

**ANNEX to**

**The Working Background Text on Indicators  
for the 7 Global Targets of the Sendai  
Framework for Disaster Risk Reduction**

2 October 2015

*Reissued on 23 October 2015 with technical corrections*

The Annex to the Working Background Text includes initial comments and proposals received at the first session of the Open-Ended Intergovernmental Expert Working Group on Indicators and Terminology relating to Disaster Risk Reduction, held in Geneva on 29-30 September 2015, as informed by the “Indicators to monitor global targets of the Sendai Framework for Disaster Risk Reduction 2015-2030 - a technical review” , as well as the correction of factual errors requested by the Experts.

The United Nations Office for Disaster Risk Reduction

# Part I

**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:**

A1 - Number of [deaths / deceased – Cuba, Bangladesh] and [missing [persons – Bangladesh] / presumed dead – Bangladesh] 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)*

[A2 - Number of [deaths / deceased – Cuba, Bangladesh] due to hazardous events- Ecuador delete]

*(SDG proposal: Consistency with SDG proposal needed)*

[A3 - Number of [missing [persons – Bangladesh] / presumed dead – Bangladesh] due to hazardous events- Ecuador delete]

*(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)

<p>Definitions</p>	<p><b>Death:</b> The number of people who died during the disaster, or [directly after/address specific time frame-Greece], [as a direct result of/ attributable to -Paraguay] the hazardous event</p> <p><b>Killed:</b> People who lost their lives as a consequence of a hazardous event. (Proposed updated Terminology on Disaster Risk Reduction, August 2015)</p> <p><b>Cuba:</b> “Deaths” should be replaced by “deceased,” in alignment with the discussion on terminology regarding the word “killed.”</p> <p><b>Greece:</b> Time dimension should be defined. For example, how to record someone who is seriously injured during a hazardous event, but dies 1 month after? We would like to propose that the phrase “directly after” should be replaced by the expression of a time period which is going to be defined.</p> <p><b>Missing:</b> 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><b>Hazardous event:</b> 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><b>Hazard:</b> 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. 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><b>Greece:</b> It should be clarified whether 100,000 is referred to the total population or the exposed population. Also it should be taken into consideration that if 100,000 is referred to the total population then the indicator A-1 might end up to misleading results under certain conditions.</p> <p><b>Egypt:</b> At national level, each country can measure the mortality as is relevant to its own size of population.</p>
<p>Rationale and interpretation</p>	<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</p>

	<p>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> <p><b>Philippines, Liberia, Bhutan:</b> Need distinction between direct or indirect deaths. Data on deaths should be mutually exclusive with data on injured. If people are injured by a disaster and die shortly after, how should it be subjected to these categories?</p> <p><b>India:</b> Landslides cause floods that kill people, which may also cause fatal waterborne illnesses: to which event is the death attributed? “Attributions” of death and missing is one way to define the scope of this indicator.</p> <p>India: Attribution to a hazardous event is important.</p> <p><b>Switzerland and Germany:</b> How to calculate the deaths due to slow on-set disasters, such as heat wave? How about the case that falling trees in recovery from a hazardous event caused additional deaths later?</p> <p><b>Germany:</b> How do we measure impact on other nationals? We collect data on affected citizens in other countries as well. Double counting should be avoided. <i>UNISDR note: It is proposed the country where the event happened does report all deaths.</i></p> <p><b>Bangladesh, Germany, Lesotho:</b> Secondary deaths, such as those of the health workers, volunteers and humanitarian workers in the Ebola Crisis, are taken into account as deceased persons.</p> <p><b>Czech Republic:</b> There will be some double counting and no counting but unless it is significant percentage of the total number we should not be scared by this too much.</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 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><b>Bangladesh, Australia:</b> It is recommended to specify per type of hazard to overcome the problem of attribution.</p> <p><b>El Salvador:</b> There is no disaggregated data under Target (a): currently, there are too few categories compared to indicators under other targets. For example, El Salvador would be interested to disaggregate death by migratory</p>

	<b>status.</b>
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><b>Target 11.5:</b> By 2030, significantly reduce <b>the number of deaths and the number of people affected</b> and substantially decrease the direct economic losses relative to global gross domestic product caused by <b>disasters</b>, including water-related disasters, with a focus on protecting the poor and people in vulnerable situations</p> <p><b>Target 13.1:</b> Strengthen <b>resilience and adaptive capacity to climate-related hazards and natural disasters</b> in all countries</p> <p><b>Target 1.5:</b> By 2030, build <b>the resilience of the poor and those in vulnerable situations</b> and reduce their <b>exposure and vulnerability to climate-related extreme events</b> and other economic, social and environmental shocks and <b>disasters</b></p> <p><b>Target 14.2:</b> By 2020, sustainably manage and protect <b>marine and coastal ecosystems</b> 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><b>Target 15.3:</b> By 2030, combat desertification, restore degraded land and soil, including <b>land affected by desertification, drought and floods</b>, and strive to achieve a land-degradation-neutral world</p> <p><b>Target 3.9:</b> By 2030, substantially reduce the number of <b>deaths and illnesses from hazardous chemicals and air, water and soil pollution and contamination</b></p> <p><b>Target 3.6:</b> By 2020, halve the number of <b>global deaths and injuries from road traffic accidents</b></p> <p><b>Target 3.d:</b> Strengthen the capacity of all countries, in particular developing countries, for <b>early warning, risk reduction and management of national and global health risks</b></p>

## Indicator A-2 Number of deaths due to hazardous events

Definitions	<p><b>Death:</b> The number of people who died during the disaster, or directly after, as a direct result of hazardous events</p> <p><b>Killed:</b> People who lost their lives as a consequence of a hazardous event. (Proposed updated Terminology on Disaster Risk Reduction, August 2015)</p> <p><b>Cuba:</b> “Deaths” should be replaced by “deceased,” in alignment with the discussion on terminology regarding the word “killed.”</p> <p><b>Hazardous event:</b> 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><b>Hazard:</b> 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</p>

	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><b>Target 11.5:</b> By 2030, significantly reduce <b>the number of deaths and the number of people affected</b> and substantially decrease the direct economic losses relative to global gross domestic product caused by <b>disasters</b>, including water-related disasters, with a focus on protecting the poor and people in vulnerable situations</p> <p><b>Target 13.1:</b> Strengthen <b>resilience and adaptive capacity to climate-related hazards and natural disasters</b> in all countries</p> <p><b>Target 1.5:</b> By 2030, build <b>the resilience of the poor and those in vulnerable situations</b> and reduce their <b>exposure and vulnerability to climate-related extreme events</b> and other economic, social and environmental shocks and <b>disasters</b></p> <p><b>Target 14.2:</b> By 2020, sustainably manage and protect <b>marine and coastal ecosystems</b> 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><b>Target 15.3:</b> By 2030, combat desertification, restore degraded land and soil, including <b>land affected by desertification, drought and floods</b>, and strive to achieve a land-degradation-neutral world</p> <p><b>Target 3.9:</b> By 2030, substantially reduce the number of <b>deaths and illnesses from hazardous chemicals and air, water and soil pollution and contamination</b></p> <p><b>Target 3.6:</b> By 2020, halve the number of <b>global deaths and injuries from road traffic accidents</b></p> <p><b>Target 3.d:</b> Strengthen the capacity of all countries, in particular developing countries, for <b>early warning, risk reduction and management of national and global health risks</b></p>

## Indicator A-3 Number of missing due to hazardous events

Definitions	<p><b>Missing:</b> 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><b>Russia:</b> It should be clarified because people may be missing for reasons not related to disaster.</p> <p><b>Hazardous event:</b> 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><b>Hazard:</b> 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> <p><b>Egypt:</b> “Missing” may introduce problems of accuracy. Countries with less capability to track their citizens’ whereabouts are at a disadvantage.</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). 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.</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 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><b>Target 11.5:</b> By 2030, significantly reduce <b>the number of deaths and the number of people affected</b> and substantially decrease the direct economic losses relative to global gross domestic product caused by <b>disasters</b>, including water-related disasters, with a focus on protecting the poor and people in vulnerable situations</p> <p><b>Target 13.1:</b> Strengthen <b>resilience and adaptive capacity to climate-related hazards and natural disasters</b> in all countries</p> <p><b>Target 1.5:</b> By 2030, build <b>the resilience of the poor and those in vulnerable situations</b> and reduce their <b>exposure and vulnerability to climate-related extreme events</b> and other economic, social and environmental shocks and <b>disasters</b></p> <p><b>Target 14.2:</b> By 2020, sustainably manage and protect <b>marine and coastal ecosystems</b> 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><b>Target 15.3:</b> By 2030, combat desertification, restore degraded land and soil, including <b>land affected by desertification, drought and floods</b>, and strive to achieve a land-degradation-neutral world</p> <p><b>Target 3.9:</b> By 2030, substantially reduce the number of <b>deaths and illnesses from hazardous chemicals and air, water and soil pollution and contamination</b></p> <p><b>Target 3.6:</b> By 2020, halve the number of <b>global deaths and injuries from road traffic accidents</b></p> <p><b>Target 3.d:</b> Strengthen the capacity of all countries, in particular developing countries, for <b>early warning, risk reduction and management of national and global health risks</b></p>

## **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:**

B1 - Number of affected people [by hazardous event-**Qatar**] 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.)*

B3 - Number of people who left their [places of residence/home -**Zimbabwe**][and places where they are-**Lesotho**] 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-3c – Number of people protected per 100,000 - **Cuba**]

[B4 - Number of people whose [houses / dwellings or homes – **Australia, Zimbabwe**] were damaged due to hazardous events.

B5 - Number of people whose [houses / dwellings or homes – **Australia, Zimbabwe**] were destroyed due to hazardous events. **Cuba** -- merge B4 and B5]

B6 - Number of people who [received / required – **Zimbabwe**] [food relief aid/aid including food and medical aid – **Morocco, Zimbabwe**] due to hazardous events.

### *Other indicators proposed in the 1<sup>st</sup> OEIWG*

[B7 – Number of people whose livelihoods were disrupted, destroyed or lost due to hazardous events – **Zimbabwe**]

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><b>Affected people:</b> 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><b>Directly affected:</b> 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><b>Indirectly affected:</b> 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 "<b>directly affected</b>", or those who are</p> <ul style="list-style-type: none"> <li>• Injured or ill (B-2),</li> <li>• Evacuated (B-3a),</li> <li>• Relocated (B-3b)</li> </ul> <p>and to measure the number who suffered direct damage to their livelihoods or assets,</p> <ul style="list-style-type: none"> <li>• People whose houses were damaged or destroyed (B-4 and B-5)</li> <li>• People who received food relief aid (B-6).</li> </ul> <p><b>India:</b> Should this indicator capture the livelihood disruption? Access to education for children/dropout rates etc?</p> <p><b>Zimbabwe:</b> On livelihoods, it is important to be clear about partially damaged and disruption of livelihoods.</p> <p><b>United Arab Emirates:</b> We have not referred to the social and health impacts.</p> <p><b>Niger:</b> Affected needs to be clarified. What would be the minimal level of affectation - i.e. would you measure individuals affected by an event occurring at a distance but who are indirectly affected because they need to use a road that leads to their workplace? Can we consider that all those people are affected the same way as people who have completely lost their house?</p> <p><b>Netherlands:</b> Include affected in globalized events, for example losing family</p>
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	<p>members involved in an event in a foreign country? Support Niger in their call for boundaries between directly and indirectly affected.</p> <p><b>Liberia:</b> We had Ebola. We have many affected people and we do not know the impact exactly. We assume affected people survived the disease, but it is not measured. We have people where entire family died except for the only one survivor. Long term effect of this is not clear. Counted as affected people?</p> <p><b>Injured or ill:</b> 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><b>Evacuated:</b> 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> <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><b>Relocated:</b> 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><b>People whose houses were damaged or destroyed due to hazardous events:</b> 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><b>Houses destroyed:</b> Houses (housing units) levelled, buried, collapsed, washed away or damaged to the extent that they are no longer habitable. (SDG Proposal)</p> <p><b>Houses damaged:</b> 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><b>People who received food relief aid:</b> The number of persons who received food /nutrition, by government or as humanitarian aid, during or in the aftermath of a hazardous event.</p>
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	<p><b>Hazardous event:</b> 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><b>Hazard:</b> 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. 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 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> <p><b>European Union:</b> Are these one single composite indicator or a set of parallel indicators? If one indicator, what are some alternative components for calculating B1? Need clarification on ideas on how the indicators will be combined. Trying to count all affected people and count them only once is a key issue. An injured person can also lose a house and would thus be double counted.</p> <p><b>Italy:</b> Target B includes different elements and quality standards. Without a standard for statistical methods to synthesize the data on Target (b), it would be better to collect the indicators separately.</p> <p><b>Greece:</b> It should be clarified whether 100,000 is referred to the total population or the exposed population. Also it should be taken into consideration that if 100,000 is referred to the total population then the indicator B-1 might end up to misleading results under certain conditions.</p>
<p>Rationale and interpretation</p>	<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</p>

