the warnings received (UNISDR Terminology 2009) - Compounding methodology will be developed and discussed at the later stage. 			
G-1	Number of countries that have multi-hazard early warning system (This index should be computed based on indicators G-2 through G-4 and G-6)	SDG proposal	pp. 101-102
G-2	Number of countries that have multi-hazard monitoring and forecasting system	-	pp. 103-104
G-3	Number of people who are covered by multi-hazard early warning system	-	pp. 105-106
G-4	Percentage of local governments having preparedness plan (including EWS response and evacuation components) or evacuation plan	-	pp. 107-108
G-5	Number of countries that have multi-hazard national risk assessment with results in an accessible, understandable and usable format for stakeholders and people	SDG proposal	pp. 109-110
G-6	Percentage of local governments that have multi-hazard risk assessment, with results in an accessible, understandable and usable format for stakeholders and people	-	pp. 111-112
Additional indicators discussed and recommended by the Expert Groups:			
G-7	Percentage of population with understanding of the risk they are exposed to	-	pp. 113-114
G-8	Number of countries that have national plans with budget and timeline for development of multi-hazard EWS	-	pp. 115-116
G-9	Number of countries that have disaster loss databases publicly accessible	-	pp. 117-118
G-10	Number of countries that have open data policies and mechanisms to make hazard and risk data accessible and available to all users	-	pp. 119-120

Target A: Substantially reduce global disaster *mortality* by 2030, aiming to lower average per 100,000 global mortality between 2020-2030 compared to 2005-2015.

Possible indicator suggested:

A-1 Number of deaths and missing due to hazardous events per 100,000. (This indicator should be computed based on indicators A-2, A-3 and population figures)

(SDG proposal: Consistency with SDG proposal needed)

A-2 Number of deaths due to hazardous events.

(SDG proposal: Consistency with SDG proposal needed)

A-3 Number of missing due to hazardous events.

(SDG proposal: Consistency with SDG proposal needed)

Indicator A-1 Number of deaths and missing due to hazardous events per 100,000. (This indicator should be computed based on indicators A-2, A-3 and population figures)

Definitions	<p>Death: The number of people who died during the disaster, or directly after, as a direct result of the hazardous event</p> <p>Killed: People who lost their lives as a consequence of a hazardous event. (Proposed updated Terminology on Disaster Risk Reduction, August 2015)</p> <p>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.</p> <p>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. (Proposed updated Terminology on Disaster Risk Reduction, August 2015)</p> <p>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. (Proposed updated Terminology on Disaster Risk Reduction, August 2015)</p>
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.
Rationale and interpretation	<p>This indicator directly monitors the Target A.</p> <p>The disaster loss data on mortality is significantly influenced by large-scale catastrophic events, which represent important outliers in terms of mortality, as they normally imply considerable numbers of people killed (as it was the case in the Haiti earthquake in 2010, the Great East Japan Earthquake in 2011, and several countries after the Indian Ocean Tsunami in 2004). UNISDR recommends Countries to report the data by event, so complementary analysis can be done by both including and excluding such catastrophic events that can represent important outliers in terms of mortality.</p>
Source and data collection	<p>National disaster loss database, reported to UNISDR</p> <p>For Targets A through D, time dimension should be defined. When should the data be recorded and reported? Disaster dynamics make the data change (e.g. injured people might pass away after certain time from the event). This issue is especially critical when we need to record loss caused by slow-onset disasters such as drought. In the case of missing, a certain number of confirmations will occur after the disaster after which figures will remain stable.</p>
Disaggregation	By country, by event, by hazard type (e.g. disaggregation by climatological, hydrological, meteorological, geophysical, biological and extra-terrestrial for

	<p>natural hazards is possible following IRDR classification)</p> <p>By death/missing</p> <p>Additionally, the Expert Group recommended disaggregation by age, sex, location of residence and other characteristics (e.g. disability) as relevant and possible.</p> <p>Aggregation of “location of residence”: ideally by sub-national administrative unit similar to municipality.</p>
<p>Comments and limitations</p>	<p>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.</p>
<p>Main linkage with SDG targets</p>	<p>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</p> <p>Target 13.1: Strengthen resilience and adaptive capacity to climate-related hazards and natural disasters in all countries</p> <p>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</p> <p>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</p> <p>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</p> <p>Target 3.9: By 2030, substantially reduce the number of deaths and illnesses from hazardous chemicals and air, water and soil pollution and contamination</p>

	<p>Target 3.6: By 2020, halve the number of global deaths and injuries from road traffic accidents</p> <p>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</p>
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Indicator A-2 Number of deaths due to hazardous events

Definitions	<p>Death: The number of people who died during the disaster, or directly after, as a direct result of hazardous events</p> <p>Killed: People who lost their lives as a consequence of a hazardous event. (Proposed updated Terminology on Disaster Risk Reduction, August 2015)</p> <p>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. (Proposed updated Terminology on Disaster Risk Reduction, August 2015)</p> <p>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. (Proposed updated Terminology on Disaster Risk Reduction, August, 2015)</p>
Method of computation	Summation of data on related indicators from national disaster loss databases.
Rationale and interpretation	<p>This indicator monitors a category of the Target A.</p> <p>The disaster loss data on mortality is significantly influenced by large-scale catastrophic events, which represent important outliers in terms of mortality, as they normally imply considerable numbers of people killed (as it was the case in the Haiti earthquake in 2010, the Great East Japan Earthquake in 2011, and several countries after the Indian Ocean Tsunami in 2004). UNISDR recommends Countries to report the data by event, so complementary analysis can be done by both including and excluding such catastrophic events that can represent important outliers in terms of mortality.</p>
Source and data collection	<p>National disaster loss database, reported to UNISDR</p> <p>For Targets A through D, time dimension should be defined. When should the data be recorded and reported? Disaster dynamics make the data change (e.g. injured people might pass away after certain time from the event). This issue is especially critical when we need to record loss caused by slow-onset disasters such as drought. In the case of missing, a certain number of confirmations will occur after the disaster after which figures will remain stable.</p>
Disaggregation	<p>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)</p> <p>Additionally, the Expert Group recommended disaggregation by age, sex, location of residence and other characteristics (e.g. disability) as relevant and possible.</p> <p>Aggregation of “location of residence”: ideally by sub-national administrative unit similar to municipality.</p>

<p>Comments and limitations</p>	<p>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.</p>
<p>Main linkage with SDG targets</p>	<p>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</p> <p>Target 13.1: Strengthen resilience and adaptive capacity to climate-related hazards and natural disasters in all countries</p> <p>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</p> <p>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</p> <p>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</p> <p>Target 3.9: By 2030, substantially reduce the number of deaths and illnesses from hazardous chemicals and air, water and soil pollution and contamination</p> <p>Target 3.6: By 2020, halve the number of global deaths and injuries from road traffic accidents</p> <p>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</p>

Indicator A-3 Number of missing due to hazardous events

Definitions	<p>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.</p> <p>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. (Proposed updated Terminology on Disaster Risk Reduction, August 2015)</p> <p>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. (Proposed updated Terminology on Disaster Risk Reduction, August 2015)</p>
Method of computation	Summation of data on related indicators from national disaster loss databases.
Rationale and interpretation	<p>This indicator monitors a category of the Target A.</p> <p>The disaster loss data on mortality is significantly influenced by large-scale catastrophic events, which represent important outliers in terms of mortality, as they normally imply considerable numbers of people killed (as it was the case in the Haiti earthquake in 2010, the Great East Japan Earthquake in 2011, and several countries after the Indian Ocean Tsunami in 2004). UNISDR recommends Countries to report the data by event, so complementary analysis can be done by both including and excluding such catastrophic events that can represent important outliers in terms of mortality.</p>
Source and data collection	<p>National disaster loss database, reported to UNISDR</p> <p>For Targets A through D, time dimension should be defined. When should the data be recorded and reported? Disaster dynamics make the data change (e.g. injured people might pass away after certain time from the event). This issue is especially critical when we need to record loss caused by slow-onset disasters such as drought. In the case of missing, a certain number of confirmations will occur after the disaster after which figures will remain stable.</p>
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). 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.
Comments and limitations	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.

<p>Main linkage with SDG targets</p>	<p>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</p> <p>Target 13.1: Strengthen resilience and adaptive capacity to climate-related hazards and natural disasters in all countries</p> <p>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</p> <p>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</p> <p>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</p> <p>Target 3.9: By 2030, substantially reduce the number of deaths and illnesses from hazardous chemicals and air, water and soil pollution and contamination</p> <p>Target 3.6: By 2020, halve the number of global deaths and injuries from road traffic accidents</p> <p>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</p>
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Target B: Substantially reduce the number of affected people globally by 2030, aiming to lower the average global figure per 100,000 between 2020-2030 compared to 2005-2015.

- Categories of “affected people” need to be elaborated. Especially indicators to approach “affected people” from the perspective of livelihood needs to be examined.

Possible indicators suggested:

B-1 Number of affected people per 100,000 (This indicator should be computed based on indicators B-2 to B-6).

(SDG proposal: Consistency with SDG proposal needed)

B-2 Number of injured or ill people due to hazardous events

(SDG proposal: Consistency with SDG proposal needed.)

B-3 Number of people who left their places of residence due to hazardous events

(SDG proposal (in that this indicator combines B-3a and B-3b): Consistency with SDG proposal needed.)

B-3a Number of evacuated people due to hazardous events

(SDG proposal: Consistency with SDG proposal needed.)

B-3b Number of relocated people due to hazardous events

(SDG proposal: Consistency with SDG proposal needed.)

B-4 Number of people whose houses were damaged due to hazardous events

B-5 Number of people whose houses were destroyed due to hazardous events

B-6 Number of people who received food relief aid due to hazardous events

Indicator B-1 Number of affected people per 100,000. (This indicator should be computed based on indicators B-2 to B-6)

<p>Definitions</p>	<p>Affected people: People who are affected by a hazardous event. (Proposed updated Terminology on Disaster Risk Reduction, August 2015)</p> <p>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.</p> <p>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.</p> <p>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.</p> <p>In this indicator, 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. This indicator, while not perfect, comes from data widely available and could be used consistently across countries and over time to measure the achievement of the Target B.</p> <p>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</p> <ul style="list-style-type: none"> • Injured or ill (B-2), • Evacuated (B-3a), • Relocated (B-3b) <p>and to measure the number who suffered direct damage to their livelihoods or assets,</p> <ul style="list-style-type: none"> • People whose houses were damaged or destroyed (B-4 and B-5) • People who received food relief aid (B-6). <p>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. (SDG Proposal)</p> <p>People suffering from a new or exacerbated physical or psychological harm, trauma or an illness as a result of a hazardous event. (Proposed updated Terminology on Disaster Risk Reduction, August 2015)</p> <p>Evacuated: The number of people who temporarily moved from where they were (including their places of residence, work places, schools, and hospitals) to safer locations in order to ensure their safety. (SDG Proposal)</p>
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	<p>People who, for different reasons or circumstances because of risk conditions or disaster, move temporarily to safer places before, during or after the occurrence of a hazardous event. (Proposed updated Terminology on Disaster Risk Reduction, August 2015)</p> <p>Relocated: The number of people who moved permanently from their homes to new sites due to hazardous event. (SDG Proposal)</p> <p>People who, for different reasons or circumstances because of risk or disaster, have moved permanently from their places of residence to new sites. (Proposed updated Terminology on Disaster Risk Reduction, August 2015)</p> <p>People whose houses were damaged or destroyed due to hazardous events: The estimated number of inhabitants previously living in the houses (housing units) 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.</p> <p>Houses destroyed: Houses (housing units) levelled, buried, collapsed, washed away or damaged to the extent that they are no longer habitable. (SDG Proposal)</p> <p>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. (SDG Proposal)</p> <p>People who received food relief aid: The number of persons who received food /nutrition, by government or as humanitarian aid, during or in the aftermath of a hazardous event.</p> <p>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. (Proposed updated Terminology on Disaster Risk Reduction, August 2015)</p> <p>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. (Proposed updated Terminology on Disaster Risk Reduction, August 2015)</p>
Method of computation	<p>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.</p> <p>The Expert Group recommends not using the indicators related with the people whose houses were damaged/destroyed (B-4 and B-5) 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 damage and destroyed is essential for</p>

	<p>economic loss, so using these indicators would not impose additional data collection burden.</p> <p>Double-counting: From practical perspective, double counting of affected people is unavoidable (for example, injured <u>and</u> relocated) in many countries. Minimum double counting is summing “number of injured” (B-2) and Number of people whose housings were damaged or destroyed (B-4 and B-5). Relocated (B-3b) is sub-set of number of people whose housings were destroyed (B-5).</p> <p>The Expert Group recommends mortality figures not to be counted in this category.</p>
Rationale and interpretation	<p>This indicator directly monitors the Target B.</p> <p>The disaster loss data is significantly influenced by large-scale catastrophic events, 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 that can represent important outliers.</p>
Source and data collection	<p>National disaster loss database, reported to UNISDR</p> <p>For Targets A through D, time dimension should be defined. When should the data be recorded and reported? Disaster dynamics make the data change (e.g. injured people might pass away after certain time from the event). This issue is especially critical when we need to record loss caused by slow-onset disasters such as drought.</p>
Disaggregation	<p>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)</p> <p>By injured or ill/evacuated/relocated/People whose houses were damaged/people whose houses were destroyed/people who received food relief aid</p> <p>Additionally, the Expert Group recommended disaggregation by age, sex, location of residence and other characteristics (e.g. disability) as relevant and possible.</p> <p>Aggregation of “location of residence”: ideally by sub-national administrative unit similar to municipality.</p>
Comments and limitations	<p>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.</p>

<p>Main linkage with SDG targets</p>	<p>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</p> <p>Target 13.1: Strengthen resilience and adaptive capacity to climate-related hazards and natural disasters in all countries</p> <p>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</p> <p>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</p> <p>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</p> <p>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</p> <p>Target 3.9: By 2030, substantially reduce the number of deaths and illnesses from hazardous chemicals and air, water and soil pollution and contamination</p> <p>Target 3.6: By 2020, halve the number of global deaths and injuries from road traffic accidents</p> <p>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</p>
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Indicator B-2 Number of injured or ill people due to hazardous events