	<p>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> <p><b>El Salvador: disaggregation by migratory status</b></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><b>Target 11.5:</b> By 2030, significantly reduce <b>the number of deaths</b> and <b>the number of people affected</b> and substantially decrease the direct economic losses relative to global gross domestic product caused by <b>disasters</b>, including water-related disasters, with a focus on protecting the poor and people in vulnerable situations</p> <p><b>Target 13.1:</b> Strengthen <b>resilience and adaptive capacity to climate-related hazards and natural disasters</b> in all countries</p> <p><b>Target 1.5:</b> By 2030, build <b>the resilience of the poor and those in vulnerable situations</b> and reduce their <b>exposure and vulnerability to climate-related extreme events</b> and other economic, social and environmental shocks and <b>disasters</b></p>

	<p><b>Target 1.3:</b> Implement nationally appropriate <b>social protection systems and measures</b> for all, including floors, and by 2030 achieve substantial coverage of the poor and the vulnerable</p> <p><b>Target 14.2:</b> By 2030, sustainably manage and protect <b>marine and coastal ecosystems</b> 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><b>Target 15.3:</b> By 2030, combat desertification, restore degraded land and soil, including <b>land affected by desertification, drought and floods</b>, and strive to achieve a land-degradation-neutral world</p> <p><b>Target 3.9:</b> By 2030, substantially reduce the number of <b>deaths and illnesses from hazardous chemicals and air, water and soil pollution and contamination</b></p> <p><b>Target 3.6:</b> By 2020, halve the number of <b>global deaths and injuries from road traffic accidents</b></p> <p><b>Target 3.d:</b> Strengthen the capacity of all countries, in particular developing countries, for <b>early warning, risk reduction and management of national and global health risks</b></p>
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## Indicator B-2 Number of injured or ill people due to hazardous events

<p>Definitions</p>	<p><b>Injured or ill:</b> 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><b>Sweden:</b> Important to specify what we mean with ill or injured. Definition in terminology is too wide and difficult to measure. Definition for the SDG proposal is better.</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><b>Hazardous event:</b> 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><b>Hazard:</b> 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><b>Cuba:</b> On B-2 and B-3, they should not be mutually exclusive.</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>

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><b>Target 11.5:</b> By 2030, significantly reduce <b>the number of deaths and the number of people affected</b> and substantially decrease the direct economic losses relative to global gross domestic product caused by <b>disasters</b>, including water-related disasters, with a focus on protecting the poor and people in vulnerable situations</p> <p><b>Target 13.1:</b> Strengthen <b>resilience and adaptive capacity to climate-related hazards and natural disasters</b> in all countries</p> <p><b>Target 1.5:</b> By 2030, build <b>the resilience of the poor and those in vulnerable situations</b> and reduce their <b>exposure and vulnerability to climate-related extreme events</b> and other economic, social and environmental shocks and <b>disasters</b></p> <p><b>Target 1.3:</b> Implement nationally appropriate <b>social protection systems and measures</b> for all, including floors, and by 2030 achieve substantial coverage of the poor and the vulnerable</p> <p><b>Target 14.2:</b> By 2020, sustainably manage and protect <b>marine and coastal ecosystems</b> 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><b>Target 15.3:</b> By 2030, combat desertification, restore degraded land and soil, including <b>land affected by desertification, drought and floods</b>, and strive to achieve a land-degradation-neutral world</p> <p><b>Target 3.9:</b> By 2030, substantially reduce the number of <b>deaths and illnesses from hazardous chemicals and air, water and soil pollution and contamination</b></p> <p><b>Target 3.6:</b> By 2020, halve the number of <b>global deaths and injuries from road traffic accidents</b></p> <p><b>Target 3.d:</b> Strengthen the capacity of all countries, in particular developing countries, for <b>early warning, risk reduction and management of national and global health risks</b></p>

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

Definitions	<p><b>People left their places of residence:</b> 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><b>Displaced:</b> 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><b>Evacuated:</b> 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><b>Relocated:</b> 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><b>India:</b> Distance and timeframe are difficult issue and context specific but counting this indicator is important because moving people affects people greatly.</p> <p><b>Lesotho:</b> It should not only be place of residence, or people residing there, but also visitors who might be there for business or personal reasons. Disasters do not distinguish residents and non-residents. Also include people engaged in relief and rescue activities.</p> <p><b>Argentina:</b> Be clear about the difference between relocation and evacuation. The temporal issue is not clear. Sometimes, temporal evacuation can begin to seem more permanent. We need to help it be more clear for the various situations that may arise, particularly in a people-centered fashion.</p> <p><b>Philippines:</b> We should look at B-3 in relation to B-4 and B-5. If you look at B-4 and B-5, there is a distinction between damaged and destroyed.</p> <p><b>Trinidad and Tobago:</b> Estimates of evacuation and relocated persons is more important than actually reported cases. Programs of resiliency where people can be relocated is also something to look at.</p> <p><b>Australia:</b> Sometimes temporal evacuation can begin to seem more permanent.</p> <p><b>Hazardous event:</b> 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>
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	<p><b>Hazard:</b> 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>
Method of computation	<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>
Rationale and interpretation	<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 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>

<p>Main linkage with SDG targets</p>	<p><b>Target 11.5:</b> By 2030, significantly reduce <b>the number of deaths and the number of people affected</b> and substantially decrease the direct economic losses relative to global gross domestic product caused by <b>disasters</b>, including water-related disasters, with a focus on protecting the poor and people in vulnerable situations</p> <p><b>Target 13.1:</b> Strengthen <b>resilience and adaptive capacity to climate-related hazards and natural disasters</b> in all countries</p> <p><b>Target 1.5:</b> By 2030, build <b>the resilience of the poor and those in vulnerable situations</b> and reduce their <b>exposure and vulnerability to climate-related extreme events</b> and other economic, social and environmental shocks and <b>disasters</b></p> <p><b>Target 1.4:</b> 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 <b>basic services</b>, ownership and control over land and other forms of property, inheritance, natural resources, appropriate new technology and financial services, including microfinance</p> <p><b>Target 1.3:</b> Implement nationally appropriate <b>social protection systems and measures</b> for all, including floors, and by 2030 achieve substantial coverage of the poor and the vulnerable</p> <p><b>Target 14.2:</b> By 2020, sustainably manage and protect <b>marine and coastal ecosystems</b> 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><b>Target 15.3:</b> By 2030, combat desertification, restore degraded land and soil, including <b>land affected by desertification, drought and floods</b>, and strive to achieve a land-degradation-neutral world</p> <p><b>Target 3.d:</b> Strengthen the capacity of all countries, in particular developing countries, for <b>early warning, risk reduction and management of national and global health risks</b></p>
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## Indicator B-3a Number of evacuated people due to hazardous events

Definitions	<p><b>Evacuated:</b> 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><b>Hazardous event:</b> 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><b>Hazard:</b> 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><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><b>Japan:</b> The evacuation can be precautionary measures. If the indicator is only focused on the number of evacuated people, it could give the wrong message. The evacuated depends on the accuracy of EWS. We should note that the evacuation issue has sensitivity. We should focus on the period of evacuation post-disaster event. It clearly shows affectation.</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. 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)

	<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><b>Target 11.5:</b> By 2030, significantly reduce <b>the number of deaths and the number of people affected</b> and substantially decrease the direct economic losses relative to global gross domestic product caused by <b>disasters</b>, including water-related disasters, with a focus on protecting the poor and people in vulnerable situations</p> <p><b>Target 13.1:</b> Strengthen <b>resilience and adaptive capacity to climate-related hazards and natural disasters</b> in all countries</p> <p><b>Target 1.5:</b> By 2030, build <b>the resilience of the poor and those in vulnerable situations</b> and reduce their <b>exposure and vulnerability to climate-related extreme events</b> and other economic, social and environmental shocks and <b>disasters</b></p> <p><b>Target 1.3:</b> Implement nationally appropriate <b>social protection systems and measures</b> for all, including floors, and by 2030 achieve substantial coverage of the poor and the vulnerable</p> <p><b>Target 1.4:</b> 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 <b>basic services</b>, ownership and control over land and other forms of property, inheritance, natural resources, appropriate new technology and financial services, including microfinance</p> <p><b>Target 14.2:</b> By 2020, sustainably manage and protect <b>marine and coastal ecosystems</b> 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><b>Target 15.3:</b> By 2030, combat desertification, restore degraded land and soil, including <b>land affected by desertification, drought and floods</b>, and strive to achieve a land-degradation-neutral world</p>

	<p><b>Target 3.d:</b> Strengthen the capacity of all countries, in particular developing countries, for <b>early warning, risk reduction and management of national and global health risks</b></p> <p><b>Target 13.3:</b> Improve <b>education, awareness-raising</b> and human and institutional <b>capacity</b> on <b>climate change mitigation, adaptation, impact reduction and early warning</b></p> <p><b>Target 2.4:</b> By 2030, ensure sustainable food production systems and implement <b>resilient agricultural practices</b> that increase productivity and production, that help maintain ecosystems, that strengthen <b>capacity for adaptation to climate change, extreme weather, drought, flooding and other disasters</b> and that progressively improve land and soil quality</p>
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## Indicator B-3b Number of relocated people due to hazardous events

<p>Definitions</p>	<p><b>Relocated:</b> 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><b>Colombia:</b> We are obliged to relocate people after a disaster, but also voluntarily relocate people to protect them in danger of a disaster. Positive measures include “voluntary” relocation to mitigate risk, which is different from forced relocation.</p> <p><b>Ethiopia:</b> Some people lost everything and are displaced in their vicinity (e.g. within 1 km). we call them “specially displaced people”. Would this be considered within the definition of this term, as relates to indicator B3b?</p> <p><b>El Salvador:</b> The relocated depends on the time frame involved and risk they face. If there is no risk, they could be re-localized. But place could be destroyed and no relocation possible. Capacity to return matters.</p> <p><b>Hazardous event:</b> 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><b>Hazard:</b> 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 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.</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> <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><b>Target 11.5:</b> By 2030, significantly reduce <b>the number of deaths</b> and <b>the number of people affected</b> and substantially decrease the direct economic losses relative to global gross domestic product caused by <b>disasters</b>, including water-related disasters, with a focus on protecting the poor and people in vulnerable situations</p> <p><b>Target 13.1:</b> Strengthen <b>resilience and adaptive capacity to climate-related hazards and natural disasters</b> in all countries</p> <p><b>Target 1.5:</b> By 2030, build <b>the resilience of the poor and those in vulnerable situations</b> and reduce their <b>exposure and vulnerability to climate-related extreme events</b> and other economic, social and environmental shocks and <b>disasters</b></p> <p><b>Target 1.4:</b> 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 <b>basic services</b>, ownership and control over land and other forms of property, inheritance, natural resources, appropriate new technology and financial services, including microfinance</p> <p><b>Target 1.3:</b> Implement nationally appropriate <b>social protection systems and measures</b> for all, including floors, and by 2030 achieve substantial coverage of the poor and the vulnerable</p> <p><b>Target 14.2:</b> By 2020, sustainably manage and protect <b>marine and coastal ecosystems</b> 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><b>Target 15.3:</b> By 2030, combat desertification, restore degraded land and soil, including <b>land affected by desertification, drought and floods</b>, and</p>

	<p>strive to achieve a land-degradation-neutral world</p> <p><b>Target 3.d:</b> Strengthen the capacity of all countries, in particular developing countries, for <b>early warning, risk reduction and management of national and global health risks</b></p>
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## Indicator B-4 Number of people whose houses were damaged due to hazardous events

Definitions	<p><b>People whose houses were damaged due to hazardous events:</b> 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><b>Australia:</b> Rather than just house, could we add other kinds of dwellings?</p> <p><b>Houses damaged:</b> 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><b>Hazardous event:</b> 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><b>Hazard:</b> 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,</p>