<p>Definitions</p>	<p>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. (SDG Proposal)</p> <p>People suffering from a new or exacerbated physical or psychological harm, trauma or an illness as a result of a hazardous event. (Proposed updated Terminology on Disaster Risk Reduction, August 2015)</p> <p>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. (Proposed updated Terminology on Disaster Risk Reduction, August 2015)</p> <p>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. (Proposed updated Terminology on Disaster Risk Reduction, August 2015)</p>
<p>Method of computation</p>	<p>Summation of data on related indicators from national disaster loss databases.</p>
<p>Rationale and interpretation</p>	<p>This indicator measures a category of affected people addressed in Target B.</p> <p>The disaster loss data is significantly influenced by large-scale catastrophic events, which represent important outliers. UNISDR recommends Countries to report the data by event, so complementary analysis can be done by including and excluding such catastrophic events that can represent important outliers.</p>
<p>Source and data collection</p>	<p>National disaster loss database, reported to UNISDR</p> <p>For Targets A through D, time dimension should be defined. When should the data be recorded and reported? Disaster dynamics make the data change (e.g. injured people might pass away after certain time from the event). This issue is especially critical when we need to record loss caused by slow-onset disasters such as drought.</p>
<p>Disaggregation</p>	<p>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)</p> <p>Additionally, Expert Group recommended Disaggregation by age, sex, location of residence and other characteristics (e.g. disability) as relevant and possible.</p> <p>Aggregation of “location of residence”: ideally by sub-national administrative unit similar to municipality.</p>
<p>Comments and limitations</p>	<p>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.</p>

<p>Main linkage with SDG targets</p>	<p>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</p> <p>Target 13.1: Strengthen resilience and adaptive capacity to climate-related hazards and natural disasters in all countries</p> <p>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</p> <p>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</p> <p>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</p> <p>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</p> <p>Target 3.9: By 2030, substantially reduce the number of deaths and illnesses from hazardous chemicals and air, water and soil pollution and contamination</p> <p>Target 3.6: By 2020, halve the number of global deaths and injuries from road traffic accidents</p> <p>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</p>
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Indicator B-3 Number of people who left their places of residence due to hazardous events

<p>Definitions</p>	<p>People left their places of residence: The number of people forced or obliged to leave their places of residence due to the threat or impact of hazardous events. This can be alternatively worded as people displaced. In this indicator it consists of people who are evacuated and relocated.</p> <p>Displaced: Persons who, for different reasons and circumstances because of risk or disaster, have to leave their place of residence. (Proposed updated Terminology on Disaster Risk Reduction, August 2015)</p> <p>Evacuated: The number of people who <i>temporarily</i> moved from where they were (including their places of residence, work places, schools, and hospitals) to safer locations in order to ensure their safety. (SDG Proposal)</p> <p>People who, for different reasons or circumstances because of risk conditions or disaster, move temporarily to safer places before, during or after the occurrence of a hazardous event. (Proposed updated Terminology on Disaster Risk Reduction, August 2015)</p> <p>Relocated: The number of people who moved <i>permanently</i> from their homes to new sites due to hazardous event. (SDG Proposal)</p> <p>People who, for different reasons or circumstances because of risk or disaster, have moved permanently from their places of residence to new sites. (Proposed updated Terminology on Disaster Risk Reduction, August 2015)</p> <p>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. (Proposed updated Terminology on Disaster Risk Reduction, August 2015)</p> <p>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. (Proposed updated Terminology on Disaster Risk Reduction)</p>
<p>Method of computation</p>	<p>Summation of data on related indicators from national disaster loss databases.</p> <p>The Expert Group recommends the term <u>“Number of people who are forced to leave their places of residence”</u>, and proposes merging B-3a and B-3b, and adding to the definition the wording to allow the inclusion of “people that have been displaced directly by disasters or risk but not included in “evacuated” and “relocated” (e.g. people becoming homeless due to disasters)” to create new B-3 indicator. How to count the new category of people would be a challenge. The OEIWG should decide if the categories B3a and B3b should rather be used. In any case UNISDR recommends that national reporting includes these categories (B-3a and B-3b) for DRR policy making.</p>
<p>Rationale and interpretation</p>	<p>This indicator measures a category of affected people addressed in the Target B.</p> <p>The disaster loss data is significantly influenced by large-scale catastrophic</p>

	<p>events, 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 that can represent important outliers.</p>
Source and data collection	<p>National disaster loss database, reported to UNISDR</p> <p>For Targets A through D, time dimension should be defined. When should the data be recorded and reported? Disaster dynamics make the data change (e.g. injured people might pass away after certain time from the event). This issue is especially critical when we need to record loss caused by slow-onset disasters such as drought.</p>
Disaggregation	<p>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)</p> <p>By evacuated/relocated</p> <p>Additionally, the Expert Group recommended disaggregation by age, sex, location of residence and other characteristics (e.g. disability) as relevant and possible.</p> <p>Aggregation of “location of residence”: ideally by sub-national administrative unit similar to municipality.</p>
Comments and limitations	<p>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.</p>
Main linkage with SDG targets	<p>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</p> <p>Target 13.1: Strengthen resilience and adaptive capacity to climate-related hazards and natural disasters in all countries</p> <p>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</p> <p>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</p>

	<p>forms of property, inheritance, natural resources, appropriate new technology and financial services, including microfinance</p> <p>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</p> <p>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</p> <p>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</p> <p>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</p>
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Indicator B-3a Number of evacuated people due to hazardous events

<p>Definitions</p>	<p>Evacuated: The number of people who <i>temporarily</i> moved from where they were (including their places of residence, work places, schools, and hospitals) to safer locations in order to ensure their safety. (SDG Proposal)</p> <p>People who, for different reasons or circumstances because of risk conditions or disaster, move temporarily to safer places before, during or after the occurrence of a hazardous event. (Proposed updated Terminology on Disaster Risk Reduction, August 2015)</p> <p>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. (Proposed updated Terminology on Disaster Risk Reduction, August 2015)</p> <p>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. (Proposed updated Terminology on Disaster Risk Reduction, August 2015)</p>
<p>Method of computation</p>	<p>Summation of data on related indicators from national disaster loss databases.</p>
<p>Rationale and interpretation</p>	<p>This indicator measures a category of affected people addressed in Target B.</p> <p><u>The indicator can also function as a success indicator of the target G as the early warning system will help evacuation.</u></p> <p>The disaster loss data is significantly influenced by large-scale catastrophic events, 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 that can represent important outliers.</p>
<p>Source and data collection</p>	<p>National disaster loss database, reported to UNISDR</p> <p>For Targets A through D, time dimension should be defined. When should the data be recorded and reported? Disaster dynamics make the data change (e.g. evacuated people might relocate after certain time from the event). This issue is especially critical when we need to record loss caused by slow-onset disasters such as drought. In the case of missing, a certain number of confirmations will occur after the disaster after which figures will remain stable.</p>
<p>Disaggregation</p>	<p>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)</p> <p>Additionally, the Expert Group recommended disaggregation by age, sex, location of residence and other characteristics (e.g. disability) as relevant and possible.</p>

	Aggregation of “location of residence”: ideally by sub-national administrative unit similar to municipality.
Comments and limitations	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.
Main linkage with SDG targets	<p>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</p> <p>Target 13.1: Strengthen resilience and adaptive capacity to climate-related hazards and natural disasters in all countries</p> <p>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</p> <p>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</p> <p>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</p> <p>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</p> <p>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</p> <p>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</p>

	<p>Target 13.3: Improve education, awareness-raising and human and institutional capacity on climate change mitigation, adaptation, impact reduction and early warning</p> <p>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</p>
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Indicator B-3b Number of relocated people due to hazardous events

Definitions	<p>Relocated: The number of people who moved <i>permanently</i> from their homes to new sites due to hazardous event. (SDG Proposal) Note: this definition excludes preventive relocation before the event.</p> <p>People who, for different reasons or circumstances because of risk or disaster, have moved permanently from their places of residence to new sites. (Proposed updated Terminology on Disaster Risk Reduction, August 2015)</p> <p>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. (Proposed updated Terminology on Disaster Risk Reduction, August 2015)</p> <p>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. (Proposed updated Terminology on Disaster Risk Reduction, August 2015)</p>
Method of computation	Summation of data on related indicators from national disaster loss databases.
Rationale and interpretation	<p>This indicator measures a category of affected people addressed in Target B.</p> <p>The disaster loss data is significantly influenced by large-scale catastrophic events, 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 that can represent important outliers.</p>
Source and data collection	<p>National disaster loss database, reported to UNISDR</p> <p>For Targets A through D, time dimension should be defined. When should the data be recorded and reported? Disaster dynamics make the data change (e.g. evacuated people might relocate after certain time from the event). This issue is especially critical when we need to record loss caused by slow-onset disasters such as drought.</p>
Disaggregation	<p>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)</p> <p>Additionally, the Expert Group recommended disaggregation by age, sex, location of residence and other characteristics (e.g. disability) as relevant and possible.</p> <p>Aggregation of “location of residence”: ideally by sub-national administrative unit similar to municipality.</p>
Comments and limitations	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

	<p>2020, it is expected that all countries will build/adjust the database according to the UNISDR guidelines and report the data to UNISDR.</p>
<p>Main linkage with SDG targets</p>	<p>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</p> <p>Target 13.1: Strengthen resilience and adaptive capacity to climate-related hazards and natural disasters in all countries</p> <p>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</p> <p>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</p> <p>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</p> <p>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</p> <p>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</p> <p>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</p>

Indicator B-4 Number of people whose houses were damaged due to hazardous events

Definitions	<p>People whose houses were damaged due to hazardous events: The estimated number of inhabitants who were previously living in the houses (housing units) damaged. All the inhabitants of these houses (housing units) are assumed to be affected being in their dwelling or by direct consequence of the damage and destruction to their housings (housing units). An average number of inhabitants per house (housing units) in the country can be used to estimate the value.</p> <p>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. (SDG Proposal)</p> <p>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. (Proposed updated Terminology on Disaster Risk Reduction, August 2015)</p> <p>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. (Proposed updated Terminology on Disaster Risk Reduction, August 2015)</p>
Method of computation	<p>Summation of data on damaged housing from national disaster loss databases. An average number of inhabitants per house (housing units) in the country can be used to estimate the value.</p> <p>B-4 and B-5 use the same data set as C-5 and C-6. B-4 (people whose housing are damaged) and B-5 (people whose housing are destroyed) are mutually exclusive because original C-5 and C-6 are mutually exclusive.</p>
Rationale and interpretation	<p>This indicator measures a category of affected people addressed in the Target B. Housing damage and destruction affects both the lives and livelihoods of most urban and rural households.</p> <p>The increase of the value can be explained from (a) number of housing units damaged and destroyed; and (b) average number of people living in a housing unit in the country. UNISDR expects (b) is relatively stable over time.</p> <p>The disaster loss data is significantly influenced by large-scale catastrophic events, 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 than can represent important outliers.</p>
Source and data collection	<p>National disaster loss database, reported to UNISDR Official statistics for average number of people living in a housing unit.</p>
Disaggregation	<p>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)</p>

	<p>Additionally, the Expert Group recommended disaggregation by age, sex, location of residence and other characteristics (e.g. disability) as relevant and possible.</p> <p>Aggregation of “location of residence”: ideally by sub-national administrative unit similar to municipality.</p>
<p>Comments and limitations</p>	<p>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). By 2020, it is expected that all countries will build/adjust the database according to the UNISDR guidelines and report the data to UNISDR.</p> <p>The national disaster loss databases developed in many countries have historic data on housing damaged/destroyed. To establish baseline data, it is necessary to identify an average number of inhabitants per house in the country.</p>
<p>Main linkage with SDG targets</p>	<p>Not proposed for the SDGs but related with the following targets.</p> <p>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</p> <p>Target 13.1: Strengthen resilience and adaptive capacity to climate-related hazards and natural disasters in all countries</p> <p>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</p> <p>Target 11.1: By 2030, ensure access for all to adequate, safe and affordable housing and basic services and upgrade slums</p> <p>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</p> <p>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</p>

	<p>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</p> <p>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</p> <p>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.</p> <p>Target 11.c: Support least developed countries, including through financial and technical assistance, in building sustainable and resilient buildings utilizing local materials</p>
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Indicator B-5 Number of people whose houses were destroyed due to hazardous events

Definitions	<p>People whose houses were destroyed due to hazardous events: The estimated number of inhabitants previously living in the houses (housing units) destroyed. All the inhabitants of these houses (housing units) are assumed to be affected being in their dwelling or by direct consequence of the damage and destruction to their housings (housing units). An average number of inhabitants per house (housing units) in the country can be used to estimate the value.</p> <p>Houses destroyed: Houses (housing units) levelled, buried, collapsed, washed away or damaged to the extent that they are no longer habitable. (SDG Proposal)</p> <p>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. (Proposed updated Terminology on Disaster Risk Reduction, August 2015)</p> <p>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. (Proposed updated Terminology on Disaster Risk Reduction, August 2015)</p>
Method of computation	<p>Summation of data on destroyed housings from national disaster loss databases. An average number of inhabitants per house (housing units) in the country can be used to estimate the value.</p> <p>B-4 and B-5 use the same data set as C-5 and C-6. B-4 (people whose housing are damaged) and B-5 (people whose housing are destroyed) are mutually exclusive because original C-5 and C-6 are mutually exclusive.</p>
Rationale and interpretation	<p>This indicator measures a category of affected people addressed in the Target B. Housing damage and destruction affects both the lives and livelihoods of most urban and rural households.</p> <p>The increase of the value can be explained from (a) number of housing units damaged and destroyed; and (b) average number of people living in a housing unit in the country. UNISDR expects (b) is relatively stable over time.</p> <p>The disaster loss data is significantly influenced by large-scale catastrophic events, 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 that can represent important outliers.</p>
Source and data collection	<p>National disaster loss database, reported to UNISDR Official statistics for average number of people living in a housing unit</p>
Disaggregation	<p>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)</p>

	<p>Additionally, the Expert Group recommended disaggregation by age, sex, location of residence and other characteristics (e.g. disability) as relevant and possible.</p> <p>Aggregation of “location of residence”: ideally by sub-national administrative unit similar to municipality.</p>
<p>Comments and limitations</p>	<p>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). By 2020, it is expected that all countries will build/adjust the database according to the UNISDR guidelines and report the data to UNISDR.</p> <p>The national disaster loss databases developed in many countries have historic data on housing damaged/destroyed. To establish baseline data, it is necessary to identify an average number of inhabitants per house during the baseline period in the country.</p>
<p>Main linkage with SDG targets</p>	<p>Not proposed for the SDGs but related with the following targets.</p> <p>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</p> <p>Target 13.1: Strengthen resilience and adaptive capacity to climate-related hazards and natural disasters in all countries</p> <p>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</p> <p>Target 11.1: By 2030, ensure access for all to adequate, safe and affordable housing and basic services and upgrade slums</p> <p>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</p> <p>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</p>

	<p>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</p> <p>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</p> <p>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</p> <p>Target 11.c: Support least developed countries, including through financial and technical assistance, in building sustainable and resilient buildings utilizing local materials</p>
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Indicator B-6 Number of people who received food relief aid due to hazardous events

Definitions	<p>People who received food relief aid: The number of persons who received food /nutrition, by government or as humanitarian aid, during or in the aftermath of a hazardous event.</p> <p>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. (Proposed updated Terminology on Disaster Risk Reduction, August 2015)</p> <p>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. (Proposed updated Terminology on Disaster Risk Reduction, August 2015)</p>
Method of computation	Summation of data on related indicators from national disaster loss databases.
Rationale and interpretation	<p>This indicator measures a category of affected people addressed in Target B.</p> <p>The increase of the value can be explained from (a) number of people affected by the event and (b) number of people who satisfies the condition of being compensated. Conditions of receiving compensation should be often defined by law or government rules and are therefore different across Countries and not easy for international comparison. The condition should be clarified every time when the value is reported, in order to allow interpretation of the meaning of value. As compensation regimes change frequently over time, data is difficult to meaningfully compare across time in a country.</p> <p>The disaster loss data is significantly influenced by large-scale catastrophic events, 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 than can represent important outliers.</p>
Source and data collection	National disaster loss database, reported to UNISDR
Disaggregation	<p>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)</p> <p>Additionally, the Expert Group recommended disaggregation by age, sex, location of residence and other characteristics (e.g. disability) as relevant and possible.</p> <p>Aggregation of “location of residence”: ideally by sub-national administrative unit similar to municipality.</p>
Comments and limitations	The Expert Group recommended “Number of people in need of (who received) relief or compensation during or after hazardous events”. Defining “People in need of relief or compensation” is technically difficult. The element will always be an estimate, difficult to verify and to be in consistent across countries.