	<p>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><b>Target 11.5:</b> By 2030, significantly reduce <b>the number of deaths and the number of people affected</b> and substantially decrease the direct economic losses relative to global gross domestic product caused by <b>disasters</b>, including water-related disasters, with a focus on protecting the poor and people in vulnerable situations</p> <p><b>Target 13.1:</b> Strengthen <b>resilience and adaptive capacity to climate-related hazards and natural disasters</b> in all countries</p> <p><b>Target 1.5:</b> By 2030, build <b>the resilience of the poor and those in vulnerable situations</b> and reduce their <b>exposure and vulnerability to climate-related extreme events</b> and other economic, social and environmental shocks and <b>disasters</b></p> <p><b>Target 11.1:</b> By 2030, ensure access for all to adequate, <b>safe</b> and affordable <b>housing</b> and <b>basic services</b> and upgrade slums</p> <p><b>Target 1.4:</b> 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 <b>basic services</b>, ownership and control over land and other forms of property, inheritance, natural resources, appropriate new technology and financial services, including microfinance</p> <p><b>Target 1.3:</b> Implement nationally appropriate <b>social protection systems and measures</b> for all, including floors, and by 2030 achieve substantial</p>

	<p>coverage of the poor and the vulnerable</p> <p><b>Target 14.2:</b> By 2020, sustainably manage and protect <b>marine and coastal ecosystems</b> 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><b>Target 15.3:</b> By 2030, combat desertification, restore degraded land and soil, including <b>land affected by desertification, drought and floods</b>, and strive to achieve a land-degradation-neutral world</p> <p><b>Target 3.d:</b> 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><b>Target 11.c:</b> 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><b>People whose houses were destroyed due to hazardous events:</b> 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><b>Houses destroyed:</b> Houses (housing units) levelled, buried, collapsed, washed away or damaged to the extent that they are no longer habitable. (SDG Proposal)</p> <p><b>Hazardous event:</b> 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><b>Hazard:</b> 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><b>Cuba:</b> People who lost houses entirely is similar to those whose houses are damaged. So we suggest to merge B-4 and B-5 and disaggregate the information in B4a and B4b.</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,</p>

	<p>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><b>Target 11.5:</b> By 2030, significantly reduce <b>the number of deaths</b> and <b>the number of people affected</b> and substantially decrease the direct economic losses relative to global gross domestic product caused by <b>disasters</b>, including water-related disasters, with a focus on protecting the poor and people in vulnerable situations</p> <p><b>Target 13.1:</b> Strengthen <b>resilience and adaptive capacity to climate-related hazards and natural disasters</b> in all countries</p> <p><b>Target 1.5:</b> By 2030, build <b>the resilience of the poor and those in vulnerable situations</b> and reduce their <b>exposure and vulnerability to climate-related extreme events</b> and other economic, social and environmental shocks and <b>disasters</b></p> <p><b>Target 11.1:</b> By 2030, ensure access for all to adequate, <b>safe</b> and affordable <b>housing</b> and <b>basic services</b> and upgrade slums</p> <p><b>Target 1.4:</b> 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 <b>basic services</b>, ownership and control over land and other forms of property, inheritance, natural resources, appropriate new technology and financial services, including microfinance</p> <p><b>Target 1.3:</b></p>

	<p>Implement nationally appropriate <b>social protection systems and measures</b> for all, including floors, and by 2030 achieve substantial coverage of the poor and the vulnerable</p> <p><b>Target 14.2:</b> By 2020, sustainably manage and protect <b>marine and coastal ecosystems</b> 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><b>Target 15.3:</b> By 2030, combat desertification, restore degraded land and soil, including <b>land affected by desertification, drought and floods</b>, and strive to achieve a land-degradation-neutral world</p> <p><b>Target 3.d:</b> Strengthen the capacity of all countries, in particular developing countries, for <b>early warning, risk reduction and management of national and global health risks</b></p> <p><b>Target 11.c:</b> 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

<p>Definitions</p>	<p><b>People who received food relief aid:</b> 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><b>Philippines:</b> Why is this only in relation to drought?  <b>Morocco:</b> Why food relief aid is indicated and other kinds of aid have not been included? What about receipt of health aid assistance, e.g. opening hospitals in higher ground during a flood or in mountains?</p> <p><b>Hazardous event:</b> 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><b>Hazard:</b> 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 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>
<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>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>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. 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>
<p>Main linkage with SDG targets</p>	<p>Not proposed for the SDGs but related with the following targets.</p> <p><b>Target 11.5:</b> By 2030, significantly reduce <b>the number of deaths and the number of people affected</b> and substantially decrease the direct economic losses relative to global gross domestic product caused by <b>disasters</b>, including water-related disasters, with a focus on protecting the poor and people in vulnerable situations</p> <p><b>Target 13.1:</b> Strengthen <b>resilience and adaptive capacity to climate-related hazards and natural disasters</b> in all countries</p> <p><b>Target 1.5:</b> By 2030, build <b>the resilience of the poor and those in vulnerable situations</b> and reduce their <b>exposure and vulnerability to climate-related extreme events</b> and other economic, social and environmental shocks and <b>disasters</b></p> <p><b>Target 1.4:</b> 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 <b>basic services</b>, ownership and control over land and other forms of property, inheritance, natural resources, appropriate new technology and financial services, including microfinance</p> <p><b>Target 1.3:</b> Implement nationally appropriate <b>social protection systems and measures</b> for all, including floors, and by 2030 achieve substantial coverage of the poor and the vulnerable</p> <p><b>Target 3.8:</b> Achieve universal health coverage, including financial risk</p>

	<p>protection, access to quality essential health-care services and access to safe, effective, quality and affordable essential medicines and vaccines for all</p> <p><b>Target 14.2:</b> By 2020, sustainably manage and protect <b>marine and coastal ecosystems</b> 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><b>Target 15.3:</b> By 2030, combat desertification, restore degraded land and soil, including <b>land affected by desertification, drought and floods</b>, and strive to achieve a land-degradation-neutral world</p> <p><b>Target 3.d:</b> Strengthen the capacity of all countries, in particular developing countries, for <b>early warning, risk reduction and management of national and global health risks</b></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.

### (Inputs in the 1<sup>st</sup> OEIWG)

**Czech Republic:** More definitions are needed to ensure comparability of data.

### 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

[C5 - Direct economic loss due to houses damaged by hazardous events events – **Switzerland** -- merge C5 and C6; **Cuba**-- delete C5 and C6; **Japan** -- retain C5 and C6]

*(SDG proposal: Consistency with SDG proposal needed.)*

[C6 - Direct economic loss due to houses destroyed by hazardous events – **Switzerland** -- merge C5 and C6; **Cuba**-- delete C5 and C6; **Japan** -- retain C5 and C6]

*(SDG proposal: Consistency with SDG proposal needed.)*

C7 - Direct economic loss due to damage to [critical infrastructure/public infrastructure- **Bhutan**, **Kenya**] 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.)*

*Other indicators proposed in the 1<sup>st</sup> OEIWG*

[C8 –Direct economic loss due to cultural heritage damaged or destroyed by hazardous events -  
**Bhutan**]

[C9 – Direct economic loss due to environment degraded by hazardous events –**Morocco, Ecuador**]

[C10-Financial transfer and access to insurance-**Colombia**]

**(Inputs in the 1<sup>st</sup> OEIWG)**

**Cuba:** C-5 and C-6 are similar to B-4 and B-5. Not necessary here. We already see the “trend” as expressed by people affected when they lost their homes.

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><b>Direct economic loss:</b> 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><b>Global gross domestic product:</b> Summation of GDP of Countries. GDP definition according to the World Bank.</p> <p><b>Tanzania:</b> Economic loss must be broader. Economic issues cover lots of sectors.</p> <p><b>Ecuador:</b> Economic loss could also be related to environmental services, e.g. burning forests and tourist areas. Prefers to have an indicator with a component that comprises all.</p> <p><b>Morocco:</b> Direct loss linked to environmental degradation. Tsunami related event can destroy ecosystems and could also affect oil platforms and thus cause economic loss. Specific ecological zones can be affected. Include indicator on the environment.</p> <p>Bhutan: Need to measure cultural heritage.</p> <p><b>Colombia:</b> How can we measure transfer of risk to third parties (e.g. insurance) under Target C? The reduction of economic impact should include looking at how countries are growing in these financial risk transfer and accessing insurance.</p> <p><b>Kenya:</b> Economic loss depends on the economy of a particular country, so it is difficult to be exhaustive and meet the needs of all countries.</p> <p><b>Argentina:</b> Suggest an “others” category for elements that is important to some countries but perhaps not others.</p> <p><b>Switzerland:</b> Direct vs indirect. For example, critical infrastructure of a road going to a tourist resort might be small with regard to direct economic loss, but it might have greater impact in terms of loss related to disruption of tourism.</p> <p><b>Serbia:</b> It is hard to monitor indirect losses but encourage more work on this. Floods damaged coal production, which in turn compromised energy production, which was eventually the cause of GDP contraction.</p> <p><b>Hazardous event:</b> 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><b>Hazard:</b> 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</p>
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	Disaster Risk Reduction, August 2015)
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> <p><b>Czech Republic:</b> Advocate for one simple aggregated indicator (C1) on a global scale and use other more detailed indicators for decision and monitoring on a national level. Not too many indicators are needed. The less may be more.</p> <p><b>India, Switzerland:</b> Suggests not add more indicators, but put a robust methodology behind C1. India also mentioned country specific method without losing harmony.</p> <p><b>Colombia:</b> How to identify a robust methodology which allows us to transfer quantitative data into economic terms?</p> <p><b>El Salvador:</b> We thought it is not annual basis. If not, then put “annual” on paper because this is the way it is tracked anyway.</p> <p><b>Ecuador:</b> Direct economic loss calculation must be defined. In the case of building, which would be the criteria for estimating the damages caused? Market prices? Fixed asset prices? Is depreciation going to be considered? Or replacement cost?</p> <p><b>Cuba:</b> C1 should not be a link to GDP at national level. What is essential is the global trend of loss.</p> <p><b>Netherlands:</b> How to compute direct losses based on 7 sub-indicators?</p> <p><b>Argentina:</b> Suggest an “others” category for elements that is important to some countries but perhaps not others.</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	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 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. 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>
Main linkage with SDG	<b>Target 11.5:</b>

<p>targets</p>	<p>By 2030, significantly reduce the number of deaths and the number of people affected and substantially decrease <b>the direct economic losses</b> relative to global gross domestic product caused by <b>disasters</b>, including water-related disasters, with a focus on protecting the poor and people in vulnerable situations</p> <p><b>Target 13.1:</b> Strengthen <b>resilience and adaptive capacity to climate-related hazards and natural disasters</b> in all countries</p> <p><b>Target 1.5:</b> By 2030, build <b>the resilience of the poor and those in vulnerable situations</b> and reduce their <b>exposure and vulnerability to climate-related extreme events</b> and other economic, social and environmental shocks and <b>disasters</b></p> <p><b>Target 2.4:</b> By 2030, ensure sustainable food production systems and implement <b>resilient agricultural practices</b> that increase productivity and production, that help maintain ecosystems, that strengthen capacity for <b>adaptation to climate change, extreme weather, drought, flooding and other disasters</b> and that progressively improve land and soil quality</p> <p><b>Target 14.2:</b> By 2020, sustainably manage and protect <b>marine and coastal ecosystems</b> 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><b>Target 15.3:</b> By 2030, combat desertification, restore degraded land and soil, including <b>land affected by desertification, drought and floods</b>, and strive to achieve a land-degradation-neutral world</p> <p><b>Target 3.d:</b> Strengthen the capacity of all countries, in particular developing countries, for <b>early warning, risk reduction and management of national and global health risks</b></p> <p><b>Target 13.b:</b> Promote mechanisms for raising capacities for effective <b>climate change-related planning and management</b>, in least developed countries, including focusing on women, youth, local and marginalized communities</p>
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## Indicator C-2 Direct agricultural loss due to hazardous events