	<p>People that “received relief or compensation” may reflect a subset of those in need, but nothing would be recorded in countries where no relief was distributed. Relief policy (condition to receive relief) tends to change when administration changes and not be stable across time frame.</p> <p>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). By 2020, it is expected that all countries will build/adjust the database according to the UNISDR guidelines and report the data to UNISDR.</p> <p>The national disaster loss database developed does not have historic data on number of people who received relief or compensation after disasters. Establishing baseline data is a challenge.</p>
Main linkage with SDG targets	<p>Not proposed for the SDGs but related with the following targets.</p> <p>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</p> <p>Target 13.1: Strengthen resilience and adaptive capacity to climate-related hazards and natural disasters in all countries</p> <p>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</p> <p>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</p> <p>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</p> <p>Target 3.8: Achieve universal health coverage, including financial risk protection, access to quality essential health-care services and access to safe, effective, quality and affordable essential medicines and vaccines for all</p>

	<p>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</p> <p>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</p> <p>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</p>
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Target C: Reduce *direct disaster economic loss* in relation to global gross domestic product (GDP) by 2030.

- Expert Group recommends monitoring both direct and indirect economic losses. However, the Target clearly limits the scope to “direct” economic losses. Direct Economic Loss is basically economic evaluation of physical damage, which is relatively more tangible and measurable. Methodology to measure indirect economic loss is more complicated and less standardized.
- Expert Group also recommended utilizing SNA (System of National Accounting). UNISDR needs to do research how to isolate the impact of disasters from other macro-economic impacts by simplified and understandable method.

Possible indicators suggested:

C-1 Direct economic loss due to hazardous events in relation to global gross domestic product. This indicator should be computed based on indicators C-2 to C-7.

(SDG proposal: Consistency with SDG proposal needed.)

C-2 Direct agricultural loss due to hazardous events

(SDG proposal: Consistency with SDG proposal needed.)

C-3 Direct economic loss due to Industrial facilities damaged or destroyed by hazardous events

C-4 Direct economic loss due to commercial facilities damaged or destroyed by hazardous events

C-5 Direct economic loss due to houses damaged by hazardous events

(SDG proposal: Consistency with SDG proposal needed.)

C-6 Direct economic loss due to houses destroyed by hazardous events

(SDG proposal: Consistency with SDG proposal needed.)

C-7 Direct economic loss due to damage to critical infrastructure caused by hazardous events. This indicator should be computed based on indicators D-2, D-3 and D-4 (road).

(SDG proposal: Consistency with SDG proposal needed.)

Indicator C-1 Direct economic loss due to hazardous events in relation to global gross domestic product (This indicator should be computed based on indicators C-2 to C-7.)

Definitions	<p>Direct economic loss: Direct loss is nearly equivalent to physical damage. Examples include loss to 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 (Indicator C-2 through C-7).</p> <p>The monetary value of total or partial destruction of physical assets existing in the affected area.(Proposed updated Terminology on Disaster Risk Reduction, August 2015)</p> <p>Global gross domestic product: Summation of GDP of Countries. GDP definition according to the World Bank.</p> <p>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. (Proposed updated Terminology on Disaster Risk Reduction, August 2015)</p> <p>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. (Proposed updated Terminology on Disaster Risk Reduction, August 2015)</p>
Method of computation	<p>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 converted, divide global direct economic loss by global GDP (inflation adjusted, constant USD) calculated from World Bank Development Indicators.</p>
Rationale and interpretation	<p>This indicator directly monitors the Target C.</p> <p>The disaster loss data is significantly influenced by large-scale catastrophic events, 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 that can represent important outliers in terms of mortality.</p>
Source and data collection	<p>National disaster loss database, reported to UNISDR</p>
Disaggregation	<p>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)</p> <p>By asset loss category</p> <p>Ideally, in addition, by sub-national administrative unit</p>
Comments and limitations	<p>Not every country has a comparable national disaster loss database that is consistent with the UNISDR guidelines (current coverage is 85 countries.</p>

	<p>Additional 32 countries are expected to be covered in 2015-16). By 2020, it is expected that all countries will build/adjust the database according to the UNISDR guidelines and report the data to UNISDR.</p> <p>Many countries do not have historic data of C-3 and C-4 and it is difficult to establish baseline data for these components.</p>
<p>Main linkage with SDG targets</p>	<p>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</p> <p>Target 13.1: Strengthen resilience and adaptive capacity to climate-related hazards and natural disasters in all countries</p> <p>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</p> <p>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</p> <p>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</p> <p>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</p> <p>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</p> <p>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</p>

Indicator C-2 Direct agricultural loss due to hazardous events

<p>Definitions</p>	<p>Direct economic loss: Direct loss is nearly equivalent to physical damage. Examples include loss to 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 (Indicator C-2 through C-7).</p> <p>The monetary value of total or partial destruction of physical assets existing in the affected area. (Proposed updated Terminology on Disaster Risk Reduction, August 2015)</p> <p>Direct agriculture loss: Direct agricultural loss consists of crops (estimated from agricultural lands affected) and livestock loss.</p> <p>UNISDR originally proposed measuring crops (estimated from agricultural land affected) and livestock loss from the perspective of standardized measurability. The Expert Group proposes to widen the scope including poultry, fishery and forestry. UNISDR needs research on how to universally standardize methodology, in consistent with PDNA.</p> <p>Agricultural lands affected: The area of cultivated or pastoral land damaged or destroyed due to hazardous event (unit: hectare). (SDG Proposal)</p> <p>Livestock loss: The number of 4-legged domestic animals (e.g. cow, pig, sheep, goat, cattle) lost due to hazardous event. (SDG Proposal)</p> <p>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. (Proposed updated Terminology on Disaster Risk Reduction, August 2015)</p> <p>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. (Proposed updated Terminology on Disaster Risk Reduction, August 2015)</p>
<p>Method of computation</p>	<p>Summation of data from national disaster loss databases to summarize the physical damage.</p> <p>Need conversion from physical value to monetary value according to the UNISDR methodology.</p>
<p>Rationale and interpretation</p>	<p>This indicator monitors an element included in the direct economic loss (Target C).</p> <p>Agriculture is the foundation of food security, and also continues to be the main source of income and employment in many developing countries. The indicator is a proxy for the value added produced in agricultural sector.</p>

	The disaster loss data is significantly influenced by large-scale catastrophic events, 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 that can represent important outliers.
Source and data collection	National disaster loss database, reported to UNISDR
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 crops/livestock Ideally, in addition, by sub-national administrative unit
Comments and limitations	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). By 2020, it is expected that all countries will build/adjust the database according to the UNISDR guidelines and report the data to UNISDR. Collaboration with FAO and UNCCD can be expected. FAO is currently developing measurement method for indirect agriculture loss.
Main linkage with SDG targets	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 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 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 13.1: Strengthen resilience and adaptive capacity to climate-related hazards and natural disasters in all countries 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 ,

	<p>including water-related disasters, with a focus on protecting the poor and people in vulnerable situations</p> <p>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</p> <p>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</p> <p>Target 2.1: By 2030, end hunger and ensure access by all people, in particular the poor and people in vulnerable situations, including infants, to safe, nutritious and sufficient food all year round</p> <p>Target 2.2: By 2030, end all forms of malnutrition, including achieving, by 2025, the internationally agreed targets on stunting and wasting in children under 5 year of age, and address the nutritional needs of adolescent girls, pregnant and lactating women and older persons</p> <p>Target 2.3: By 2030, double the agricultural productivity and incomes of small-scale food producers, in particular women, indigenous peoples, family farmers, pastoralists and fishers, including through secure and equal access to land, other productive resources and inputs, knowledge, financial services, markets and opportunities for value addition and non-farm employment</p>
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Indicator C-3 Direct economic loss due to industrial facilities damaged or destroyed by hazardous events

<p>Definitions</p>	<p>Direct economic loss: Direct loss is nearly equivalent to physical damage. Examples include loss to 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 (Indicator C-2 through C-7).</p> <p>The monetary value of total or partial destruction of physical assets existing in the affected area. (Proposed updated Terminology on Disaster Risk Reduction, August 2015)</p> <p>Industrial facilities damaged or destroyed: The number of manufacturing and industrial facilities directly affected (damaged or destroyed).</p> <p>Manufacturing: classified in ISIC Code C (manufacturing) (Rev.4). The establishment, not the firm, is the statistics used.</p> <p>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. (Proposed updated Terminology on Disaster Risk Reduction, August 2015)</p> <p>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. (Proposed updated Terminology on Disaster Risk Reduction, August 2015)</p>
<p>Method of computation</p>	<p>Summation of data from national disaster loss databases to summarize the physical damage.</p> <p>Need conversion from physical value to monetary value. Methodology should be developed.</p>
<p>Rationale and interpretation</p>	<p>This indicator monitors an element included in the direct economic loss (Target C).</p> <p>Industry constitutes major part of economy and continues to be the main source of income and employment in many countries. The indicator is a proxy for the value added produced in industrial sector.</p> <p>The disaster loss data is significantly influenced by large-scale catastrophic events, 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 that can represent important outliers.</p>

Source and data collection	National disaster loss database, reported to UNISDR
Disaggregation	<p>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)</p> <p>By damaged/destroyed</p> <p>Ideally, in addition, by sub-national administrative unit</p>
Comments and limitations	<p>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). By 2020, it is expected that all countries will build/adjust the database according to the UNISDR guidelines and report the data to UNISDR.</p> <p>The national disaster loss database developed does not necessarily have historic data on damage to industrial facilities. Establishing baseline data is a challenge.</p>
Main linkage with SDG targets	<p>Not proposed for the SDGs but related with the following targets.</p> <p>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</p> <p>Target 13.1: Strengthen resilience and adaptive capacity to climate-related hazards and natural disasters in all countries</p> <p>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</p> <p>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</p> <p>Target 9.4: By 2030, upgrade infrastructure and retrofit industries to make them sustainable, with increased resource-use efficiency and greater adoption of clean and environmentally sound technologies and industrial processes, with all countries taking action in accordance with their respective capabilities</p>

Indicator C-4 Direct economic loss due to commercial facilities damaged or destroyed by hazardous events

<p>Definitions</p>	<p>Direct economic loss: Direct loss is nearly equivalent to physical damage. Examples include loss to 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 (Indicator C-2 through C-7).</p> <p>The monetary value of total or partial destruction of physical assets existing in the affected area.(Proposed updated Terminology on Disaster Risk Reduction, August 2015)</p> <p>Commercial facilities damaged or destroyed: The number of individual commercial establishments (individual stores, warehouses, etc.) damaged or destroyed.</p> <p>Commerce: classified in ISIC Code G (wholesale and retail trade) (Rev.4). The commercial establishment, not the firm, is the statistics used.</p> <p>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. (Proposed updated Terminology on Disaster Risk Reduction, August 2015)</p> <p>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. (Proposed updated Terminology on Disaster Risk Reduction, August 2015)</p>
<p>Method of computation</p>	<p>Summation of data from national disaster loss databases to summarize the physical damage.</p> <p>Need conversion from physical value to monetary value. Methodology should be developed.</p>
<p>Rationale and interpretation</p>	<p>This indicator monitors an element included in the direct economic loss (Target C).</p> <p>Commerce constitutes major part of economy and the main source of income and employment in increasing number of countries. The indicator is a proxy for the value added produced in commerce sector.</p> <p>The disaster loss data is significantly influenced by large-scale catastrophic events, 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 that can represent important outliers.</p>

Source and data collection	National disaster loss database, reported to UNISDR
Disaggregation	<p>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)</p> <p>By damaged/destroyed</p> <p>Ideally, in addition, by sub-national administrative unit</p>
Comments and limitations	<p>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). By 2020, it is expected that all countries will build/adjust the database according to the UNISDR guidelines and report the data to UNISDR.</p> <p>The national disaster loss database developed does not necessarily have historic data on damage to commercial facilities. Establishing baseline data is a challenge.</p>
Main linkage with SDG targets	<p>Not proposed for the SDGs but related with the following targets.</p> <p>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</p> <p>Target 13.1: Strengthen resilience and adaptive capacity to climate-related hazards and natural disasters in all countries</p> <p>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</p> <p>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</p>

Indicator C-5 Direct economic loss due to houses damaged by hazardous events

<p>Definitions</p>	<p>Direct economic loss: Direct loss is nearly equivalent to physical damage. Examples include loss to 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 (Indicator C-2 through C-7).</p> <p>The monetary value of total or partial destruction of physical assets existing in the affected area.(Proposed updated Terminology on Disaster Risk Reduction, August 2015)</p> <p>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. (SDG Proposal)</p> <p>Note: Houses damaged (C-5) and houses destroyed (C-6) are mutually exclusive.</p> <p>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. (Proposed updated Terminology on Disaster Risk Reduction, August 2015)</p> <p>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. (Proposed updated Terminology on Disaster Risk Reduction, August 2015)</p>
<p>Method of computation</p>	<p>Summation of data from national disaster loss databases to summarize the physical damage.</p> <p>Need conversion from physical value to monetary value according to the UNISDR methodology.</p>
<p>Rationale and interpretation</p>	<p>This indicator monitors an element included in the direct economic loss (Target C).</p> <p>Housings constitute major part of private asset in any economy.</p> <p>The disaster loss data is significantly influenced by large-scale catastrophic events, 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 that can represent important outliers.</p>
<p>Source and data collection</p>	<p>National disaster loss database, reported to UNISDR</p> <p>In case of multi-family structure, count housing units, not number of building structure.</p>