<p>Definitions</p>	<p><b>Direct economic loss:</b> 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><b>Direct agriculture loss:</b> 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 <b>poultry, fishery and forestry</b>. UNISDR needs research on how to universally standardize methodology, in consistent with PDNA.</p> <p><b>Agricultural lands affected:</b> The area of cultivated or pastoral land damaged or destroyed due to hazardous event (unit: hectare). (SDG Proposal)</p> <p><b>Livestock loss:</b> The number of 4-legged domestic animals (e.g. cow, pig, sheep, goat, cattle) lost due to hazardous event. (SDG Proposal)</p> <p><b>El Salvador:</b> In what way, can we track slow on-set and small scale disasters, e.g. drought? Can we track the loss over the years, but not as one discrete event?</p> <p><b>Tanzania:</b> Need to capture all aspects of agricultural losses including irrigation and dams.</p> <p><b>Netherlands:</b> Need to include fisheries. Fisheries are very sensitive to man-made hazards, especially in coastal waters. But it may be included in commercial activities.</p> <p><b>Kenya:</b> Considers including floriculture.</p> <p><b>Hazardous event:</b> 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><b>Hazard:</b> 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><b>Netherlands: Profit sometimes rises during disasters. Market thrives when circumstances are not as good.</b></p>
Rationale and interpretation	<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> <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 crops/livestock</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>Collaboration with FAO and UNCCD can be expected. FAO is currently developing measurement method for indirect agriculture loss.</p>
Main linkage with SDG targets	<p><b>Target 2.4:</b> By 2030, ensure sustainable food production systems and implement <b>resilient agricultural practices</b> that increase productivity and production, that help maintain ecosystems, that strengthen capacity for <b>adaptation to climate change, extreme weather, drought, flooding and other disasters</b> and that progressively improve land and soil quality</p> <p><b>Target 15.3:</b> By 2030, combat desertification, restore degraded land and soil, including <b>land affected by desertification, drought and floods</b>, and strive to achieve a land-degradation-neutral world</p> <p><b>Target 1.5:</b></p>

	<p>By 2030, build <b>the resilience of the poor and those in vulnerable situations</b> and reduce their <b>exposure and vulnerability to climate-related extreme events</b> and other economic, social and environmental shocks and <b>disasters</b></p> <p><b>Target 13.1:</b> Strengthen <b>resilience and adaptive capacity to climate-related hazards and natural disasters</b> in all countries</p> <p><b>Target 11.5:</b> By 2030, significantly reduce the number of deaths and the number of people affected and substantially decrease the <b>direct economic losses</b> relative to global gross domestic product caused by <b>disasters</b>, including water-related disasters, with a focus on protecting the poor and people in vulnerable situations</p> <p><b>Target 14.2:</b> By 2020, sustainably manage and protect <b>marine and coastal ecosystems</b> 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><b>Target 3.d:</b> Strengthen the capacity of all countries, in particular developing countries, for <b>early warning, risk reduction and management of national and global health risks</b></p> <p><b>Target 2.1:</b> By 2030, <b>end hunger</b> 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><b>Target 2.2:</b> By 2030, <b>end all forms of malnutrition</b>, 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><b>Target 2.3:</b> By 2030, <b>double the agricultural productivity</b> 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><b>Direct economic loss:</b> 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><b>Industrial facilities damaged or destroyed:</b> The number of manufacturing and industrial facilities directly affected (damaged or destroyed).</p> <p><b>Manufacturing:</b> classified in ISIC Code C (manufacturing) (Rev.4). The establishment, not the firm, is the statistics used.</p> <p><b>Czech Republic:</b> Direct economic loss to industrial facilities may be understood differently. It needs more discussion.</p> <p><b>Hazardous event:</b> 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><b>Hazard:</b> 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</p>

	outliers.
Source and data collection	National disaster loss database, reported to UNISDR  <b>Colombia:</b> We do not have baseline. <b>Switzerland:</b> Private sector data is not always easy to get. Same can be said for commercial loss.
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 damaged/destroyed  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.  The national disaster loss database developed does not necessarily have historic data on damage to industrial facilities. Establishing baseline data is a challenge.
Main linkage with SDG targets	Not proposed for the SDGs but related with the following targets.  <b>Target 11.5:</b> By 2030, significantly reduce the number of deaths and the number of people affected and substantially decrease the <b>direct economic losses</b> relative to global gross domestic product caused by <b>disasters</b> , including water-related disasters, with a focus on protecting the poor and people in vulnerable situations  <b>Target 13.1:</b> Strengthen <b>resilience and adaptive capacity to climate-related hazards and natural disasters</b> in all countries  <b>Target 1.5:</b> By 2030, build <b>the resilience of the poor and those in vulnerable situations</b> and reduce their <b>exposure and vulnerability to climate-related extreme events</b> and other economic, social and environmental shocks and <b>disasters</b>  <b>Target 13.b:</b> Promote mechanisms for raising capacities for effective <b>climate change-related planning and management</b> , in least developed countries, including focusing on women, youth, local and marginalized communities  <b>Target 9.4:</b>

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

Definitions	<p><b>Direct economic loss:</b> 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><b>Commercial facilities damaged or destroyed:</b> The number of individual commercial establishments (individual stores, warehouses, etc.) damaged or destroyed.</p> <p><b>Commerce:</b> classified in ISIC Code G (wholesale and retail trade) (Rev.4). The commercial establishment, not the firm, is the statistics used.</p> <p><b>Hazardous event:</b> 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><b>Hazard:</b> 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 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>
Rationale and interpretation	<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	<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 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><b>Target 11.5:</b> By 2030, significantly reduce the number of deaths and the number of people affected and substantially decrease the <b>direct economic losses</b> relative to global gross domestic product caused by <b>disasters</b>, including water-related disasters, with a focus on protecting the poor and people in vulnerable situations</p> <p><b>Target 13.1:</b> Strengthen <b>resilience and adaptive capacity to climate-related hazards and natural disasters</b> in all countries</p> <p><b>Target 1.5:</b> By 2030, build <b>the resilience of the poor and those in vulnerable situations</b> and reduce their <b>exposure and vulnerability to climate-related extreme events</b> and other economic, social and environmental shocks and <b>disasters</b></p> <p><b>Target 13.b:</b> Promote mechanisms for raising capacities for effective <b>climate change-related planning and management</b>, 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><b>Direct economic loss:</b> 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><b>Houses damaged:</b> 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><b>Note:</b> Houses damaged (C-5) and houses destroyed (C-6) are mutually exclusive.</p> <p><b>Hazardous event:</b> 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><b>Hazard:</b> 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><b>Cuba:</b> It would be difficult to calculate the economic loss for many countries. This can only be estimated based on the construction material costs at the time of reconstruction. It does not mark a trend.</p> <p><b>Japan:</b> Data on number of houses is easy to collect.</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>

Source and data collection	National disaster loss database, reported to UNISDR In case of multi-family structure, count housing units, not number of building structure.
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)  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.
Main linkage with SDG targets	<p><b>Target 11.5:</b> By 2030, significantly reduce the number of deaths and the number of people affected and substantially decrease the <b>direct economic losses</b> relative to global gross domestic product caused by <b>disasters</b>, including water-related disasters, with a focus on protecting the poor and people in vulnerable situations</p> <p><b>Target 13.1:</b> Strengthen <b>resilience and adaptive capacity to climate-related hazards and natural disasters</b> in all countries</p> <p><b>Target 1.5:</b> By 2030, build <b>the resilience of the poor and those in vulnerable situations</b> and reduce their <b>exposure and vulnerability to climate-related extreme events</b> and other economic, social and environmental shocks and <b>disasters</b></p> <p><b>Target 11.1:</b> By 2030, ensure access for all to adequate, <b>safe</b> and affordable <b>housing</b> and <b>basic services</b> and upgrade slums</p> <p><b>Target 3.d:</b> Strengthen the capacity of all countries, in particular developing countries, for <b>early warning, risk reduction and management of national and global health risks</b></p> <p><b>Target 11.c:</b> 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

Definitions	<p><b>Direct economic loss:</b> 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><b>Houses destroyed:</b> Houses (housing units) levelled, buried, collapsed, washed away or damaged to the extent that they are no longer habitable. (SDG Proposal)</p> <p><b>Hazardous event:</b> 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><b>Hazard:</b> 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 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).</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>
Source and data collection	<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</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><b>Target 11.5:</b> By 2030, significantly reduce the number of deaths and the number of people affected and substantially decrease the <b>direct economic losses</b> relative to global gross domestic product caused by <b>disasters</b>, including water-related disasters, with a focus on protecting the poor and people in vulnerable situations</p> <p><b>Target 13.1:</b> Strengthen <b>resilience and adaptive capacity to climate-related hazards and natural disasters</b> in all countries</p> <p><b>Target 1.5:</b> By 2030, build <b>the resilience of the poor and those in vulnerable situations</b> and reduce their <b>exposure and vulnerability to climate-related extreme events</b> and other economic, social and environmental shocks and <b>disasters</b></p> <p><b>Target 11.1:</b> By 2030, ensure access for all to adequate, <b>safe</b> and affordable <b>housing</b> and <b>basic services</b> and upgrade slums</p> <p><b>Target 3.d:</b> Strengthen the capacity of all countries, in particular developing countries, for <b>early warning, risk reduction and management of national and global health risks</b></p> <p><b>Target 11.c:</b> 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).)

Definitions	<p><b>Direct economic loss:</b> 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><b>Disaster damage:</b> Total or partial destruction of physical assets existing in the affected area. (Proposed updated Terminology on Disaster Risk Reduction, August 2015)</p> <p><b>Critical infrastructure:</b> 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><b>Czech Republic:</b> Definition of damage is important in this case. Bridges and tunnels should be mentioned as a component. Lengths of interruption between those and the network and number of people affected should be considered.</p> <p><b>Tanzania:</b> Airports might be reflected.</p> <p><b>Norway:</b> Satellite services (ICT) should be included. They are important for disaster mapping and services.</p> <p><b>Educational facilities damaged or destroyed:</b> 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><b>Health facilities damaged or destroyed:</b> 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><b>Roads damaged or destroyed:</b> The length of road networks damaged or destroyed due to the hazardous event, in kilometres. (SDG Proposal)</p> <p><b>Hazardous event:</b> The occurrence of a natural or human-induced phenomenon</p>
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	<p>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><b>Hazard:</b> 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 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> <p><b>Philippines:</b> Economic loss of critical infrastructure does not necessarily reflect basic service disruption. For example, in terms of medical services, services can continue in tents.</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><b>Target 9.1:</b></p> <p>Develop quality, reliable, sustainable and <b>resilient infrastructure</b>, 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><b>Target 1.5:</b> By 2030, build <b>the resilience of the poor and those in vulnerable situations</b> and reduce their <b>exposure and vulnerability to climate-related extreme events</b> and other economic, social and environmental shocks and <b>disasters</b></p> <p><b>Target 11.5:</b> By 2030, significantly reduce the number of deaths and the number of people affected and substantially decrease the <b>direct economic losses</b> relative to global gross domestic product caused by <b>disasters</b>, including water-related disasters, with a focus on protecting the poor and people in vulnerable situations</p> <p><b>Target 13.1:</b> Strengthen <b>resilience and adaptive capacity to climate-related hazards and natural disasters</b> in all countries</p> <p><b>Target 1.4:</b> 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 <b>basic services</b>, ownership and control over land and other forms of property, inheritance, natural resources, appropriate new technology and financial services, including microfinance</p> <p><b>Target 11.1:</b> By 2030, ensure access for all to adequate, <b>safe</b> and affordable housing and <b>basic services</b> and upgrade slums</p> <p><b>Target 4.a:</b> Build and upgrade <b>education facilities</b> that are child, disability and gender sensitive and provide <b>safe</b>, non-violent, inclusive and effective learning environments for all</p> <p><b>Target 15.3:</b> By 2030, combat desertification, restore degraded land and soil, including <b>land affected by desertification, drought and floods</b>, and strive to achieve a land-degradation-neutral world</p> <p><b>Target 3.6:</b> By 2020, halve the number of <b>global deaths and injuries from road traffic accidents</b></p> <p><b>Target 11.2:</b> By 2030, provide access to <b>safe</b>, affordable, accessible and <b>sustainable transport systems</b> for all, improving <b>road safety</b>, 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><b>Target 3.c:</b> Substantially increase <b>health financing</b> and the recruitment,</p>
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	<p>development, training and retention of the health workforce in developing countries, especially in least developed countries and small island developing States</p> <p><b>Target 3.d:</b> Strengthen the capacity of all countries, in particular developing countries, for <b>early warning, risk reduction and management of national and global health risks</b></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.)

D5 – [Number / Length – **Australia, Argentina, El Salvador**] of time basic services have been disrupted due to hazardous events

*Other indicators proposed in the 1<sup>st</sup> OEIWG*

[D6-Number of education or health facilities removed from risk areas- **Brazil, Mexico, Czech Republic**]

[D7-Number of security service structures destroyed or damaged by hazardous events-**Qatar**]

[D8-Number of tourist infrastructure facilities destroyed or damaged by hazardous events- **Morocco**]

[D9- Number of states with resilience programmes or strategies for health and education facilities- **Czech Republic**]

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)).