Disaggregation	<p>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)</p> <p>Ideally, in addition, by sub-national administrative unit</p>
Comments and limitations	<p>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). By 2020, it is expected that all countries will build/adjust the database according to the UNISDR guidelines and report the data to UNISDR.</p>
Main linkage with SDG targets	<p>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</p> <p>Target 13.1: Strengthen resilience and adaptive capacity to climate-related hazards and natural disasters in all countries</p> <p>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</p> <p>Target 11.1: By 2030, ensure access for all to adequate, safe and affordable housing and basic services and upgrade slums</p> <p>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</p> <p>Target 11.c: Support least developed countries, including through financial and technical assistance, in building sustainable and resilient buildings utilizing local materials</p>

Indicator C-6 Direct economic loss due to houses destroyed by hazardous events

<p>Definitions</p>	<p>Direct economic loss: Direct loss is nearly equivalent to physical damage. Examples include loss to 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 (Indicator C-2 through C-7).</p> <p>The monetary value of total or partial destruction of physical assets existing in the affected area. (Proposed updated Terminology on Disaster Risk Reduction, August 2015)</p> <p>Houses destroyed: Houses (housing units) levelled, buried, collapsed, washed away or damaged to the extent that they are no longer habitable. (SDG Proposal)</p> <p>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. (Proposed updated Terminology on Disaster Risk Reduction, August 2015)</p> <p>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. (Proposed updated Terminology on Disaster Risk Reduction, August 2015)</p>
<p>Method of computation</p>	<p>Summation of data from national disaster loss databases to summarize the physical damage.</p> <p>Need conversion from physical value to monetary value according to the UNISDR methodology.</p>
<p>Rationale and interpretation</p>	<p>This indicator monitors an element included in the direct economic loss (Target C).</p> <p>Housings constitute major part of private asset in any economy.</p> <p>The disaster loss data is significantly influenced by large-scale catastrophic events, 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 that can represent important outliers.</p>
<p>Source and data collection</p>	<p>National disaster loss database, reported to UNISDR</p> <p>In case of multi-family structure, count housing units, not number of building structure.</p>
<p>Disaggregation</p>	<p>By country, by event, by hazard type (e.g. disaggregation by climatological, hydrological, meteorological, geophysical, biological and extra-terrestrial for</p>

	<p>natural hazards is possible following IRDR classification)</p> <p>Ideally, in addition, by sub-national administrative unit</p>
Comments and limitations	<p>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). By 2020, it is expected that all countries will build/adjust the database according to the UNISDR guidelines and report the data to UNISDR.</p>
Main linkage with SDG targets	<p>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</p> <p>Target 13.1: Strengthen resilience and adaptive capacity to climate-related hazards and natural disasters in all countries</p> <p>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</p> <p>Target 11.1: By 2030, ensure access for all to adequate, safe and affordable housing and basic services and upgrade slums</p> <p>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</p> <p>Target 11.c: Support least developed countries, including through financial and technical assistance, in building sustainable and resilient buildings utilizing local materials</p>

Indicator C-7 Direct economic loss due to damage to critical infrastructure caused by hazardous events. (This indicator should be computed based on indicators D-2, D-3 and D-4 (road).)

<p>Definitions</p>	<p>Direct economic loss: Direct loss is nearly equivalent to physical damage. Examples include loss to 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 (Indicator C-2 through C-7).</p> <p>The monetary value of total or partial destruction of physical assets existing in the affected area. (Proposed updated Terminology on Disaster Risk Reduction, August 2015)</p> <p>Disaster damage: Total or partial destruction of physical assets existing in the affected area. (Proposed updated Terminology on Disaster Risk Reduction, August 2015)</p> <p>Critical infrastructure: The physical structures, facilities, networks and other assets that support services that are socially, economically or operationally essential to the functioning of a society or community (Proposed updated Terminology on Disaster Risk Reduction, August 2015). In this indicator framework, it consists of education, healthcare and roads from the perspective of availability of good quality of data.</p> <p>Note: Expert Group recommends widening the scope of critical infrastructure beyond education, healthcare and roads.</p> <p>Educational facilities damaged or destroyed: The number of play schools, kindergartens, primary, secondary or middle schools, technical-vocational schools, colleges, universities, training centres, adult education, military schools and prison schools damaged or destroyed by the hazardous event. (Revision from the SDG Proposal)</p> <p>Health facilities damaged or destroyed: The number of health centres, clinics, local and regional hospitals, outpatient centres and in general facilities used by primary health providers damaged or destroyed by the hazardous event. (Revision from the SDG Proposal)</p> <p>Roads damaged or destroyed: The length of road networks damaged or destroyed due to the hazardous event, in kilometres. (SDG Proposal)</p> <p>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. (Proposed updated Terminology on Disaster Risk Reduction, August 2015)</p> <p>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. (Proposed updated Terminology on Disaster Risk Reduction, August 2015)</p>
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Method of computation	<p>Summation of data from national disaster loss databases to summarize the physical damage.</p> <p>Need conversion from physical value to monetary value according to the UNISDR methodology.</p>
Rationale and interpretation	<p>This indicator monitors an element included in the direct economic loss (Target C) and also monitors the element of “damage to critical infrastructures” in Target D.</p> <p>The indicator is a proxy for damage to public services provided by public/private sectors. These three categories are selected because more than 80 countries currently have historic data of these categories of asset damages.</p> <p>The disaster loss data is significantly influenced by large-scale catastrophic events, 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 that can represent important outliers.</p>
Source and data collection	National disaster loss database, reported to UNISDR
Disaggregation	<p>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)</p> <p>By asset (health/education/road)</p> <p>Ideally, in addition, by sub-national administrative unit</p>
Comments and limitations	Not every country has comparable national disaster loss database consistent with the UNISDR guidelines (current coverage is 85 countries. Additional 32 countries are expected to be covered in 2015-16). By 2020, all countries will be expected to build/adjust the database according to the standard guideline.
Main linkage with SDG targets	<p>Target 9.1: Develop quality, reliable, sustainable and resilient infrastructure, including regional and trans border infrastructure, to support economic development and human well-being, with a focus on affordable and equitable access for all</p> <p>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</p> <p>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</p>

	<p>poor and people in vulnerable situations</p> <p>Target 13.1: Strengthen resilience and adaptive capacity to climate-related hazards and natural disasters in all countries</p> <p>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</p> <p>Target 11.1: By 2030, ensure access for all to adequate, safe and affordable housing and basic services and upgrade slums</p> <p>Target 4.a: Build and upgrade education facilities that are child, disability and gender sensitive and provide safe, non-violent, inclusive and effective learning environments for all</p> <p>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</p> <p>Target 3.6: By 2020, halve the number of global deaths and injuries from road traffic accidents</p> <p>Target 11.2: By 2030, provide access to safe, affordable, accessible and sustainable transport systems for all, improving road safety, notably by expanding public transport, with special attention to the needs of those in vulnerable situations, women, children, persons with disabilities and older persons</p> <p>Target 3.c: Substantially increase health financing and the recruitment, development, training and retention of the health workforce in developing countries, especially in least developed countries and small island developing States</p> <p>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</p>
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Target D: Substantially reduce disaster damage to critical infrastructure and disruption of basic services, among them health and educational facilities, including through developing their resilience by 2030.

- Expert Group recommends widening the scope to include different kinds of critical infrastructures such as water, energy, ICT and transport in general (e.g. port and rail).
- Expert Group also expressed a strong concern to focus on “disruption of basic services” and the impact of such service disruption on people, which shows the relationship of the Target D with the Target B “Affected People”. Data collection would be a practical challenge for this soft and intangible element.

Possible indicators suggested:

D-1 Damage to critical infrastructure due to hazardous events. This indicator should be computed based on indicators D-2, D-3 and D-4 (road).

(SDG proposal: Consistency with SDG proposal needed.)

D-2 Number of health facilities destroyed or damaged by hazardous events

(SDG proposal: Consistency with SDG proposal needed.)

D-3 Number of educational facilities destroyed or damaged by hazardous events

(SDG proposal: Consistency with SDG proposal needed.)

D-4 Number of transportation infrastructures destroyed or damaged by hazardous events

(SDG proposal: Consistency with SDG proposal needed.)

D-5 Number of time basic services have been disrupted due to hazardous events

Indicator D-1 Damage to critical infrastructure due to hazardous events (This indicator should be computed based on indicators D-2, D-3 and D-4 (road)).

<p>Definitions</p>	<p>Disaster damage: Total or partial destruction of physical assets existing in the affected area. (Proposed updated Terminology on Disaster Risk Reduction, August 2015)</p> <p>Critical infrastructure: The physical structures, facilities, networks and other assets that support services that are socially, economically or operationally essential to the functioning of a society or community(Proposed updated Terminology on Disaster Risk Reduction, August 2015).</p> <p>In this indicator framework, it consists of healthcare (D-2), education (D-3), and roads (part of D-4) from the perspective of availability of good quality of historic data for establishing baseline.</p> <p>Note: Expert Group recommends widening the scope of critical infrastructure beyond education, healthcare and roads.</p> <p>Health facilities damaged or destroyed: The number of health centres, clinics, local and regional hospitals, outpatient centres and in general facilities used by primary health providers damaged or destroyed by the hazardous event. (Revision from the SDG Proposal)</p> <p>Educational facilities damaged or destroyed: The number of play schools, kindergartens, primary, secondary or middle schools, technical-vocational schools, colleges, universities, training centres, adult education, military schools and prison schools damaged or destroyed by the hazardous event. (Revision from the SDG Proposal)</p> <p>Roads damaged or destroyed: The length of road networks damaged or destroyed due to the hazardous event, in kilometres. (SDG Proposal)</p> <p>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. (Proposed updated Terminology on Disaster Risk Reduction, August 2015)</p> <p>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. (Proposed updated Terminology on Disaster Risk Reduction, August 2015)</p>
<p>Method of computation</p>	<p>Summation of data from national disaster loss databases</p> <p>Methodology to create composite index should be developed.</p>
<p>Rationale and interpretation</p>	<p>This indicator directly monitors the element of “damage to critical infrastructures” and indirectly monitors “disruption of basic services” in the Target D and also monitors an element included in direct economic loss (the Target C) and affected people (the Target B).</p>

	<p>The indicator is a proxy for damage to public services provided by public/private sectors. These three categories are selected because more than 80 countries have historic data.</p> <p>The disaster loss data is significantly influenced by large-scale catastrophic events, 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 that can represent important outliers.</p>
Source and data collection	National disaster loss database, reported to UNISDR
Disaggregation	<p>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)</p> <p>By asset (health/education/road)</p> <p>Ideally, in addition, by sub-national administrative unit</p>
Comments and limitations	<p>Not every country has comparable national disaster loss database consistent with the UNISDR guidelines (current coverage is 85 countries. Additional 32 countries are expected to be covered in 2015-16). Therefore, by 2020, all countries will be expected to build/adjust the database according to the standard guideline.</p> <p>Counting the number of facilities does not necessarily reflect the size of the facility and related impact on the communities.</p>
Main linkage with SDG targets	<p>Target 9.1: Develop quality, reliable, sustainable and resilient infrastructure, including regional and trans border infrastructure, to support economic development and human well-being, with a focus on affordable and equitable access for all</p> <p>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</p> <p>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</p> <p>Target 13.1: Strengthen resilience and adaptive capacity to climate-related hazards and natural disasters in all countries</p>

	<p>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</p> <p>Target 11.1: By 2030, ensure access for all to adequate, safe and affordable housing and basic services and upgrade slums</p> <p>Target 4.a: Build and upgrade education facilities that are child, disability and gender sensitive and provide safe, non-violent, inclusive and effective learning environments for all</p> <p>Target 3.6: By 2020, halve the number of global deaths and injuries from road traffic accidents</p> <p>Target 11.2: By 2030, provide access to safe, affordable, accessible and sustainable transport systems for all, improving road safety, notably by expanding public transport, with special attention to the needs of those in vulnerable situations, women, children, persons with disabilities and older persons</p> <p>Target 3.c: Substantially increase health financing and the recruitment, development, training and retention of the health workforce in developing countries, especially in least developed countries and small island developing States</p> <p>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</p>
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Indicator D-2 Number of health facilities destroyed or damaged by hazardous events

Definitions	<p>Health facilities damaged or destroyed: The number of health centres, clinics, local and regional hospitals, outpatient centres and in general facilities used by primary health providers damaged or destroyed by the hazardous event. (Revision from the SDG Proposal)</p> <p>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. (Proposed updated Terminology on Disaster Risk Reduction, August 2015)</p> <p>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. (Proposed updated Terminology on Disaster Risk Reduction, August 2015)</p>
Method of computation	Summation of data from national disaster loss databases
Rationale and interpretation	<p>This indicator monitors an element of “damage to critical infrastructures” and indirectly monitors an element of “disruption of basic services” in the Target D and also monitors an element included in direct economic loss (the Target C) and affected people (the Target B).</p> <p>More than 80 countries have historic data.</p> <p>The disaster loss data is significantly influenced by large-scale catastrophic events, 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 that can represent important outliers.</p>
Source and data collection	National disaster loss database, reported to UNISDR
Disaggregation	<p>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)</p> <p>Ideally, in addition, by sub-national administrative unit</p>
Comments and limitations	<p>Not every country has comparable national disaster loss database consistent with the UNISDR guidelines (current coverage is 85 countries. Additional 32 countries are expected to be covered in 2015-16). By 2020, all countries will be expected to build/adjust the database according to the standard guideline.</p> <p>Counting the number of facilities does not necessarily reflect the size of the facility and related impact on the communities.</p>
Main linkage with SDG targets	<p>Target 9.1:</p> <p>Develop quality, reliable, sustainable and resilient infrastructure, including regional and trans border infrastructure, to support economic development and human well-being, with a focus on</p>

	<p>affordable and equitable access for all</p> <p>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</p> <p>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</p> <p>Target 13.1: Strengthen resilience and adaptive capacity to climate-related hazards and natural disasters in all countries</p> <p>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</p> <p>Target 11.1: By 2030, ensure access for all to adequate, safe and affordable housing and basic services and upgrade slums</p> <p>Target 3.6: By 2020, halve the number of global deaths and injuries from road traffic accidents</p> <p>Target 3.c: Substantially increase health financing and the recruitment, development, training and retention of the health workforce in developing countries, especially in least developed countries and small island developing States</p> <p>Target 3.8: Achieve universal health coverage, including financial risk protection, access to quality essential health-care services and access to safe, effective, quality and affordable essential medicines and vaccines for all</p> <p>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</p>
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Indicator D-3 Number of educational facilities destroyed or damaged by hazardous events

Definitions	<p>Educational facilities destroyed or damaged: The number of play schools, kindergartens, primary, secondary or middle schools, technical-vocational schools, colleges, universities, training centres, adult education, military schools and prison schools damaged or destroyed by the hazardous event. (Revision from the SDG Proposal)</p> <p>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. (Proposed updated Terminology on Disaster Risk Reduction, August 2015)</p> <p>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. (Proposed updated Terminology on Disaster Risk Reduction, August 2015)</p>
Method of computation	Summation of data from national disaster loss databases
Rationale and interpretation	<p>This indicator monitors an element of “damage to critical infrastructures” and indirectly monitors an element of “disruption of basic services” in the Target D and also monitors an element included in direct economic loss (the Target C) and affected people (the Target B).</p> <p>More than 80 countries have historic data.</p> <p>The disaster loss data is significantly influenced by large-scale catastrophic events, 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 that can represent important outliers.</p>
Source and data collection	National disaster loss database, reported to UNISDR
Disaggregation	<p>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)</p> <p>By destroyed/damaged</p> <p>Ideally, in addition, by sub-national administrative unit</p>
Comments and limitations	<p>Not every country has comparable national disaster loss database consistent with the UNISDR guidelines (current coverage is 85 countries. Additional 32 countries are expected to be covered in 2015-16). By 2020, all countries will be expected to build/adjust the database according to the standard guideline.</p> <p>Counting the number of facilities does not necessarily reflect the size of the facility and related impact on the communities.</p>

<p>Main linkage with SDG targets</p>	<p>Target 9.1: Develop quality, reliable, sustainable and resilient infrastructure, including regional and trans border infrastructure, to support economic development and human well-being, with a focus on affordable and equitable access for all</p> <p>Target 4.a: Build and upgrade education facilities that are child, disability and gender sensitive and provide safe, non-violent, inclusive and effective learning environments for all</p> <p>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</p> <p>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</p> <p>Target 13.1: Strengthen resilience and adaptive capacity to climate-related hazards and natural disasters in all countries</p> <p>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</p> <p>Target 11.1: By 2030, ensure access for all to adequate, safe and affordable housing and basic services and upgrade slums</p>
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Indicator D-4 Number of transportation infrastructures destroyed or damaged by hazardous events

<p>Definitions</p>	<p>Transportation infrastructure: The basic physical and organizational structures and facilities needed for taking or carrying people or goods from one place to another by means of a vehicle, aircraft, or ship (Oxford Dictionary)</p> <p>In this indicator, it consists of roads, railways, ports and airports.</p> <p>Roads damaged or destroyed: The length of road networks damaged or destroyed due to the hazardous event, in kilometres. (SDG Proposal)</p> <p>Railways damaged or destroyed: The lengths of railway networks damaged or destroyed due to the hazardous events, in kilometres.</p> <p>Ports damaged or destroyed: The number of facilities damaged or destroyed due to hazardous events.</p> <p>Airports damaged or destroyed: The number of facilities damaged or destroyed due to hazardous events.</p> <p>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. (Proposed updated Terminology on Disaster Risk Reduction, August 2015)</p> <p>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. (Proposed updated Terminology on Disaster Risk Reduction, August 2015)</p>
<p>Method of computation</p>	<p>Summation of data from national disaster loss databases Compounding methodology should be developed.</p>
<p>Rationale and interpretation</p>	<p>This indicator monitors an element of “damage to critical infrastructures” and indirectly monitors an element of “disruption of basic services” in the Target D and also monitors an element included in direct economic loss (the Target C) and affected people (Target B).</p> <p>More than 80 countries have historic data regarding damage to roads.</p> <p>The disaster loss data is significantly influenced by large-scale catastrophic events, 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 that can represent important outliers.</p>
<p>Source and data collection</p>	<p>National disaster loss database, reported to UNISDR</p>
<p>Disaggregation</p>	<p>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)</p>

	<p>By transportation mode</p> <p>Ideally, in addition, by sub-national administrative unit</p>
Comments and limitations	<p>Not every country has comparable national disaster loss database consistent with the UNISDR guidelines (current coverage is 85 countries. Additional 32 countries are expected to be covered in 2015-16). By 2020, all countries will be expected to build/adjust the database according to the standard guideline.</p> <p>Measuring the lengths of roads and railways does not necessarily reflect the quality and function of roads/railways and related impact on the communities.</p> <p>Counting the number of port/airport facilities does not necessarily reflect the size of the facility and related impact on the communities.</p> <p>The national disaster loss database developed does not have historic data on damage to railways, ports and airports. Establishing baseline data is a challenge.</p>
Main linkage with SDG targets	<p>Target 9.1: Develop quality, reliable, sustainable and resilient infrastructure, including regional and trans border infrastructure, to support economic development and human well-being, with a focus on affordable and equitable access for all</p> <p>Target 11.2: By 2030, provide access to safe, affordable, accessible and sustainable transport systems for all, improving road safety, notably by expanding public transport, with special attention to the needs of those in vulnerable situations, women, children, persons with disabilities and older persons</p> <p>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</p> <p>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</p> <p>Target 13.1: Strengthen resilience and adaptive capacity to climate-related hazards and natural disasters in all countries</p> <p>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</p>

	<p>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</p> <p>Target 11.1: By 2030, ensure access for all to adequate, safe and affordable housing and basic services and upgrade slums</p> <p>Target 3.6: By 2020, halve the number of global deaths and injuries from road traffic accidents</p>
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Indicator D-5 Number of time basic services have been disrupted due to hazardous events

<p>Definitions</p>	<p>Basic Services: Services that are needed for all of society to function effectively. (Proposed updated Terminology on Disaster Risk Reduction, August 2015)</p> <p>For this indicator, disruption of basic services is measured in the following public services.</p> <p>Interruption or lower quality of service in any of the public services: The interruptions or lower quality of service observed in the healthcare services, education services, transport sector, ICT, water supply, sewerage systems, solid waste management, power and energy supply, and emergency response (binary variables of Yes/No)</p> <p>Health facilities: health centres, clinics, local and regional hospitals, outpatient centres and in general facilities used by primary health providers</p> <p>Educational facilities: play schools, kindergartens, primary, secondary or middle schools, technical-vocational schools, colleges, universities, training centres, adult education, military schools and prison schools</p> <p>Transport system: road networks, railways (including stations), airports and ports</p> <p>ICT system: plants and telephone networks (telecommunication network), radio and television stations, post offices and public information offices, internet services, radio telephones and mobile phones</p> <p>Water supply: drinking water supply system (water outlets, water treatment plants, aqueducts and canals which carry drinking water, storage tanks.)</p> <p>Sewerage system: sanitation and sanitary sewage systems and collection and treatment of solid waste.</p> <p>Solid waste management: collection and treatment of solid waste.</p> <p>Power/energy system: generation facilities, transmission and distribution system and dispatch centres and other works</p> <p>Emergency Response: disaster management office, fire management service, police, army and emergency operation centres</p> <p>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. (Proposed updated Terminology on Disaster Risk Reduction, August 2015)</p> <p>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. (Proposed updated Terminology on Disaster Risk Reduction, August 2015)</p>
<p>Method of computation</p>	<p>Summation of data from national disaster loss databases. Divide the total number of “Yes” by the total number of event.</p>
<p>Rationale and interpretation</p>	<p>This indicator monitors an element of “disruption of basic services” in the Target D and indirectly monitors an element of the affected people (Target B).</p> <p>The indicator is relatively subjective based on the observation of data recorder.</p>

Source and data collection	National disaster loss database, reported to UNISDR
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 sector Ideally, in addition, by sub-national administrative unit
Comments and limitations	<u>Expert Group recommends replacing “times” with “days” and adding “how many people have not received basic services (figure to be normalized over population)”.</u> UNISDR adds reservation for the proposal by Expert Group because it is extremely difficult to define and record the duration of service disruption and number of people who did not receive basic services. <u>Introducing certain scales (duration: short, medium and long, affected scale in terms of household numbers) might be a practical solution but need to consider thresholds.</u> Not every country has comparable national disaster loss database consistent with the UNISDR guidelines (current coverage is 85 countries. Additional 32 countries are expected to be covered in 2015-16). By 2020, all countries will be expected to build/adjust the database according to the standard guideline.
Main linkage with SDG targets	Not proposed for the SDGs but related with the following targets. Target 9.1: Develop quality, reliable, sustainable and resilient infrastructure , including regional and trans border infrastructure, to support economic development and human well-being, with a focus on affordable and equitable access for all 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 1.4: 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

	<p>forms of property, inheritance, natural resources, appropriate new technology and financial services, including microfinance</p> <p>Target 11.1: By 2030, ensure access for all to adequate, safe and affordable housing and basic services and upgrade slums</p> <p>Target 4.a: Build and upgrade education facilities that are child, disability and gender sensitive and provide safe, non-violent, inclusive and effective learning environments for all</p> <p>Target 3.6: By 2020, halve the number of global deaths and injuries from road traffic accidents</p> <p>Target 11.2: By 2030, provide access to safe, affordable, accessible and sustainable transport systems for all, improving road safety, notably by expanding public transport, with special attention to the needs of those in vulnerable situations, women, children, persons with disabilities and older persons</p> <p>Target 3.c: Substantially increase health financing and the recruitment, development, training and retention of the health workforce in developing countries, especially in least developed countries and small island developing States</p> <p>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</p>
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Target E: Substantially increase the number of countries with *national and local disaster risk reduction strategies* by 2020.

Possible indicators suggested:

E-1 Number of countries that adopt and implement national DRR strategies in line with the Sendai Framework for Disaster Risk Reduction 2015-2030

(SDG proposal: Consistency with SDG proposal needed.)

E-2 Percentage of local governments that adopt and implement local DRR strategies in line with the Sendai Framework for Disaster Risk Reduction 2015-2030

(SDG proposal: Consistency with SDG proposal needed.)

E-3 Number of countries that integrate climate and disaster risk into development planning

(Also functions as indicator contributing to the outcome of the Target C “economic loss”)

E-4 Number of countries that adopt and implement critical infrastructure protection plan

(SDG proposal: Consistency with SDG proposal needed.)

(Also functions as indicator contributing to the outcome of the Target D “damage to critical infrastructure”)

Additional indicators discussed and recommended by the Expert Groups:

E-5 Number of countries with cross-sectoral bodies/forums, with clear roles and responsibilities identified across state institutions, civil society, private sector and international actors, in the implementation and review of DRR measures

E-6 Number of countries accounting for future risk in public and private balance sheets, setting financial targets to inform investment strategies for reducing risk and enhancing future prosperity

E-7 Number of countries and local governments conducting (independent) periodic outcome reviews of the implementation of national and local DRR strategies

Indicator E-1 Number of countries that adopt and implement national DRR strategies in line with the Sendai Framework for Disaster Risk Reduction 2015-2030

Definitions	<p>National DRR strategies in line with the Sendai Framework for Disaster Risk Reduction 2015-2030: national disaster risk reduction strategies and plans, across different timescales with targets, indicators and time frames, aimed at preventing the creation of risk, the reduction of existing risk and the strengthening of economic, social, health and environmental resilience (Sendai Framework, para 27(b)). In the Sendai Framework, link with DRR and climate change adaptation is strongly advocated.</p> <p><u>Note: the DRR strategies need to be based on risk information and assessments.</u></p> <p>Disaster risk reduction plan: A document prepared by an authority, sector, organisation or enterprise that sets out goals and specific objectives for reducing disaster risks together with related actions to accomplish these objectives. (Proposed updated Terminology on Disaster Risk Reduction, August 2015)</p> <p>Country: A nation with its own government, occupying a particular territory (Oxford Dictionary)</p>
Method of computation	Summation of data from National Progress Report of the Sendai Monitor
Rationale and interpretation	This indicator directly monitors the Target E.
Source and data collection	National Progress Report of the Sendai Monitor, reported to UNISDR
Disaggregation	By country
Comments and limitations	<p><u>Expert Group recommended adding “aligned with enabling legislation and regulation”. UNISDR has reservation because defining “enabling legislation and regulation” would bring new complexity and subjectivity.</u></p> <p>Expert Group also recommended for the Target G “<u>Number of countries that have national multi-hazard risk assessment providing the necessary information for National DRR strategies</u>”. This aspect can be integrated in the definition of DRR strategies in this indicator.</p> <p>Reporting of the HFA Monitor and the succeeding Sendai Monitor under development is not mandatory but it is only global database collecting DRR policy information. The HFA Monitor started in 2007 and over time, the number of countries reporting to UNISDR increased from 60 in 2007 to 133 in 2013. Because there is no specific data addressing this indicator at this moment, a baseline as of 2015 should be created through a questionnaire to all countries in order to monitor both the Sendai Framework and the SDGs.</p>
Main linkage with SDG targets	Target 13.2: Integrate climate change measures into national policies, strategies and planning

	<p>Target 13.1: Strengthen resilience and adaptive capacity to climate-related hazards and natural disasters in all countries</p> <p>Target 13.b: Promote mechanisms for raising capacity for effective climate change-related planning and management in least developed countries, including focusing on women, youth, local and marginalized communities</p> <p>Target 9.1: Develop quality, reliable, sustainable and resilient infrastructure, including regional and trans border infrastructure, to support economic development and human well-being, with a focus on affordable and equitable access for all</p> <p>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</p> <p>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</p> <p>Target 3.9: By 2030, substantially reduce the number of deaths and illnesses from hazardous chemicals and air, water and soil pollution and contamination</p> <p>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</p>
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Indicator E-2 Percentage of local governments that adopt and implement local DRR strategies in line with the Sendai Framework for Disaster Risk Reduction 2015-2030