Definitions	<p><b>Disaster damage:</b> Total or partial destruction of physical assets existing in the affected area. (Proposed updated Terminology on Disaster Risk Reduction, August 2015)</p> <p><b>Critical infrastructure:</b> 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><b>El Salvador, Germany, Brazil, Morocco:</b> Supports the opinions to widen the scope of indicators, especially from the consideration of measuring social impacts.</p> <p><b>Germany:</b> There are different understanding of which sectors are to be included in critical infrastructure. Worth looking at what we understand for measuring resilience in terms of infrastructure.</p> <p><b>Philippines:</b> Need coherence with the terminology concerning critical infrastructure and widen the scope including energy and communications. It is impossible to deliver basic services without these.</p> <p><b>Brazil:</b> Depending on social group, “critical” is defined differently, e.g. women, rural people.</p> <p><b>Argentina:</b> Suggest an “others” category for elements that is important to some countries but perhaps not others.</p> <p><b>Argentina:</b> Consider those that are not damaged or destroyed but do have a disruption of services.</p> <p>Norway: It might be difficult in dividing critical infrastructure and basic services by sectors. Norway added a new set of 4 societal values: national government sovereignty, the safety of people, the welfare of people, culture and nature. This may be a way to summarize indicators.</p> <p><b>Health facilities damaged or destroyed:</b> 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><b>Educational facilities damaged or destroyed:</b> 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><b>Roads damaged or destroyed:</b> The length of road networks damaged or destroyed due to the hazardous event, in kilometres. (SDG Proposal)</p>
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	<p><b>Hazardous event:</b> 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><b>Hazard:</b> 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 from national disaster loss databases</p> <p>Methodology to create composite index should be developed.</p> <p><b>Mexico:</b> Support what was proposed by India on Target C (i.e. Suggests not add more indicators, but put a robust methodology behind C1).</p>
Rationale and interpretation	<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> <p><b>El Salvador:</b> Damage to critical infrastructure does not necessarily reflect basic service disruption. For example, damaged education building took 2 years for reconstruction but disruption of the education service was only 1 week.</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). Therefore, by 2020, all countries will be expected to build/adjust the database according to the standard guideline.

	<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><b>Target 9.1:</b> Develop quality, reliable, sustainable and <b>resilient infrastructure</b>, 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><b>Target 1.5:</b> By 2030, build <b>the resilience of the poor and those in vulnerable situations</b> and reduce their <b>exposure and vulnerability to climate-related extreme events</b> and other economic, social and environmental shocks and <b>disasters</b></p> <p><b>Target 11.5:</b> By 2030, significantly reduce <b>the number of deaths</b> and <b>the number of people affected</b> and substantially decrease the <b>direct economic losses</b> relative to global gross domestic product caused by <b>disasters</b>, including water-related disasters, with a focus on protecting the poor and people in vulnerable situations</p> <p><b>Target 13.1:</b> Strengthen <b>resilience and adaptive capacity to climate-related hazards and natural disasters</b> in all countries</p> <p><b>Target 1.4:</b> 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 <b>basic services</b>, ownership and control over land and other forms of property, inheritance, natural resources, appropriate new technology and financial services, including microfinance</p> <p><b>Target 11.1:</b> By 2030, ensure access for all to adequate, <b>safe</b> and affordable housing and <b>basic services</b> and upgrade slums</p> <p><b>Target 4.a:</b> Build and upgrade <b>education facilities</b> that are child, disability and gender sensitive and provide <b>safe</b>, non-violent, inclusive and effective learning environments for all</p> <p><b>Target 3.6:</b> By 2020, halve the number of <b>global deaths and injuries from road traffic accidents</b></p> <p><b>Target 11.2:</b> By 2030, provide access to <b>safe</b>, affordable, accessible and <b>sustainable transport systems</b> for all, improving <b>road safety</b>, notably by expanding public transport, with special attention to the needs of</p>

	<p>those in vulnerable situations, women, children, persons with disabilities and older persons</p> <p><b>Target3.c:</b> Substantially increase <b>health financing</b> 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><b>Target 3.d:</b> Strengthen the capacity of all countries, in particular developing countries, for <b>early warning, risk reduction and management of national and global health risks</b></p>
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## Indicator D-2 Number of health facilities destroyed or damaged by hazardous events

Definitions	<p><b>Health facilities damaged or destroyed:</b> 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><b>Hazardous event:</b> 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><b>Hazard:</b> 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 from national disaster loss databases</p> <p><b>Ethiopia:</b> What about the size of facilities? Education could be elementary school or college.</p>
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	<p>National disaster loss database, reported to UNISDR</p> <p><b>Ecuador:</b> Before measuring D2 and D3 indicators, before the disaster, there should be a registry of health and educational facilities. This would allow us to have a good understanding of the indicator when things happen.</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 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><b>Target 9.1:</b> Develop quality, reliable, sustainable and <b>resilient infrastructure</b>, 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><b>Target 1.5:</b> By 2030, build <b>the resilience of the poor and those in vulnerable situations</b> and reduce their <b>exposure and vulnerability to climate-related extreme events</b> and other economic, social and environmental shocks and <b>disasters</b></p> <p><b>Target 11.5:</b> By 2030, significantly reduce <b>the number of deaths and the number of people affected</b> and substantially decrease the <b>direct economic losses</b> relative to global gross domestic product caused by <b>disasters</b>, including water-related disasters, with a focus on protecting the poor and people in vulnerable situations</p> <p><b>Target 13.1:</b> Strengthen <b>resilience and adaptive capacity to climate-related hazards and natural disasters</b> in all countries</p> <p><b>Target 1.4:</b> 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 <b>basic services</b>, ownership and control over land and other forms of property, inheritance, natural resources, appropriate new technology and financial services, including microfinance</p> <p><b>Target 11.1:</b> By 2030, ensure access for all to adequate, <b>safe</b> and affordable housing and <b>basic services</b> and upgrade slums</p> <p><b>Target 3.6:</b> By 2020, halve the number of <b>global deaths and injuries from road traffic accidents</b></p> <p><b>Target 3.c:</b> Substantially increase <b>health financing</b> 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><b>Target 3.8:</b> 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><b>Target 3.d:</b> Strengthen the capacity of all countries, in particular developing countries, for <b>early warning, risk reduction and management of national and global health risks</b></p>
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## Indicator D-3 Number of educational facilities destroyed or damaged by hazardous events

Definitions	<p><b>Educational facilities destroyed or damaged:</b> 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><b>Hazardous event:</b> 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><b>Hazard:</b> 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 from national disaster loss databases</p> <p><b>Ethiopia:</b> What about the size of facilities? Health facilities could be a clinic or a hospital.</p>
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> <p><b>El Salvador:</b> is this measuring damage to infrastructure or service for education? For example, El Salvador has experienced a disruption of a service for only one week although rebuilding the facility took two years. This could apply to D2 as well.</p> <p><b>Argentina:</b> Asking for consideration about infrastructures that are not damaged or destroyed but do have a disruption of services.</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 destroyed/damaged</p> <p>Ideally, in addition, by sub-national administrative unit</p>

<p>Comments and limitations</p>	<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><b>Target 9.1:</b> Develop quality, reliable, sustainable and <b>resilient infrastructure</b>, 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><b>Target 4.a:</b> Build and upgrade <b>education facilities</b> that are child, disability and gender sensitive and provide <b>safe</b>, non-violent, inclusive and effective learning environments for all</p> <p><b>Target 1.5:</b> By 2030, build <b>the resilience of the poor and those in vulnerable situations</b> and reduce their <b>exposure and vulnerability to climate-related extreme events</b> and other economic, social and environmental shocks and <b>disasters</b></p> <p><b>Target 11.5:</b> By 2030, significantly reduce <b>the number of deaths</b> and <b>the number of people affected</b> and substantially decrease the <b>direct economic losses</b> relative to global gross domestic product caused by <b>disasters</b>, including water-related disasters, with a focus on protecting the poor and people in vulnerable situations</p> <p><b>Target 13.1:</b> Strengthen <b>resilience and adaptive capacity to climate-related hazards and natural disasters</b> in all countries</p> <p><b>Target 1.4:</b> 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 <b>basic services</b>, ownership and control over land and other forms of property, inheritance, natural resources, appropriate new technology and financial services, including microfinance</p> <p><b>Target 11.1:</b> By 2030, ensure access for all to adequate, <b>safe</b> and affordable housing and <b>basic services</b> and upgrade slums</p>

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

<p>Definitions</p>	<p><b>Transportation infrastructure:</b> 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><b>Roads damaged or destroyed:</b> The length of road networks damaged or destroyed due to the hazardous event, in kilometres. (SDG Proposal)</p> <p><b>Railways damaged or destroyed:</b> The lengths of railway networks damaged or destroyed due to the hazardous events, in kilometres.</p> <p><b>Ports damaged or destroyed:</b> The number of facilities damaged or destroyed due to hazardous events.</p> <p><b>Airports damaged or destroyed:</b> The number of facilities damaged or destroyed due to hazardous events.</p> <p><b>El Salvador:</b> Asking for flexibility. This should concern public transport such as bus instead of railway, in El Salvador context.</p> <p><b>Hazardous event:</b> 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><b>Hazard:</b> 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>

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 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><b>Target 9.1:</b> Develop quality, reliable, sustainable and <b>resilient infrastructure</b>, 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><b>Target 11.2:</b> By 2030, provide access to <b>safe</b>, affordable, accessible and <b>sustainable transport systems</b> for all, improving <b>road safety</b>, 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><b>Target 1.5:</b> By 2030, build <b>the resilience of the poor and those in vulnerable situations</b> and reduce their <b>exposure and vulnerability to climate-related extreme events</b> and other economic, social and environmental shocks and <b>disasters</b></p> <p><b>Target 11.5:</b> By 2030, significantly reduce <b>the number of deaths and the number of people affected</b> and substantially decrease the <b>direct economic losses</b> relative to global gross domestic product caused by <b>disasters</b>, including water-related disasters, with a focus on protecting the poor and people in vulnerable situations</p> <p><b>Target 13.1:</b> Strengthen <b>resilience and adaptive capacity to climate-related hazards and natural disasters</b> in all countries</p>

	<p><b>Target 1.4:</b> 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 <b>basic services</b>, ownership and control over land and other forms of property, inheritance, natural resources, appropriate new technology and financial services, including microfinance</p> <p><b>Target 11.1:</b> By 2030, ensure access for all to adequate, <b>safe</b> and affordable housing and <b>basic services</b> and upgrade slums</p> <p><b>Target 3.6:</b> By 2020, halve the number of <b>global deaths and injuries from road traffic accidents</b></p>
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Indicator D-5 Number of time basic services have been disrupted due to hazardous events

<p>Definitions</p>	<p><b>Basic Services:</b> 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><b>Interruption or lower quality of service in any of the public services:</b> 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><b>Health facilities:</b> health centres, clinics, local and regional hospitals, outpatient centres and in general facilities used by primary health providers</p> <p><b>Educational facilities:</b> play schools, kindergartens, primary, secondary or middle schools, technical-vocational schools, colleges, universities, training centres, adult education, military schools and prison schools</p> <p><b>Transport system:</b> road networks, railways (including stations), airports and ports</p> <p><b>ICT system:</b> 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><b>Water supply:</b> drinking water supply system (water outlets, water treatment plants, aqueducts and canals which carry drinking water, storage tanks.)</p> <p><b>Sewerage system:</b> sanitation and sanitary sewage systems and collection and treatment of solid waste.</p> <p><b>Solid waste management:</b> collection and treatment of solid waste.</p> <p><b>Power/energy system:</b> generation facilities, transmission and distribution system and dispatch centres and other works</p> <p><b>Emergency Response:</b> disaster management office, fire management service, police, army and emergency operation centres</p> <p><b>Hazardous event:</b> 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><b>Hazard:</b> 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  <b>Colombia: Number of times public services are interrupted are not reported, as often managed by the private sector.</b>
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. <b>Target 9.1:</b> Develop quality, reliable, sustainable and <b>resilient infrastructure</b> , including regional and trans border infrastructure, to support economic development and human well-being, with a focus on affordable and equitable access for all  <b>Target 1.5:</b> By 2030, build <b>the resilience of the poor and those in vulnerable situations</b> and reduce their <b>exposure and vulnerability to climate-related extreme events</b> and other economic, social and environmental shocks and <b>disasters</b>  <b>Target 11.5:</b> By 2030, significantly reduce <b>the number of deaths</b> and <b>the number of people affected</b> and substantially decrease the <b>direct economic losses</b> relative to global gross domestic product caused by <b>disasters</b> , including water-related disasters, with a focus on protecting the poor and people in vulnerable situations  <b>Target 13.1:</b> Strengthen <b>resilience and adaptive capacity to climate-related hazards and natural disasters</b> in all countries  <b>Target 1.4:</b>