Definitions	<p>Local DRR Strategies in line with the Sendai Framework for Disaster Risk Reduction 2015-2030: local disaster risk reduction strategies and plans, across different timescales with targets, indicators and time frames, aimed at preventing the creation of risk, the reduction of existing risk and the strengthening of economic, social, health and environmental resilience (Sendai Framework, para27 (b))</p> <p><u>Note: the DRR strategies need to be based on risk information and assessments.</u></p> <p>Disaster risk reduction plan: A document prepared by an authority, sector, organisation or enterprise that sets out goals and specific objectives for reducing disaster risks together with related actions to accomplish these objectives. (Proposed updated Terminology on Disaster Risk Reduction, August 2015)</p> <p>Local Government: Form of public administration at the lowest tier of administration within a given state, which generally acts within powers delegated to them by legislation or directives of the higher level of government.</p>
Method of computation	Summation of data from National Progress Report of the Sendai Monitor
Rationale and interpretation	This indicator directly monitors the Target E.
Source and data collection	National Progress Report of the Sendai Monitor, reported to UNISDR
Disaggregation	By country, By city
Comments and limitations	<p>Expert Group also recommended for the Target G “<u>Percentage of local governments that have national multi-hazard risk assessment providing the necessary information for local DRR strategies</u>”. This aspect can be integrated in the definition of DRR strategies in this indicator.</p> <p>Reporting of the HFA Monitor and the succeeding Sendai Monitor under development is not mandatory but it is only global database collecting DRR policy information. The HFA Monitor started in 2007 and over time, the number of countries reporting to UNISDR increased from 60 in 2007 to 133 in 2013. Because there is no specific data addressing this indicator at this moment, a baseline as of 2015 should be created through a questionnaire to all countries in order to monitor both the Sendai Framework and the SDGs.</p>
Main linkage with SDG targets	Target 11.b: By 2020, substantially increase the number of cities and human settlements adopting and implementing integrated policies and plans towards inclusion, resource efficiency, mitigation and adaptation to climate change, resilience to disasters, and develop and implement, in line with the Sendai Framework for Disaster Risk Reduction 2015-2030, holistic disaster risk management at all levels

	<p>Target 13.1: Strengthen resilience and adaptive capacity to climate-related hazards and natural disasters in all countries</p> <p>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</p> <p>Target 9.1: Develop quality, reliable, sustainable and resilient infrastructure, including regional and trans border infrastructure, to support economic development and human well-being, with a focus on affordable and equitable access for all</p> <p>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</p> <p>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</p> <p>Target 3.9: By 2030, substantially reduce the number of deaths and illnesses from hazardous chemicals and air, water and soil pollution and contamination</p> <p>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</p> <p>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</p>
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Indicator E-3 Number of countries that integrate climate and disaster risk into development planning

Definitions	<p>Development Planning: Planning for “a multi-dimensional process involving changes in social structures, popular attitudes, and national institutions, as well as the acceleration of economic growth, the reduction of inequality, and the eradication of poverty” (Todaro and Smith, 2011)</p> <p>Climate and disaster risk integration into development planning: Satisfies the following three conditions: i) development plan(s) that recognizes disaster and climate risk as a challenge; ii) development plan (s) that identifies activities to address challenges from disaster and climate risk; iii) development plan (s) where addressing disaster and climate risk is metric of success.</p> <p>Country: A nation with its own government, occupying a particular territory (Oxford Dictionary)</p>
Method of computation	Summation of data from National Progress Reports of the Sendai Monitor
Rationale and interpretation	This indicator is highly related with the Target E and also monitors global policy progress to support the outcome of the Target C.
Source and data collection	National Progress Reports of the Sendai Monitor, reported to UNISDR
Disaggregation	By country
Comments and limitations	<p>Reporting of the HFA Monitor and the succeeding Sendai Monitor under development is not mandatory but it is only global database collecting DRR policy information. The HFA Monitor started in 2007 and over time, the number of countries reporting to UNISDR increased from 60 in 2007 to 133 in 2013. Because there is no specific data addressing this indicator at this moment, a baseline as of 2015 should be created through a questionnaire to all countries in order to monitor both Sendai Framework and the SDGs.</p> <p>Expert Group proposed alternative indicator of E3: Number of countries with implementation plans for DRR strategies informed by periodic and quantitative assessment of current and future multi-hazard risk, integrated into in national and sectoral development planning and investment”. UNISDR has reservation because this alternative would bring new complexity and subjectivity at global level and might be better monitored at national level.</p>
Main linkage with SDG targets	<p>Not proposed for the SDGs but related with the following targets.</p> <p>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</p> <p>Target 13.2: Integrate climate change measures into national policies, strategies</p>

	<p>and planning</p> <p>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</p> <p>Target 13.1: Strengthen resilience and adaptive capacity to climate-related hazards and natural disasters in all countries</p> <p>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</p> <p>Target 9.1: Develop quality, reliable, sustainable and resilient infrastructure, including regional and trans border infrastructure, to support economic development and human well-being, with a focus on affordable and equitable access for all</p> <p>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</p> <p>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</p> <p>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</p> <p>Target 3.6: By 2020, halve the number of global deaths and injuries from road traffic accidents</p> <p>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</p>
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Indicator E-4 Number of countries that adopt and implement critical infrastructure protection plan

Definitions	<p>Critical infrastructure protection plan: Plan or programme to enhance the resilience of new and existing critical infrastructure systems, including water, transportation and telecommunications infrastructure, educational facilities, hospitals and other health facilities, to ensure that they remain safe, effective and operational during and after disasters and other contingencies in order to provide life-saving and essential services (SDG Proposal, Developed based on the Sendai Framework)</p> <p>Critical infrastructure: The physical structures, facilities, networks and other assets that support services that are socially, economically or operationally essential to the functioning of a society or community. (Proposed updated Terminology on Disaster Risk Reduction, August 2015)</p> <p>Country: A nation with its own government, occupying a particular territory (Oxford Dictionary)</p>
Method of computation	Summation of data from National Progress Reports of the Sendai Monitor
Rationale and interpretation	<p>This indicator is highly related with the Target E.</p> <p>This indicator also directly supports progress of the critical infrastructure in the Target (d) and indirectly contributes to reduction of the Target (b) affected people and the Target (c) economic loss</p>
Source and data collection	National Progress Reports of the Sendai Monitor, reported to UNISDR
Disaggregation	By country
Comments and limitations	Reporting of the HFA Monitor and the succeeding Sendai Monitor under development is not mandatory but it is only global database collecting DRR policy information. The HFA Monitor started in 2007 and over time, the number of countries reporting to UNISDR increased from 60 in 2007 to 133 in 2013. Because there is no specific data addressing this indicator at this moment, a baseline as of 2015 should be created through a questionnaire to all countries in order to monitor both the Sendai Framework and the SDGs.
Main linkage with SDG targets	<p>Target 9.1: Develop quality, reliable, sustainable and resilient infrastructure, including regional and trans border infrastructure, to support economic development and human well-being, with a focus on affordable and equitable access for all</p> <p>Target 13.2: Integrate climate change measures into national policies, strategies and planning</p> <p>Target 1.5: By 2030, build the resilience of the poor and those in vulnerable situations and reduce their exposure and vulnerability to climate-</p>

	<p>related extreme events and other economic, social and environmental shocks and disasters</p> <p>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</p> <p>Target 13.1: Strengthen resilience and adaptive capacity to climate-related hazards and natural disasters in all countries</p> <p>Target 11.1: By 2030, ensure access for all to adequate, safe and affordable housing and basic services and upgrade slums</p> <p>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</p> <p>Target 4.a: Build and upgrade education facilities that are child, disability and gender sensitive and provide safe, non-violent, inclusive and effective learning environments for all</p> <p>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</p> <p>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</p> <p>Target 3.9: By 2030, substantially reduce the number of deaths and illnesses from hazardous chemicals and air, water and soil pollution and contamination</p> <p>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</p>
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	<p>Target3.c: Substantially increase health financing and the recruitment, development, training and retention of the health workforce in developing countries, especially in least developed countries and small island developing States</p> <p>Target 3.6: By 2020, halve the number of global deaths and injuries from road traffic accidents</p> <p>Target 11.2: By 2030, provide access to safe, affordable, accessible and sustainable transport systems for all, improving road safety, notably by expanding public transport, with special attention to the needs of those in vulnerable situations, women, children, persons with disabilities and older persons</p>
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Indicator E-5 Number of countries with cross-sectoral bodies/forums, with clear roles and responsibilities identified across state institutions, civil society, private sector and international actors, in the implementation and review of DRR measures

Definitions	<p>Cross-sectoral bodies/forum: Coordinating mechanisms that operate within and across sectors and with relevant stakeholders across public and private stakeholders and at all levels, with the full engagement of all State institutions at national and local levels (based on the Principles of the Sendai Framework, Para 19 (e))</p> <p>Sector: A distinct part or branch of a nation’s economy or society or of a sphere of activity (Oxford Dictionary). This may describe for example the education or agricultural sectors. A sector may also be a subgroup of an economic activity - as in “coal mining sector” - or a group of economic activities - as in “service sector” - or a cross-section of a group of economic activities - as in “informal sector” (OECD Glossary of Statistical Terms), public, private, or civil society sectors (non-exhaustive).</p> <p>Note: The typology of cross-sectoral bodies/forums includes but not limited to National DRR platform. Related: Paragraph 27 (g) of the Sendai Framework.</p> <p>National platform for disaster risk reduction: A generic term for national mechanisms for coordination and policy guidance on disaster risk reduction that are multi-sectoral and inter-disciplinary in nature, with public, private and civil society participation involving all concerned entities within a country. (Proposed updated Terminology on Disaster Risk Reduction, August 2015)</p> <p>Country: A nation with its own government, occupying a particular territory (Oxford Dictionary)</p>
Method of computation	Summation of data from National Progress Report of the Sendai Monitor
Rationale and interpretation	This indicator indirectly monitors the Target E.
Source and data collection	National Progress Report of the Sendai Monitor, reported to UNISDR
Disaggregation	By country
Comments and limitations	<p>This indicator seeks confirmation of the assignation of roles and responsibilities in implementing DRR measures. If the coordinating mechanisms established are to positively affect decision-making and investment behaviour, it is important that this is verified in the review.</p> <p>This indicator was proposed by the Expert Group but UNISDR has reservation because this can be part of DRR strategies. This should be included in national level indicator system.</p> <p>Reporting of the HFA Monitor and the succeeding Sendai Monitor under development is not mandatory but it is only global database collecting DRR policy information. The HFA Monitor started in 2007 and over time, the number of countries reporting to UNISDR increased from 60 in 2007 to 133 in 2013. Because there is no specific data addressing this indicator at this moment, a baseline as of 2015 should be created through a questionnaire to</p>

	all countries in order to monitor both the Sendai Framework and the SDGs.
Main linkage with SDG targets	<p>Target 13.2: Integrate climate change measures into national policies, strategies and planning</p> <p>Target 13.1: Strengthen resilience and adaptive capacity to climate-related hazards and natural disasters in all countries</p> <p>Target 13.b: Promote mechanisms for raising capacity for effective climate change-related planning and management in least developed countries, including focusing on women, youth, local and marginalized communities</p> <p>Target 9.1: Develop quality, reliable, sustainable and resilient infrastructure, including regional and trans border infrastructure, to support economic development and human well-being, with a focus on affordable and equitable access for all</p> <p>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</p> <p>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</p> <p>Target 3.9: By 2030, substantially reduce the number of deaths and illnesses from hazardous chemicals and air, water and soil pollution and contamination</p> <p>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</p>

Indicator E-6 Number of countries accounting for future risk in public and private balance sheets, setting financial targets to inform investment strategies for reducing risk and enhancing future prosperity

Definitions	<p>Accounting for future risk: The incorporation of the risk that is estimated to impact societies, economies and activities in the short, medium and long term as the exposure of persons and assets increases - in addition to the existing stock of risk - in public and private financial records and statements.</p> <p>Public and private balance sheets: A statement of the assets, liabilities, and capital of a public entity, organisation or business at a particular point in time, detailing the balance of income and expenditure over the preceding period (Oxford Dictionary).</p> <p>Financial targets to inform investment strategies: The determination and incorporation of disaster risk reducing approaches within public and private investment that are established on the basis of a target or targets, established for instance by a ministry of finance or a central bank, that mitigates anticipated losses incurred by current and future risk. (proposed by Experts Group and based on the Sendai Framework Para 18 (c)).</p> <p>Country: A nation with its own government, occupying a particular territory (Oxford Dictionary)</p>
Method of computation	Summation of data from National Progress Reports of the Sendai Monitor
Rationale and interpretation	This indicator is highly related with the Target E and also monitors global policy progress to support the outcome of the Target C.
Source and data collection	National Progress Reports of the Sendai Monitor, reported to UNISDR
Disaggregation	By country
Comments and limitations	<p>Current and future disaster risk rarely features as a liability in public or private financial statements. If these liabilities are not recorded, the incentive to assume the costs of investment required to mitigate the costs incurred by these losses is much diminished. This indicator seeks to measure the degree to which such liabilities are estimated and incorporated in financial planning and investment so as to overcome impediments to future prosperity.</p> <p>This indicator was proposed by the Expert Group but UNISDR has reservation because the time frame of Target E is 2020 and the monitoring global progress of this indicator might be too ambitious. This should be included in national level indicator system.</p> <p>Reporting of the HFA Monitor and the succeeding Sendai Monitor under development is not mandatory but it is only global database collecting DRR policy information. The HFA Monitor started in 2007 and over time, the number of countries reporting to UNISDR increased from 60 in 2007 to 133 in 2013. Because there is no specific data addressing this indicator at this moment, a baseline as of 2015 should be created through a questionnaire to all countries in order to monitor both the Sendai Framework and the SDGs.</p>

<p>Main linkage with SDG targets</p>	<p>Not proposed for the SDGs but related with the following targets.</p> <p>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</p> <p>Target 13.2: Integrate climate change measures into national policies, strategies and planning</p> <p>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</p> <p>Target 13.1: Strengthen resilience and adaptive capacity to climate-related hazards and natural disasters in all countries</p> <p>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</p> <p>Target 9.1: Develop quality, reliable, sustainable and resilient infrastructure, including regional and trans border infrastructure, to support economic development and human well-being, with a focus on affordable and equitable access for all</p> <p>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</p> <p>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</p> <p>Target 15.3: By 2030, combat desertification, restore degraded land and soil, including land affected by desertification, drought and floods, and</p>
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	<p>strive to achieve a land-degradation-neutral world</p> <p>Target 3.6: By 2020, halve the number of global deaths and injuries from road traffic accidents</p> <p>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</p>
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Indicator E-7 Number of countries and local governments conducting (independent) periodic outcome reviews of the implementation of national and local DRR strategies

Definitions	<p>Independent periodic outcome reviews: A cyclical and impartial appraisal of the impact of the implementation of national and local DRR strategies in achieving the outcome and goal of the Sendai Framework (Paras 16 and 17). Independent implies free from the influence of those stakeholders being evaluated. Periodic describes the definition of a predictable frequency of review (to be determined by the appropriate authority).</p> <p>National DRR strategies in line with the Sendai Framework for Disaster Risk Reduction 2015-2030: national disaster risk reduction strategies and plans, across different timescales with targets, indicators and time frames, aimed at preventing the creation of risk, the reduction of existing risk and the strengthening of economic, social, health and environmental resilience (Sendai Framework, para 27(b)). In the Sendai Framework, link with DRR and climate change adaptation is strongly advocated.</p> <p>Local DRR Strategies in line with the Sendai Framework for Disaster Risk Reduction 2015-2030: local disaster risk reduction strategies and plans, across different timescales with targets, indicators and time frames, aimed at preventing the creation of risk, the reduction of existing risk and the strengthening of economic, social, health and environmental resilience (Sendai Framework, para27 (b))</p> <p>Disaster risk reduction plan: A document prepared by an authority, sector, organisation or enterprise that sets out goals and specific objectives for reducing disaster risks together with related actions to accomplish these objectives. (Proposed updated Terminology on Disaster Risk Reduction, August 2015)</p> <p>Country: A nation with its own government, occupying a particular territory (Oxford Dictionary)</p> <p>Local Government: Form of public administration at the lowest tier of administration within a given state, which generally acts within powers delegated to them by legislation or directives of the higher level of government.</p>
Method of computation	Summation of data from National Progress Report of the Sendai Monitor
Rationale and interpretation	This indicator indirectly monitors the Target E.
Source and data collection	National Progress Report of the Sendai Monitor, reported to UNISDR
Disaggregation	By country
Comments and limitations	In calling for the predictable assessment of the impact that the implementation of such strategies has on trends in disaster risk and the corollary losses incurred, this indicator places the emphasis on both the implementation of national and local DRR strategies (and not simply their formulation), as well as their relevance.

	<p>This indicator was proposed by the Expert Group but UNISDR has reservation because the scope of this indicator (review) seems to be beyond the Target (e). This should be included in national level indicator system.</p> <p>Reporting of the HFA Monitor and the succeeding Sendai Monitor under development is not mandatory but it is only global database collecting DRR policy information. The HFA Monitor started in 2007 and over time, the number of countries reporting to UNISDR increased from 60 in 2007 to 133 in 2013. Because there is no specific data addressing this indicator at this moment, a baseline as of 2015 should be created through a questionnaire to all countries in order to monitor both the Sendai Framework and the SDGs.</p>
Main linkage with SDG targets	<p>Target 13.2: Integrate climate change measures into national policies, strategies and planning</p> <p>Target 13.1: Strengthen resilience and adaptive capacity to climate-related hazards and natural disasters in all countries</p> <p>Target 13.b: Promote mechanisms for raising capacity for effective climate change-related planning and management in least developed countries, including focusing on women, youth, local and marginalized communities</p> <p>Target 9.1: Develop quality, reliable, sustainable and resilient infrastructure, including regional and trans border infrastructure, to support economic development and human well-being, with a focus on affordable and equitable access for all</p> <p>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</p> <p>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</p> <p>Target 3.9: By 2030, substantially reduce the number of deaths and illnesses from hazardous chemicals and air, water and soil pollution and contamination</p> <p>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</p>

Target F: Substantially enhance *international cooperation* to developing countries through adequate and sustainable support to complement their national actions for implementation of this framework by 2030.

(To be examined)

Target G: Substantially increase the availability of and access to *multi-hazard early warning systems and disaster risk information and assessments to the people by 2030.*

Possible indicators suggested:

G-1 Number of countries that have multi-hazard early warning system (This index should be computed based on indicators G-2 through G-4 and G-6)

(SDG proposal: Consistency with SDG proposal needed.)

G-2 Number of countries that have multi-hazard monitoring and forecasting system

G-3 Number of people who are covered by multi-hazard early warning system

G-4 Percentage of local governments having preparedness plan (including EWS response and evacuation components) or evacuation plan

G-5 Number of countries that have multi-hazard national risk assessment *with results in an accessible, understandable and usable format for stakeholders and people*

(SDG proposal: Consistency with SDG proposal needed. Index represents additional elements for Sendai Framework indicator proposal)

G-6 Percentage of local governments that have multi-hazard risk assessment with results in an accessible, understandable and usable format for stakeholders and people

Additional indicators discussed and recommended by the Expert Groups:

G-7 Percentage of population with understanding of the risk they are exposed to

G-8 Number of countries that have national plans with budget and timeline for development of multi-hazard EWS

G-9 Number of countries that have disaster loss databases publicly accessible

G-10 Number of countries that have open data policies and mechanisms to make hazard and risk data accessible and available to all users

Indicator G-1 Number of countries that have multi-hazard early warning system (This indicator should be computed based on indicators G-2 through G-4 and G-6).

Definitions	<p>Early warning system (EWS): An integrated set of hazard warning, risk assessment, communication and preparedness activities that enable individuals, communities, businesses and others to take timely action to reduce their risks. (Proposed updated Terminology on Disaster Risk Reduction, August 2015)</p> <p>Multi-hazard: addressing (1) selection of multiple major hazards that the country faces, and (2) specific contexts where hazardous events may occur simultaneously or cumulatively over time, and taking into account the potential interrelated effects.</p> <p>Multi-hazard early warning system: An early warning system designed to be used in multi-hazard contexts where hazardous events may occur simultaneously or cumulatively over time, and taking into account the potential interrelated effects. (Proposed updated Terminology on Disaster Risk Reduction, August 2015)</p> <p>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. (Proposed updated Terminology on Disaster Risk Reduction, August 2015)</p> <p>Country: A nation with its own government, occupying a particular territory (Oxford Dictionary)</p>
Method of computation	<p>This indicator should be measured for each hazard separately to be meaningful.</p> <p>Compounding methodology should be developed at later stage.</p>
Rationale and interpretation	<p>This indicator directly monitors the Target G.</p>
Source and data collection	<p>National Progress Reports of the Sendai Monitor, reported to UNISDR</p>
Disaggregation	<p>By country</p>
Comments and limitations	<p>The indicator was originally proposed by UNISDR and also with other 16 agencies proposed for the SDG indicators. But Expert Group judged it would be almost impossible to measure the target according to this indicator because EWS is a localized phenomenon. The Group proposes G-8 to ratify the problem.</p> <p>Reporting of the HFA Monitor and the succeeding Sendai Monitor under development is not mandatory but it is only global database collecting DRR policy information. The HFA Monitor started in 2007 and over time, the number of countries reporting to UNISDR increased from 60 in 2007 to 133 in 2013. Because there is no specific data addressing this indicator at this moment, a baseline as of 2015 should be created through a questionnaire to all countries in order to monitor both the Sendai Framework and the SDGs.</p>

<p>Main linkage with SDG targets</p>	<p>Target 13.3: Improve education, awareness-raising and human and institutional capacity on climate change mitigation, adaptation, impact reduction and early warning</p> <p>Target 15:3: By 2020, combat desertification, restore degraded land and soil, including land affected by desertification, drought and floods, and strive to achieve a land-degradation-neutral world</p> <p>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</p> <p>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</p> <p>Target 13.1 Strengthen resilience and adaptive capacity to climate-related hazards and natural disasters in all countries</p> <p>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</p>
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Indicator G-2 Number of countries that have multi-hazard monitoring and forecasting system

Definitions	<p>Early warning system (EWS): An integrated set of hazard warning, risk assessment, communication and preparedness activities that enable individuals, communities, businesses and others to take timely action to reduce their risks. (Proposed updated Terminology on Disaster Risk Reduction, August 2015)</p> <p>Multi-hazard: addressing (1) selection of multiple major hazards that the country faces, and (2) specific contexts where hazardous events may occur simultaneously or cumulatively over time, and taking into account the potential interrelated effects.</p> <p>Multi-hazard early warning system: An early warning system designed to be used in multi-hazard contexts where hazardous events may occur simultaneously or cumulatively over time, and taking into account the potential interrelated effects. (Proposed updated Terminology on Disaster Risk Reduction, August 2015)</p> <p>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. (Proposed updated Terminology on Disaster Risk Reduction, August 2015)</p> <p>Monitoring and forecasting system: System consisting of device, people and institutional arrangement to observe, check or keep a continuous record of hazard or natural phenomena (such as precipitation) as well as define statement or statistical estimate of the likely occurrence of a future hazardous event or conditions for a specific area.</p> <p>Monitor: A device used for observing, checking, or keeping a continuous record of something (Oxford Dictionary)</p> <p>Forecast: Definite statement or statistical estimate of the likely occurrence of a future hazardous event or conditions for a specific area. (Proposed updated Terminology on Disaster Risk Reduction, August 2015)</p> <p>Country: A nation with its own government, occupying a particular territory (Oxford Dictionary)</p>
Method of computation	This indicator should be measured for each hazard separately to be meaningful.
Rationale and interpretation	This indicator monitors a component of EWS four components.
Source and data collection	National Progress Reports of the Sendai Monitor, reported to UNISDR
Disaggregation	By country
Comments and limitations	Reporting of the HFA Monitor and the succeeding Sendai Monitor under development is not mandatory but it is only global database collecting DRR policy information. The HFA Monitor started in 2007 and over time, the number of countries reporting to UNISDR increased from 60 in 2007 to 133

	<p>in 2013. Because there is no specific data addressing this indicator at this moment, a baseline as of 2015 should be created through a questionnaire to all countries in order to monitor both the Sendai Framework and the SDGs.</p>
<p>Main linkage with SDG targets</p>	<p>Not proposed for the SDGs but related with the following targets.</p> <p>Target 13.3: Improve education, awareness-raising and human and institutional capacity on climate change mitigation, adaptation, impact reduction and early warning</p> <p>Target 15.3: By 2020, combat desertification, restore degraded land and soil, including land affected by desertification, drought and floods, and strive to achieve a land-degradation-neutral world</p> <p>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</p> <p>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</p> <p>Target 13.1 Strengthen resilience and adaptive capacity to climate-related hazards and natural disasters in all countries</p> <p>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</p>

Indicator G-3 Number of people who are covered by multi-hazard early warning system

Definitions	<p>Early warning system (EWS): An integrated set of hazard warning, risk assessment, communication and preparedness activities that enable individuals, communities, businesses and others to take timely action to reduce their risks. (Proposed updated Terminology on Disaster Risk Reduction, August 2015)</p> <p>Multi-hazard: addressing (1) selection of multiple major hazards that the country faces, and (2) specific contexts where hazardous events may occur simultaneously or cumulatively over time, and taking into account the potential interrelated effects.</p> <p>Multi-hazard early warning system: An early warning system designed to be used in multi-hazard contexts where hazardous events may occur simultaneously or cumulatively over time, and taking into account the potential interrelated effects. (Proposed updated Terminology on Disaster Risk Reduction, August 2015)</p> <p>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. (Proposed updated Terminology on Disaster Risk Reduction, August 2015)</p> <p>People covered : People who are supposed to receive the early warning because they are considered in the geospatial and social coverage of the warning</p>
Method of computation	This indicator should be measured for each hazard separately to be meaningful.
Rationale and interpretation	This indicator monitors a component of EWS four components.
Source and data collection	National Progress Reports of the Sendai Monitor, reported to UNISDR
Disaggregation	By country
Comments and limitations	Reporting of the HFA Monitor and the succeeding Sendai Monitor under development is not mandatory but it is only global database collecting DRR policy information. The HFA Monitor started in 2007 and over time, the number of countries reporting to UNISDR increased from 60 in 2007 to 133 in 2013. Because there is no specific data addressing this indicator at this moment, a baseline as of 2015 should be created through a questionnaire to all countries in order to monitor both the Sendai Framework and the SDGs.
Main linkage with SDG targets	<p>Not proposed for the SDGs but related with the following targets.</p> <p>Target 13.3: Improve education, awareness-raising and human and institutional capacity on climate change mitigation, adaptation, impact reduction and early warning</p>

	<p>Target 15:3: By 2020, combat desertification, restore degraded land and soil, including land affected by desertification, drought and floods, and strive to achieve a land-degradation-neutral world</p> <p>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</p> <p>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</p> <p>Target 13.1 Strengthen resilience and adaptive capacity to climate-related hazards and natural disasters in all countries</p> <p>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</p>
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Indicator G-4 Percentage of local governments having preparedness plan (including EWS response and evacuation components) or evacuation plan.

Definitions	<p>Preparedness plan: Plan that establishes arrangements in advance to enable timely, effective and appropriate responses to specific potential events or emerging situations that might threaten society or the environment.</p> <p>Contingency planning: A management process that analyses emerging disaster risks and establishes arrangements in advance to enable timely, effective and appropriate responses. (Proposed updated Terminology on Disaster Risk Reduction, August 2015)</p> <p>Preparedness: The knowledge and capacities developed by governments, professional response and recovery organizations, communities and individuals to effectively anticipate, respond to, and recover from, the impacts of likely, imminent or current disasters. (Proposed updated Terminology on Disaster Risk Reduction, August 2015)</p> <p>Evacuation plan: Plan that establishes arrangements in advance to enable people and if possible assets to move temporarily to safer places before, during or after the occurrence of a hazardous event.</p> <p>Evacuated: People who, for different reasons or circumstances because of risk conditions or disaster, move temporarily to safer places before, during or after the occurrence of a hazardous event. (Proposed updated Terminology on Disaster Risk Reduction, August 2015)</p> <p>Local Government: Form of public administration at the lowest tier of administration within a given state, which generally acts within powers delegated to them by legislation or directives of the higher level of government.</p>
Method of computation	This indicator should be measured for each hazard separately to be meaningful.
Rationale and interpretation	This indicator monitors a component of EWS four components.
Source and data collection	National Progress Reports of the Sendai Monitor, reported to UNISDR
Disaggregation	By country, By city
Comments and limitations	Reporting of the HFA Monitor and the succeeding Sendai Monitor under development is not mandatory but it is only global database collecting DRR policy information. The HFA Monitor started in 2007 and over time, the number of countries reporting to UNISDR increased from 60 in 2007 to 133 in 2013. Because there is no specific data addressing this indicator at this moment, a baseline as of 2015 should be created through a questionnaire to all countries in order to monitor both the Sendai Framework and the SDGs.
Main linkage with SDG targets	Not proposed for the SDGs but related with the following targets. Target 13.3: Improve education, awareness-raising and human and institutional capacity on climate change mitigation, adaptation, impact reduction and early warning.