	<p>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 <b>basic services</b>, ownership and control over land and other forms of property, inheritance, natural resources, appropriate new technology and financial services, including microfinance</p> <p><b>Target 11.1:</b> By 2030, ensure access for all to adequate, <b>safe</b> and affordable housing and <b>basic services</b> and upgrade slums</p> <p><b>Target 4.a:</b> Build and upgrade <b>education facilities</b> that are child, disability and gender sensitive and provide <b>safe</b>, non-violent, inclusive and effective learning environments for all</p> <p><b>Target 3.6:</b> By 2020, halve the number of <b>global deaths and injuries from road traffic accidents</b></p> <p><b>Target 11.2:</b> By 2030, provide access to <b>safe</b>, affordable, accessible and <b>sustainable transport systems</b> for all, improving <b>road safety</b>, 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><b>Target 3.c:</b> Substantially increase <b>health financing</b> and the recruitment, development, training and retention of the <b>health workforce</b> in developing countries, especially in least developed countries and small island developing States</p> <p><b>Target 3.d:</b> Strengthen the capacity of all countries, in particular developing countries, for <b>early warning, risk reduction and management of national and global health risks</b></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.)*

E2 – Percentage of local governments that adopt and implement local DRR strategies in line with the [Sendai Framework for Disaster Risk Reduction 2015-2030 /national disaster risk reduction strategy – **Nepal**]

*(SDG proposal: Consistency with SDG proposal needed.)*

E3 – Number of countries that [integrate/integrated- **Morocco**] [climate and disaster risk/climate change-**Morocco**] into [development planning/development plan-**Morocco**]

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

[E4 – Number of countries that adopt and implement critical infrastructure protection plan – **Czech Republic, India, Egypt-delete**]

*(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:**

[E5 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- **Cuba, Czech Republic-delete; Japan-retain**]

[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- **Cuba, Czech Republic-delete**]

[E-7 Number of countries and local governments conducting (independent) periodic outcome reviews of the implementation of national and local DRR strategies - **Cuba, Czech Republic-delete**]

### **Other indicators proposed in the 1<sup>st</sup> OEIWG**

[E8 Number of countries that adopt and implement sector specific DRR strategies in line with the Sendai Framework for Disaster Risk Reduction – Tanzania]

[E9 – Number of countries that have national financing mechanisms for DRR –Madagascar, India]

[E10 – Number of countries that have spatial and land use planning mechanisms for DRR – Madagascar]

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><b>National DRR strategies in line with the Sendai Framework for Disaster Risk Reduction 2015-2030:</b> 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><b>Disaster risk reduction plan:</b> 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><b>Lesotho:</b> Since the target speaks of national and local disaster risk reduction strategies, there is a need to define minimal standards on national and local disaster risk reduction.</p> <p><b>Netherlands:</b> Target E indicators should mention matters related with goals, for example, basic services, people living in vulnerable situations.</p> <p><b>Madagascar:</b> Indicators should cover priorities of action.</p> <p><b>Country:</b> A nation with its own government, occupying a particular territory (Oxford Dictionary)</p>
Method of computation	<p>Summation of data from National Progress Report of the Sendai Monitor</p> <p><b>European Union:</b> Rather than only yes/no, would it be possible to have quantitative indicators to measure levels of progress?</p> <p><b>Netherlands:</b> A matrix of what items this considers should be included.</p>
Rationale and interpretation	<p>This indicator directly monitors the Target E.</p>
Source and data collection	<p>National Progress Report of the Sendai Monitor, reported to UNISDR</p> <p><b>Egypt:</b> In reporting process, it might be difficult to link the different institutions and getting the full picture and information of what was implemented.</p>
Disaggregation	<p>By country</p>
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> <p><b>Australia:</b> How to monitor compliance to implementation?  <b>Egypt:</b> supported Pre-Sendai negotiation's member states' reluctance to introduce the need to monitor levels of compliance that may include any punitive name and shame process, and suggested the best way is how to encourage countries to develop strategies and leave it up to them to implement.</p>
Main linkage with SDG targets	<p><b>Target 13.2:</b> Integrate <b>climate change</b> measures into <b>national policies, strategies and planning</b></p> <p><b>Target 13.1:</b> Strengthen <b>resilience and adaptive capacity to climate-related hazards and natural disasters</b> in all countries</p> <p><b>Target 13.b:</b> Promote mechanisms for <b>raising capacity for effective climate change-related planning and management</b> in least developed countries, including focusing on women, youth, local and marginalized communities</p> <p><b>Target 9.1:</b> Develop quality, reliable, sustainable and <b>resilient infrastructure</b>, 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><b>Target 11.5:</b> By 2030, significantly reduce <b>the number of deaths</b> and <b>the number of people affected</b> and substantially decrease the direct economic losses relative to global gross domestic product caused by <b>disasters</b>, including water-related disasters, with a focus on protecting the poor and people in vulnerable situations</p> <p><b>Target 1.5:</b> By 2030, build <b>the resilience of the poor and those in vulnerable situations</b> and reduce their <b>exposure and vulnerability to climate-related extreme events</b> and other economic, social and environmental shocks and <b>disasters</b></p> <p><b>Target 3.9:</b> By 2030, substantially reduce the number of <b>deaths and illnesses from hazardous chemicals and air, water and soil pollution and contamination</b></p> <p><b>Target 3.d:</b> Strengthen the capacity of all countries, in particular developing countries, for early warning, <b>risk reduction and management of national and global health risks</b></p>

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><b>Local DRR Strategies in line with the Sendai Framework for Disaster Risk Reduction 2015-2030:</b> 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><b>Disaster risk reduction plan:</b> 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><b>Nepal:</b> It is better that the local governments align with the national strategy rather than the Sendai Framework, as the national strategy will be aligned with the Sendai Framework.</p> <p><b>Local Government:</b> 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> <p><b>India:</b> Local government should be defined as the lowest level government at which planning takes place.</p> <p><b>Egypt:</b> During the Sendai negotiations, States had discussed the importance of acknowledging different forms 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	<p>National Progress Report of the Sendai Monitor, reported to UNISDR</p> <p><b>India:</b> In order to be in line with Sendai, would local plans developed before Sendai need to be retrofitted in order to be monitored?</p>
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</p>

	<p>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><b>Target 11.b:</b> By 2020, substantially increase the number of cities and human settlements adopting and implementing <b>integrated policies and plans</b> 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> <p><b>Target 13.1:</b> Strengthen <b>resilience and adaptive capacity to climate-related hazards and natural disasters</b> in all countries</p> <p><b>Target 13.b:</b> Promote mechanisms for raising capacities for effective <b>climate change-related planning and management</b>, in least developed countries, including focusing on women, youth, local and marginalized communities</p> <p><b>Target 9.1:</b> Develop quality, reliable, sustainable and <b>resilient infrastructure</b>, 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><b>Target 11.5:</b> By 2030, significantly reduce <b>the number of deaths</b> and <b>the number of people affected</b> and substantially decrease the direct economic losses relative to global gross domestic product caused by <b>disasters</b>, including water-related disasters, with a focus on protecting the poor and people in vulnerable situations</p> <p><b>Target 1.5:</b> By 2030, build <b>the resilience of the poor and those in vulnerable situations</b> and reduce their <b>exposure and vulnerability to climate-related extreme events</b> and other economic, social and environmental shocks and <b>disasters</b></p> <p><b>Target 3.9:</b> By 2030, substantially reduce the number of <b>deaths and illnesses from hazardous chemicals and air, water and soil pollution and contamination</b></p> <p><b>Target 14.2:</b> By 2020, sustainably manage and protect <b>marine and coastal ecosystems</b> 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><b>Target 3.d:</b> Strengthen the capacity of all countries, in particular developing countries, for <b>early warning, risk reduction and management of national and global health risks</b></p>

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

Definitions	<p><b>Development Planning:</b> 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><b>Climate and disaster risk integration into development planning:</b> 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><b>Country:</b> 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 <b>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</b>”. 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><b>Target 11.5:</b> By 2030, significantly reduce <b>the number of deaths</b> and <b>the number of people affected</b> and substantially decrease the direct economic losses relative to global gross domestic product caused by <b>disasters</b>, including water-related disasters, with a focus on protecting the poor and people in vulnerable situations</p> <p><b>Target 13.2:</b> Integrate climate change measures into national policies, strategies</p>

	<p>and planning</p> <p><b>Target 13.b:</b> Promote mechanisms for raising capacities for effective <b>climate change-related planning and management</b>, in least developed countries, including focusing on women, youth, local and marginalized communities</p> <p><b>Target 13.1:</b> Strengthen <b>resilience and adaptive capacity to climate-related hazards and natural disasters</b> in all countries</p> <p><b>Target 1.5:</b> By 2030, build <b>the resilience of the poor and those in vulnerable situations</b> and reduce their <b>exposure and vulnerability to climate-related extreme events</b> and other economic, social and environmental shocks and <b>disasters</b></p> <p><b>Target 9.1:</b> Develop quality, reliable, sustainable and <b>resilient infrastructure</b>, 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><b>Target 2.4:</b> By 2030, ensure sustainable food production systems and implement <b>resilient agricultural</b> practices that increase productivity and production, that help maintain ecosystems, that <b>strengthen capacity for adaptation to climate change, extreme weather, drought, flooding and other disasters</b> and that progressively improve land and soil quality</p> <p><b>Target 14.2:</b> By 2020, sustainably manage and protect <b>marine and coastal ecosystems</b> 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><b>Target 15.3:</b> By 2030, combat desertification, restore degraded land and soil, including <b>land affected by desertification, drought and floods</b>, and strive to achieve a land-degradation-neutral world</p> <p><b>Target 3.6:</b> By 2020, halve the number of <b>global deaths and injuries from road traffic accidents</b></p> <p><b>Target 3.d:</b> Strengthen the capacity of all countries, in particular developing countries, for <b>early warning, risk reduction and management of national and global health risks</b></p>
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Indicator E-4 Number of countries that adopt and implement critical infrastructure protection plan

Definitions	<p><b>Critical infrastructure protection plan:</b> 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><b>Critical infrastructure:</b> 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><b>Country:</b> 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><b>Target 9.1:</b> Develop quality, reliable, sustainable and <b>resilient infrastructure</b>, 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><b>Target 13.2:</b> Integrate <b>climate change measures</b> into national policies, strategies and planning</p> <p><b>Target 1.5:</b> By 2030, build <b>the resilience of the poor and those in vulnerable situations</b> and reduce their <b>exposure and vulnerability to climate-</b></p>

	<p><b>related extreme events</b> and other economic, social and environmental shocks and <b>disasters</b></p> <p><b>Target 11.5:</b> By 2030, significantly reduce <b>the number of deaths</b> and <b>the number of people affected</b> and substantially decrease the direct economic losses relative to global gross domestic product caused by <b>disasters</b>, including water-related disasters, with a focus on protecting the poor and people in vulnerable situations</p> <p><b>Target 13.1:</b> Strengthen <b>resilience and adaptive capacity to climate-related hazards and natural disasters</b> in all countries</p> <p><b>Target 11.1:</b> By 2030, ensure access for all to adequate, <b>safe</b> and affordable housing and <b>basic services</b> and upgrade slums</p> <p><b>Target 1.4:</b> 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 <b>basic services</b>, ownership and control over land and other forms of property, inheritance, natural resources, appropriate new technology and financial services, including microfinance</p> <p><b>Target 4.a:</b> Build and upgrade <b>education facilities</b> that are child, disability and gender sensitive and provide <b>safe</b>, non-violent, inclusive and effective learning environments for all</p> <p><b>Target 14.2:</b> By 2020, sustainably manage and protect <b>marine and coastal ecosystems</b> 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><b>Target 15.3:</b> By 2030, combat desertification, restore degraded land and soil, including <b>land affected by desertification, drought and floods</b>, and strive to achieve a land-degradation-neutral world</p> <p><b>Target 3.9:</b> By 2030, substantially reduce the number of <b>deaths and illnesses from hazardous chemicals and air, water and soil pollution and contamination</b></p> <p><b>Target 3.d:</b> Strengthen the capacity of all countries, in particular developing countries, for <b>early warning, risk reduction and management of national and global health risks</b></p>
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	<p><b>Target3.c:</b> Substantially increase <b>health financing</b> 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><b>Target 3.6:</b> By 2020, halve the number of <b>global deaths and injuries from road traffic accidents</b></p> <p><b>Target 11.2:</b> By 2030, provide access to <b>safe</b>, affordable, accessible and <b>sustainable transport systems</b> for all, improving <b>road safety</b>, 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><b>Cross-sectoral bodies/forum:</b> 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><b>Sector:</b> 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 <b>sector</b> 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><b>National platform for disaster risk reduction:</b> 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><b>Country:</b> 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	<p>This indicator indirectly monitors the Target E.</p> <p><b>Japan: E5 is of value, as it seems to relate to national platforms.</b></p>
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</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><b>Target 13.2:</b> Integrate <b>climate change</b> measures into <b>national policies, strategies and planning</b></p> <p><b>Target 13.1:</b> Strengthen <b>resilience and adaptive capacity to climate-related hazards and natural disasters</b> in all countries</p> <p><b>Target 13.b:</b> Promote mechanisms for <b>raising capacity for effective climate change-related planning and management</b> in least developed countries, including focusing on women, youth, local and marginalized communities</p> <p><b>Target 9.1:</b> Develop quality, reliable, sustainable and <b>resilient infrastructure</b>, 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><b>Target 11.5:</b> By 2030, significantly reduce <b>the number of deaths and the number of people affected</b> and substantially decrease the direct economic losses relative to global gross domestic product caused by <b>disasters</b>, including water-related disasters, with a focus on protecting the poor and people in vulnerable situations</p> <p><b>Target 1.5:</b> By 2030, build <b>the resilience of the poor and those in vulnerable situations</b> and reduce their <b>exposure and vulnerability to climate-related extreme events</b> and other economic, social and environmental shocks and <b>disasters</b></p> <p><b>Target 3.9:</b> By 2030, substantially reduce the number of <b>deaths and illnesses from hazardous chemicals and air, water and soil pollution and contamination</b></p> <p><b>Target 3.d:</b> Strengthen the capacity of all countries, in particular developing countries, for early warning, <b>risk reduction and management of national and global health risks</b></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><b>Accounting for future risk:</b> 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><b>Public and private balance sheets:</b> 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><b>Financial targets to inform investment strategies:</b> 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><b>Country:</b> 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><b>Target 11.5:</b> By 2030, significantly reduce <b>the number of deaths</b> and <b>the number of people affected</b> and substantially decrease <b>the direct economic losses</b> relative to global gross domestic product caused by <b>disasters</b>, including water-related disasters, with a focus on protecting the poor and people in vulnerable situations</p> <p><b>Target 13.2:</b> Integrate climate change measures into national policies, strategies and planning</p> <p><b>Target 13.b:</b> Promote mechanisms for raising capacities for effective <b>climate change-related planning and management</b>, in least developed countries, including focusing on women, youth, local and marginalized communities</p> <p><b>Target 13.1:</b> Strengthen <b>resilience and adaptive capacity to climate-related hazards and natural disasters</b> in all countries</p> <p><b>Target 1.5:</b> By 2030, build <b>the resilience of the poor and those in vulnerable situations</b> and reduce their <b>exposure and vulnerability to climate-related extreme events</b> and other economic, social and environmental shocks and <b>disasters</b></p> <p><b>Target 9.1:</b> Develop quality, reliable, sustainable and <b>resilient infrastructure</b>, 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><b>Target 2.4:</b> By 2030, ensure sustainable food production systems and implement <b>resilient agricultural</b> practices that increase productivity and production, that help maintain ecosystems, that <b>strengthen capacity for adaptation to climate change, extreme weather, drought, flooding and other disasters</b> and that progressively improve land and soil quality</p> <p><b>Target 14.2:</b> By 2020, sustainably manage and protect <b>marine and coastal ecosystems</b> 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><b>Target 15.3:</b> By 2030, combat desertification, restore degraded land and soil, including <b>land affected by desertification, drought and floods</b>, and</p>
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	<p>strive to achieve a land-degradation-neutral world</p> <p><b>Target 3.6:</b> By 2020, halve the number of <b>global deaths and injuries from road traffic accidents</b></p> <p><b>Target 3.d:</b> Strengthen the capacity of all countries, in particular developing countries, for <b>early warning, risk reduction and management of national and global health risks</b></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><b>Independent periodic outcome reviews:</b> 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><b>National DRR strategies in line with the Sendai Framework for Disaster Risk Reduction 2015-2030:</b> 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><b>Local DRR Strategies in line with the Sendai Framework for Disaster Risk Reduction 2015-2030:</b> 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><b>Disaster risk reduction plan:</b> 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><b>Country:</b> A nation with its own government, occupying a particular territory (Oxford Dictionary)</p> <p><b>Local Government:</b> 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><b>Target 13.2:</b> Integrate <b>climate change</b> measures into <b>national policies, strategies and planning</b></p> <p><b>Target 13.1:</b> Strengthen <b>resilience and adaptive capacity to climate-related hazards and natural disasters</b> in all countries</p> <p><b>Target 13.b:</b> Promote mechanisms for <b>raising capacity for effective climate change-related planning and management</b> in least developed countries, including focusing on women, youth, local and marginalized communities</p> <p><b>Target 9.1:</b> Develop quality, reliable, sustainable and <b>resilient infrastructure</b>, 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><b>Target 11.5:</b> By 2030, significantly reduce <b>the number of deaths and the number of people affected</b> and substantially decrease the direct economic losses relative to global gross domestic product caused by <b>disasters</b>, including water-related disasters, with a focus on protecting the poor and people in vulnerable situations</p> <p><b>Target 1.5:</b> By 2030, build <b>the resilience of the poor and those in vulnerable situations</b> and reduce their <b>exposure and vulnerability to climate-related extreme events</b> and other economic, social and environmental shocks and <b>disasters</b></p> <p><b>Target 3.9:</b> By 2030, substantially reduce the number of <b>deaths and illnesses from hazardous chemicals and air, water and soil pollution and contamination</b></p> <p><b>Target 3.d:</b> Strengthen the capacity of all countries, in particular developing countries, for early warning, <b>risk reduction and management of national and global health risks</b></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.**

Indicators proposed in the 1<sup>st</sup> OEIWG

[Chapeau:

This indicator directly supports the developing countries' implementation of the Sendai Framework and the fulfilment of the global goals. (Bangladesh, Egypt)

F1 - Level of non-earmarked support provided by developed countries and reported by developing countries. (Bangladesh, Egypt)

F2 - Number of developed countries having a policy marker as part of the legislation on provisions for support to developing countries to enhance the implementation of the Sendai Framework and the fulfilment of the global goals. (Bangladesh, Egypt)

F3- Progress on the implementation of paragraph 47 of the Sendai Framework, in particular subparagraphs 47(a) and 47 (b). (Bangladesh, Egypt, Ecuador, Brazil)

F4 - Progress in using the regional platforms for exchanging experiences and enhancing South-South cooperation for the implementation of the Sendai Framework. (Bangladesh, Egypt)

F5 - Level of support provided by international organizations in line with paragraph 48 of the Sendai Framework. (Bangladesh, Egypt)]

**Comments:**

- We need to break down the data such as three categories:1) resources; 2)technology; and 3)training of staff. Disaggregated data is important to understand who the recipients are as well as type of assistance received. (Cuba, Indonesia, Bangladesh)
- What is important is to measure the level of cooperation, not only the number of donors. (Brazil).
- Quantity does not always mean quality. The indicator must measure how international cooperation will allow a country to implement Sendai. This includes financial and technical resources to meet all the priorities of the Sendai Framework . (Colombia)
- Agree with Colombia that “Enhance” might not mean increase. Idea of measuring quality and effectiveness of how international cooperation helps countries trigger their own resources is good. (Australia). We should look at quality not just quantity. (Canada)
- The target asks to measure “adequateness” and that the international cooperation is intended for developing countries (Bangladesh)
- It is also important to have a system of verification (Indonesia).
- Specific and easy-to-measure activities include climate forecasting systems, space-based technologies and information on water basins (India). Other types of related assistance, such as post-disaster assistance (Indonesia)

## **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.)

[G2 – Number of countries that have multi-hazard monitoring and forecasting system – **Ethiopia, Czech Republic-delete**]

G-3 – Number of people who are covered by multi-hazard early warning system [per 100,000-**Bhutan**]

G-4 – [Percentage / Number – **Cuba; El Salvador, Morocco** retain]] of local [and national – **Bhutan**] governments having preparedness plan (including EWS response and evacuation components) or evacuation plan [and standard operating procedures – **Tanzania**]

G-5 Number of countries that have [multi-hazard national risk assessment/risk information-**Bhutan**] 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)

G6 – [Percentage / Number – **Cuba; El Salvador, Morocco-** retain]] of local governments that have [multi-hazard risk assessment/risk information – **Bhutan**], with results in an accessible, understandable and usable format for stakeholders and people

### **Additional indicators discussed and recommended by the Expert Groups:**

[G7 - Percentage of population with understanding of the risk they are exposed to- **Philippines, Czech Republic-delete**]

[G8 - Number of countries that have national plans with budget and timeline for development of multi-hazard EWS- **Philippines, Czech Republic-delete**]

[G9 - Number of countries that have disaster loss databases publicly accessible- **Philippines-delete**]

[G10 - Number of countries that have open data policies and mechanisms to make hazard and risk data accessible and available to all users-**Philippines-delete**]

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><b>Early warning system (EWS):</b> 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><b>Multi-hazard:</b> 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><b>Multi-hazard early warning system:</b> 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><b>Czech Republic:</b> Definition of EWS is too wide and nearly equal to whole DRM. EWS is a tool while prevention and preparedness is a different story. EWS is technical ways to give information to users for all types of hazards. We should first define what we define under EWS before indicator decisions. Means of information dissemination needs to be included.</p> <p><b>Hazard:</b> 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><b>Country:</b> 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><b>Czech Republic:</b> Why does this propose to measure separately by each hazard?</p> <p>Compounding methodology should be developed at later stage.</p> <p><b>Ecuador:</b> it is not possible to do the calculation of the indicator if the variables have different units of measure, in this case number and percentage, and if the objective is different, in this case it is important to know the number of countries with EWS but this requires to sum local governments and people.</p>
Rationale and interpretation	This indicator directly monitors the Target G.
Source and data collection	National Progress Reports of the Sendai Monitor, reported to UNISDR
Disaggregation	By country

<p>Comments and limitations</p>	<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><b>Czech Republic:</b> Disagree with Expert Group that it is impossible to measure, as well as not see that EW is localized phenomenon but clear responsibility at state level.</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><b>Target 13.3:</b> Improve education, awareness-raising and human and institutional capacity on <b>climate change mitigation, adaptation, impact reduction and early warning</b></p> <p><b>Target 15:3:</b> By 2020, <b>combat desertification, restore degraded land and soil</b>, including land affected by desertification, drought and floods, and strive to achieve a land-degradation-neutral world</p> <p><b>Target 2.4:</b> By 2030, ensure sustainable food production systems and implement <b>resilient agricultural practices</b> that increase productivity and production, that help maintain ecosystems, that <b>strengthen capacity for adaptation to climate change, extreme weather, drought, flooding and other disasters</b> and that progressively improve land and soil quality</p> <p><b>Target 11.5</b> By 2030, significantly reduce <b>the number of deaths and the number of people affected</b> and substantially decrease the direct economic losses relative to global gross domestic product caused by <b>disasters</b>, including water-related disasters, with a focus on protecting the poor and people in vulnerable situations</p> <p><b>Target 13.1</b> Strengthen <b>resilience and adaptive capacity to climate-related hazards and natural disasters</b> in all countries</p> <p><b>Target 3.d</b> Strengthen the capacity of all countries, in particular developing countries, for <b>early warning, risk reduction and management of national and global health risks</b></p>

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

Definitions	<p><b>Early warning system (EWS):</b> 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><b>Multi-hazard:</b> 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><b>Multi-hazard early warning system:</b> 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><b>Hazard:</b> 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><b>Monitoring and forecasting system:</b> 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><b>Monitor:</b> A device used for observing, checking, or keeping a continuous record of something (Oxford Dictionary)</p> <p><b>Forecast:</b> 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><b>Country:</b> 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><b>Target 13.3:</b> Improve <b>education, awareness-raising</b> and human and institutional <b>capacity on climate change mitigation, adaptation, impact reduction and early warning</b></p> <p><b>Target 15.3:</b> By 2020, <b>combat desertification, restore degraded land and soil</b>, including land affected by desertification, drought and floods, and strive to achieve a land-degradation-neutral world</p> <p><b>Target 2.4:</b> By 2030, ensure sustainable food production systems and implement <b>resilient agricultural practices</b> that increase productivity and production, that help maintain ecosystems, that <b>strengthen capacity for adaptation to climate change, extreme weather, drought, flooding and other disasters</b> and that progressively improve land and soil quality</p> <p><b>Target 11.5</b> By 2030, significantly reduce <b>the number of deaths and the number of people affected</b> and substantially decrease the direct economic losses relative to global gross domestic product caused by <b>disasters</b>, including water-related disasters, with a focus on protecting the poor and people in vulnerable situations</p> <p><b>Target 13.1</b> Strengthen <b>resilience and adaptive capacity to climate-related hazards and natural disasters</b> in all countries</p> <p><b>Target 3.d</b> Strengthen the capacity of all countries, in particular developing countries, for <b>early warning, risk reduction and management of national and global health risks</b></p>