	<p>Target 15:3: By 2020, combat desertification, restore degraded land and soil, including land affected by desertification, drought and floods, and strive to achieve a land-degradation-neutral world</p> <p>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</p> <p>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</p> <p>Target 13.1 Strengthen resilience and adaptive capacity to climate-related hazards and natural disasters in all countries</p> <p>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</p> <p>Target 11.b: By 2020, substantially increase the number of cities and human settlements adopting and implementing integrated policies and plans towards inclusion, resource efficiency, mitigation and adaptation to climate change, resilience to disasters, and develop and implement, in line with the Sendai Framework for Disaster Risk Reduction 2015-2030, holistic disaster risk management at all levels</p>
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Indicator G-5 Number of countries that have multi-hazard national risk assessment with results in an accessible, understandable and usable format for stakeholders and people

Definitions	<p>Risk assessment: An approach to determine the nature and extent of risk by analysing potential hazards and evaluating existing conditions of vulnerability that together could potentially harm exposed people, property, services, livelihoods and the environment on which they depend. (Proposed updated Terminology on Disaster Risk Reduction, August 2015)</p> <p>Multi-hazard: addressing (1) selection of multiple major hazards that the country faces, and (2) specific contexts where hazardous events may occur simultaneously or cumulatively over time, and taking into account the potential interrelated effects.</p> <p>Multi-hazard early warning system: An early warning system designed to be used in multi-hazard contexts where hazardous events may occur simultaneously or cumulatively over time, and taking into account the potential interrelated effects. (“Proposed updated Terminology on Disaster Risk Reduction (August 2015)”)</p> <p>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. (Proposed updated Terminology on Disaster Risk Reduction, August 2015)</p> <p>Accessible, understandable and usable format: The targeted stakeholders can access the outputs with ease, understand it and use it for their respective needs.</p> <p>Stakeholders and People: Stakeholder is a person or an entity with a specific interest or concern in having access to use risk assessment results and people refer to the citizens of a country or a city.</p> <p>Country: A nation with its own government, occupying a particular territory (Oxford Dictionary)</p>
Method of computation	This indicator should be measured for each hazard separately to be meaningful.
Rationale and interpretation	This indicator directly monitors the element of “disaster risk information and assessments” of the Target G and a component of EWS four components.
Source and data collection	National Progress Reports of the Sendai Monitor, reported to UNISDR
Disaggregation	By country
Comments and limitations	<p>The indicator was originally proposed by UNISDR and also with other 16 agencies proposed for SDG indicators.</p> <p>Reporting of the HFA Monitor and the succeeding Sendai Monitor under development is not mandatory but it is only global database collecting DRR policy information. The HFA Monitor started in 2007 and over time, the number of countries reporting to UNISDR increased from 60 in 2007 to 133 in</p>

	<p>2013. Because there is no specific data addressing this indicator at this moment, a baseline as of 2015 should be created through a questionnaire to all countries in order to monitor both the Sendai Framework and the SDGs.</p>
<p>Main linkage with SDG targets</p>	<p>Target 13.3: Improve education, awareness-raising and human and institutional capacity on climate change mitigation, adaptation, impact reduction and early warning</p> <p>Target 15.3: By 2020, combat desertification, restore degraded land and soil, including land affected by desertification, drought and floods, and strive to achieve a land-degradation-neutral world</p> <p>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</p> <p>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</p> <p>Target 13.1 Strengthen resilience and adaptive capacity to climate-related hazards and natural disasters in all countries</p> <p>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</p> <p>Target 3.9: By 2030, substantially reduce the number of deaths and illnesses from hazardous chemicals and air, water and soil pollution and contamination</p> <p>Target 3.6: By 2020, halve the number of global deaths and injuries from road traffic accidents</p> <p>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</p>

Indicator G-6 Percentage of local governments that have multi-hazard risk assessment with results in an accessible, understandable and usable format for stakeholders and people.

Definitions	<p>Risk assessment: An approach to determine the nature and extent of risk by analysing potential hazards and evaluating existing conditions of vulnerability that together could potentially harm exposed people, property, services, livelihoods and the environment on which they depend. (Proposed updated Terminology on Disaster Risk Reduction, August 2015)</p> <p>Multi-hazard: addressing (1) selection of multiple major hazards that the country faces, and (2) specific contexts where hazardous events may occur simultaneously or cumulatively over time, and taking into account the potential interrelated effects.</p> <p>Multi-hazard early warning system: An early warning system designed to be used in multi-hazard contexts where hazardous events may occur simultaneously or cumulatively over time, and taking into account the potential interrelated effects. (Proposed updated Terminology on Disaster Risk Reduction, August 2015)</p> <p>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. (Proposed updated Terminology on Disaster Risk Reduction, August 2015)</p> <p>Accessible, understandable and usable format: The targeted stakeholders can access the outputs with ease, understand it and use it for their respective needs.</p> <p>Stakeholders and People: Stakeholder is a person or an entity with a specific interest or concern in having access to use risk assessment results and people refer to the citizens of a country or a city.</p> <p>Local Government: Form of public administration at the lowest tier of administration within a given state, which generally acts within powers delegated to them by legislation or directives of the higher level of government.</p>
Method of computation	This indicator should be measured for each hazard separately to be meaningful.
Rationale and interpretation	This indicator directly monitors the element of “disaster risk information and assessments” of the Target G and a component of EWS four components.
Source and data collection	National Progress Reports of the Sendai Monitor, reported to UNISDR
Disaggregation	By country, By city
Comments and limitations	Reporting of the HFA Monitor and the succeeding Sendai Monitor under development is not mandatory but it is only global database collecting DRR policy information. The HFA Monitor started in 2007 and over time, the number of countries reporting to UNISDR increased from 60 in 2007 to 133 in 2013. Because there is no specific data addressing this indicator at this

	<p>moment, a baseline as of 2015 should be created through a questionnaire to all countries in order to monitor both the Sendai Framework and the SDGs.</p>
<p>Main linkage with SDG targets</p>	<p>Not proposed for the SDGs but related with the following targets.</p> <p>Target 13.3: Improve education, awareness-raising and human and institutional capacity on climate change mitigation, adaptation, impact reduction and early warning</p> <p>Target 15:3: By 2020, combat desertification, restore degraded land and soil, including land affected by desertification, drought and floods, and strive to achieve a land-degradation-neutral world</p> <p>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</p> <p>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</p> <p>Target 13.1 Strengthen resilience and adaptive capacity to climate-related hazards and natural disasters in all countries</p> <p>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</p> <p>Target 11.b: By 2020, substantially increase the number of cities and human settlements adopting and implementing integrated policies and plans towards inclusion, resource efficiency, mitigation and adaptation to climate change, resilience to disasters, and develop and implement, in line with the Sendai Framework for Disaster Risk Reduction 2015-2030, holistic disaster risk management at all levels</p>

Indicator G-7 Percentage of population with understanding of the risk they are exposed to

Definition	<p>Risk: The combination of the probability of an event and its consequences which result from interaction (s) between natural or human induced hazard (s), vulnerability, exposure and capacity. (Proposed updated Terminology on Disaster Risk Reduction, August 2015)</p> <p>Exposed to: `Being in a state present in hazard zones that are thereby subject to potential losses.</p>
Method of computation	This indicator should be measured for each hazard separately to be meaningful.
Rationale and interpretation	This indicator indirectly relates with the Target G.
Source and data collection	<u>Method of objective data collection (how to measure people’s understanding) should be developed.</u>
Disaggregation	By country
Comments and limitations	<p>Method of objective data collection (how to measure people’s understanding) should be developed.</p> <p>Expert Group proposed this indicator. UNISDR has reservation because this indicator would be extremely difficult to measure objectively at global level.</p>
Main linkage with SDG targets	<p>Not proposed for the SDGs but related with the following targets.</p> <p>Target 13.3: Improve education, awareness-raising and human and institutional capacity on climate change mitigation, adaptation, impact reduction and early warning</p> <p>Target 15:3: By 2020, combat desertification, restore degraded land and soil, including land affected by desertification, drought and floods, and strive to achieve a land-degradation-neutral world</p> <p>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</p> <p>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</p>

	<p>Target 13.1 Strengthen resilience and adaptive capacity to climate-related hazards and natural disasters in all countries</p> <p>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.</p>
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Indicator G-8 Number of countries that have national plans with budget and timeline for development of multi-hazard EWS

Definitions	<p>Early warning system (EWS): An integrated set of hazard warning, risk assessment, communication and preparedness activities that enable individuals, communities, businesses and others to take timely action to reduce their risks. (Proposed updated Terminology on Disaster Risk Reduction, August 2015)</p> <p>Multi-hazard: addressing (1) selection of multiple major hazards that the country faces, and (2) specific contexts where hazardous events may occur simultaneously or cumulatively over time, and taking into account the potential interrelated effects.</p> <p>Multi-hazard early warning system: An early warning system designed to be used in multi-hazard contexts where hazardous events may occur simultaneously or cumulatively over time, and taking into account the potential interrelated effects. (Proposed updated Terminology on Disaster Risk Reduction, August 2015)</p> <p>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. (Proposed updated Terminology on Disaster Risk Reduction, August 2015)</p> <p>Country: A nation with its own government, occupying a particular territory (Oxford Dictionary)</p>
Method of computation	This indicator should be measured for each hazard separately to be meaningful.
Rationale and interpretation	G-8 is input indicators not directly monitoring “availability and accessibility”.
Source and data collection	National Progress Reports of the Sendai Monitor, reported to UNISDR
Disaggregation	By country
Comments and limitations	<p>Expert Group proposed this indicator. UNISDR has reservation because output of this policy can be measured by indicators G-1 (computed based on G-2 to G-4 and G—6).</p> <p>Reporting of the HFA Monitor and the succeeding Sendai Monitor under development is not mandatory but it is only global database collecting DRR policy information. The HFA Monitor started in 2007 and over time, the number of countries reporting to UNISDR increased from 60 in 2007 to 133 in 2013. Because there is no specific data addressing this indicator, a baseline as of 2015 should be created through a questionnaire to all countries in order to monitor both the Sendai Framework and the SDGs.</p>
Main linkage with SDG targets	Not proposed for the SDGs but related with the following targets.

	<p>Target 13.3: Improve education, awareness-raising and human and institutional capacity on climate change mitigation, adaptation, impact reduction and early warning</p> <p>Target 15:3: By 2020, combat desertification, restore degraded land and soil, including land affected by desertification, drought and floods, and strive to achieve a land-degradation-neutral world</p> <p>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</p> <p>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</p> <p>Target 13.1 Strengthen resilience and adaptive capacity to climate-related hazards and natural disasters in all countries</p> <p>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</p>
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Indicator G-9 Number of countries that have disaster loss databases publicly accessible

Definition	<p>Disaster loss database: A collection of systematically collected records about disaster occurrence, damages, losses and impacts, ideally compliant with the Sendai Framework monitoring minimum requirements.</p> <p>Country: A nation with its own government, occupying a particular territory (Oxford Dictionary)</p>
Method of computation	Summation of data from National Progress Reports of the Sendai Monitor, reported to UNISDR
Rationale and interpretation	<p>This indicator indirectly relates with the Target G.</p> <p>Disaster loss information represents part of disaster risk information, especially useful for disaster risk reduction policies for frequent disasters.</p> <p>This indicator monitors loss data availability and accessibility.</p>
Source and data collection	National Progress Reports of the Sendai Monitor, reported to UNISDR
Disaggregation	By country
Comments and limitations	<p>This indicator can be implicitly measured by country reporting to the Targets A through D.</p> <p>Reporting of the HFA Monitor and the succeeding Sendai Monitor under development is not mandatory but it is only global database collecting DRR policy information. The HFA Monitor started in 2007 and over time, the number of countries reporting to UNISDR increased from 60 in 2007 to 133 in 2013. Because there is no specific data addressing this indicator at this moment, a baseline as of 2015 should be created through a questionnaire to all countries in order to monitor both the Sendai Framework and the SDGs.</p>
Main linkage with SDG targets	<p>Not proposed for the SDGs but related with the following targets.</p> <p>Target 13.3: Improve education, awareness-raising and human and institutional capacity on climate change mitigation, adaptation, impact reduction and early warning</p> <p>Target 15.3: By 2020, combat desertification, restore degraded land and soil, including land affected by desertification, drought and floods, and strive to achieve a land-degradation-neutral world</p> <p>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</p> <p>Target 11.5 By 2030, significantly reduce the number of deaths and the number</p>

	<p>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</p> <p>Target 13.1 Strengthen resilience and adaptive capacity to climate-related hazards and natural disasters in all countries</p> <p>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</p>
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Indicator G-10 Number of countries that have open data policies and mechanisms to make hazard and risk data accessible and available to all users

Definition	<p>Open Data: “Anyone is free to use, reuse, and distribute if subject only, at most, to requirement to attribute and/or share-alike” (source: Open Data Commons Attribution License).</p> <p>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. (“Proposed updated Terminology on Disaster Risk Reduction, August 2015)</p> <p>Risk: The combination of the probability of an event and its consequences which result from interaction (s) between natural or human induced hazard (s), vulnerability, exposure and capacity. (Proposed updated Terminology on Disaster Risk Reduction, August 2015)</p> <p>Country: A nation with its own government, occupying a particular territory (Oxford Dictionary)</p>
Method of computation	Summation of data from National Progress Reports of the Sendai Monitor, reported to UNISDR
Rationale and interpretation	This indicator indirectly relates with the Target G.
Source and data collection	National Progress Reports of the Sendai Monitor, reported to UNISDR
Disaggregation	By country
Comments and limitations	<p>Expert Group proposed this indicator. UNISDR has reservation because output of this policy can be measured by indicators G-1 (computed based on G-2 to G-4 and G—6) and G-5.</p> <p>Reporting of the HFA Monitor and the succeeding Sendai Monitor under development is not mandatory but it is only global database collecting DRR policy information. The HFA Monitor started in 2007 and over time, the number of countries reporting to UNISDR increased from 60 in 2007 to 133 in 2013. Because there is no specific data addressing this indicator at this moment, a baseline as of 2015 should be created through a questionnaire to all countries in order to monitor both the Sendai Framework and the SDGs.</p>
Main linkage with SDG targets	<p>Not proposed for the SDGs but related with the following targets.</p> <p>Target 13.3: Improve education, awareness-raising and human and institutional capacity on climate change mitigation, adaptation, impact reduction and early warning</p> <p>Target 15.3: By 2020, combat desertification, restore degraded land and soil, including land affected by desertification, drought and floods, and strive to achieve a land-degradation-neutral world</p>

	<p>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</p> <p>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</p> <p>Target 13.1 Strengthen resilience and adaptive capacity to climate-related hazards and natural disasters in all countries</p> <p>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.</p>
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