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

Definitions	<p><b>Early warning system (EWS):</b> 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><b>Multi-hazard:</b> 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><b>Multi-hazard early warning system:</b> 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><b>Hazard:</b> 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><b>People covered :</b> 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><b>Target 13.3:</b>          Improve education, awareness-raising and human and institutional capacity on <b>climate change mitigation, adaptation, impact reduction</b> and <b>early warning</b></p>

	<p><b>Target 15:3:</b> By 2020, <b>combat desertification, restore degraded land and soil</b>, including land affected by desertification, drought and floods, and strive to achieve a land-degradation-neutral world</p> <p><b>Target 2.4:</b> By 2030, ensure sustainable food production systems and implement <b>resilient agricultural</b> practices that increase productivity and production, that help maintain ecosystems, that <b>strengthen capacity for adaptation to climate change, extreme weather, drought, flooding and other disasters</b> and that progressively improve land and soil quality</p> <p><b>Target 11.5</b> By 2030, significantly reduce <b>the number of deaths</b> and <b>the number of people affected</b> and substantially decrease the direct economic losses relative to global gross domestic product caused by <b>disasters</b>, including water-related disasters, with a focus on protecting the poor and people in vulnerable situations</p> <p><b>Target 13.1</b> Strengthen <b>resilience and adaptive capacity to climate-related hazards and natural disasters</b> in all countries</p> <p><b>Target 3.d</b> Strengthen the capacity of all countries, in particular developing countries, for <b>early warning, risk reduction and management of national and global health risks</b></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><b>Preparedness plan:</b> 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><b>Contingency planning:</b> 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><b>Preparedness:</b> 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><b>Evacuation plan:</b> 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><b>Evacuated:</b> 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><b>Local Government:</b> 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	<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><b>Czech Republic:</b> G4 and G5 are better placed in Target E. It depends on EWS definition.</p>
Main linkage with SDG targets	<p>Not proposed for the SDGs but related with the following targets.</p> <p><b>Target 13.3:</b></p>

	<p>Improve education, awareness-raising and human and institutional capacity on <b>climate change mitigation, adaptation, impact reduction and early warning</b>.</p> <p><b>Target 15:3:</b> By 2020, <b>combat desertification, restore degraded land and soil</b>, including land affected by desertification, drought and floods, and strive to achieve a land-degradation-neutral world</p> <p><b>Target 2.4:</b> By 2030, ensure sustainable food production systems and implement <b>resilient agricultural</b> practices that increase productivity and production, that help maintain ecosystems, that <b>strengthen capacity for adaptation to climate change, extreme weather, drought, flooding and other disasters</b> and that progressively improve land and soil quality</p> <p><b>Target 11.5</b> By 2030, significantly reduce <b>the number of deaths and the number of people affected</b> and substantially decrease the direct economic losses relative to global gross domestic product caused by <b>disasters</b>, including water-related disasters, with a focus on protecting the poor and people in vulnerable situations</p> <p><b>Target 13.1</b> Strengthen <b>resilience and adaptive capacity to climate-related hazards and natural disasters</b> in all countries</p> <p><b>Target 3.d</b> Strengthen the capacity of all countries, in particular developing countries, for <b>early warning, risk reduction and management of national and global health risks</b></p> <p><b>Target 11.b:</b> By 2020, substantially increase the number of cities and human settlements adopting and implementing <b>integrated policies and plans</b> 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><b>Risk assessment:</b> 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><b>Multi-hazard:</b> 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><b>Multi-hazard early warning system:</b> 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><b>Hazard:</b> 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><b>Accessible, understandable and usable format:</b> The targeted stakeholders can access the outputs with ease, understand it and use it for their respective needs.</p> <p><b>Stakeholders and People:</b> 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><b>Country:</b> 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><b>Czech Republic: G4 and G5 are better placed in Target E. It depends on EWS definition.</b></p>
<p>Main linkage with SDG targets</p>	<p><b>Target 13.3:</b> Improve <b>education, awareness-raising</b> and human and institutional <b>capacity</b> on <b>climate change mitigation, adaptation, impact reduction and early warning</b></p> <p><b>Target 15:3:</b> By 2020, <b>combat desertification, restore degraded land and soil</b>, including land affected by desertification, drought and floods, and strive to achieve a land-degradation-neutral world</p> <p><b>Target 2.4:</b> By 2030, ensure sustainable food production systems and implement <b>resilient agricultural</b> practices that increase productivity and production, that help maintain ecosystems, that <b>strengthen capacity for adaptation to climate change, extreme weather, drought, flooding and other disasters</b> and that progressively improve land and soil quality</p> <p><b>Target 11.5</b> By 2030, significantly reduce <b>the number of deaths</b> and <b>the number of people affected</b> and substantially decrease the direct economic losses relative to global gross domestic product caused by <b>disasters</b>, including water-related disasters, with a focus on protecting the poor and people in vulnerable situations</p> <p><b>Target 13.1</b> Strengthen <b>resilience and adaptive capacity to climate-related hazards and natural disasters</b> in all countries</p> <p><b>Target 1.5:</b> By 2030, build <b>the resilience of the poor and those in vulnerable situations</b> and reduce their <b>exposure and vulnerability to climate-related extreme events</b> and other economic, social and environmental shocks and <b>disasters</b></p> <p><b>Target 3.9:</b> By 2030, substantially reduce the number of <b>deaths and illnesses from hazardous chemicals and air, water and soil pollution and contamination</b></p> <p><b>Target 3.6:</b> By 2020, halve the number of <b>global deaths and injuries from road traffic accidents</b></p> <p><b>Target 3.d</b> Strengthen the capacity of all countries, in particular developing</p>

	countries, for <b>early warning, risk reduction and management of national and global health risks</b>
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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><b>Risk assessment:</b> 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><b>Multi-hazard:</b> 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><b>Multi-hazard early warning system:</b> 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><b>Hazard:</b> 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><b>Accessible, understandable and usable format:</b> The targeted stakeholders can access the outputs with ease, understand it and use it for their respective needs.</p> <p><b>Stakeholders and People:</b> 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><b>Local Government:</b> 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><b>Target 13.3:</b>          Improve <b>education, awareness-raising</b> and human and institutional <b>capacity on climate change mitigation, adaptation, impact reduction and early warning</b></p> <p><b>Target 15:3:</b>          By 2020, <b>combat desertification, restore degraded land and soil</b>, including land affected by desertification, drought and floods, and strive to achieve a land-degradation-neutral world</p> <p><b>Target 2.4:</b>          By 2030, ensure sustainable food production systems and implement <b>resilient agricultural</b> practices that increase productivity and production, that help maintain ecosystems, that <b>strengthen capacity for adaptation to climate change, extreme weather, drought, flooding and other disasters</b> and that progressively improve land and soil quality</p> <p><b>Target 11.5</b>          By 2030, significantly reduce <b>the number of deaths</b> and <b>the number of people affected</b> and substantially decrease the direct economic losses relative to global gross domestic product caused by <b>disasters</b>, including water-related disasters, with a focus on protecting the poor and people in vulnerable situations</p> <p><b>Target 13.1</b>          Strengthen <b>resilience and adaptive capacity to climate-related hazards and natural disasters</b> in all countries</p> <p><b>Target 3.d</b>          Strengthen the capacity of all countries, in particular developing countries, for <b>early warning, risk reduction and management of national and global health risks</b></p> <p><b>Target 11.b:</b>          By 2020, substantially increase the number of cities and human settlements adopting and implementing <b>integrated policies and plans</b> 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><b>Risk:</b> 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><b>Exposed to:</b> `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><b>Target 13.3:</b> Improve <b>education, awareness-raising</b> and human and institutional <b>capacity on climate change mitigation, adaptation, impact reduction and early warning</b></p> <p><b>Target 15:3:</b> By 2020, <b>combat desertification, restore degraded land and soil</b>, including land affected by desertification, drought and floods, and strive to achieve a land-degradation-neutral world</p> <p><b>Target 2.4:</b> By 2030, ensure sustainable food production systems and implement <b>resilient agricultural</b> practices that increase productivity and production, that help maintain ecosystems, that <b>strengthen capacity for adaptation to climate change, extreme weather, drought, flooding and other disasters</b> and that progressively improve land and soil quality</p> <p><b>Target 11.5</b> By 2030, significantly reduce <b>the number of deaths</b> and <b>the number of people affected</b> and substantially decrease the direct economic losses relative to global gross domestic product caused by <b>disasters</b>, including water-related disasters, with a focus on protecting the poor and people in vulnerable situations</p>

	<p><b>Target 13.1</b> Strengthen <b>resilience and adaptive capacity to climate-related hazards and natural disasters</b> in all countries</p> <p><b>Target 3.d</b> 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><b>Early warning system (EWS):</b> 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><b>Multi-hazard:</b> 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><b>Multi-hazard early warning system:</b> 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><b>Hazard:</b> 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><b>Country:</b> 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><b>Target 13.3:</b> Improve <b>education, awareness-raising</b> and human and institutional <b>capacity</b> on <b>climate change mitigation, adaptation, impact reduction and early warning</b></p> <p><b>Target 15:3:</b> By 2020, <b>combat desertification, restore degraded land and soil</b>, including land affected by desertification, drought and floods, and strive to achieve a land-degradation-neutral world</p> <p><b>Target 2.4:</b> By 2030, ensure sustainable food production systems and implement <b>resilient agricultural</b> practices that increase productivity and production, that help maintain ecosystems, that <b>strengthen capacity for adaptation to climate change, extreme weather, drought, flooding and other disasters</b> and that progressively improve land and soil quality</p> <p><b>Target 11.5</b> By 2030, significantly reduce <b>the number of deaths</b> and <b>the number of people affected</b> and substantially decrease the direct economic losses relative to global gross domestic product caused by <b>disasters</b>, including water-related disasters, with a focus on protecting the poor and people in vulnerable situations</p> <p><b>Target 13.1</b> Strengthen <b>resilience and adaptive capacity to climate-related hazards and natural disasters</b> in all countries</p> <p><b>Target 3.d</b> Strengthen the capacity of all countries, in particular developing countries, for <b>early warning, risk reduction and management of national and global health risks</b></p>
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## Indicator G-9 Number of countries that have disaster loss databases publicly accessible

Definition	<p><b>Disaster loss database:</b> A collection of systematically collected records about disaster occurrence, damages, losses and impacts, ideally compliant with the Sendai Framework monitoring minimum requirements.</p> <p><b>Country:</b> 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> <p><b>Czech Republic:</b> This indicator is more appropriate in the E indicator group.</p>
Main linkage with SDG targets	<p>Not proposed for the SDGs but related with the following targets.</p> <p><b>Target 13.3:</b> Improve <b>education, awareness-raising</b> and human and institutional <b>capacity</b> on <b>climate change mitigation, adaptation, impact reduction and early warning</b></p> <p><b>Target 15.3:</b> By 2020, <b>combat desertification, restore degraded land and soil</b>, including land affected by desertification, drought and floods, and strive to achieve a land-degradation-neutral world</p> <p><b>Target 2.4:</b> By 2030, ensure sustainable food production systems and implement <b>resilient agricultural</b> practices that increase productivity and production, that help maintain ecosystems, that <b>strengthen capacity for adaptation to climate change, extreme weather, drought, flooding and other disasters</b> and that progressively improve land and soil quality</p>

	<p><b>Target 11.5</b>  By 2030, significantly reduce <b>the number of deaths</b> and <b>the number of people affected</b> and substantially decrease the direct economic losses relative to global gross domestic product caused by <b>disasters</b>, including water-related disasters, with a focus on protecting the poor and people in vulnerable situations</p> <p><b>Target 13.1</b>  Strengthen <b>resilience and adaptive capacity to climate-related hazards and natural disasters</b> in all countries</p> <p><b>Target 3.d</b>  Strengthen the capacity of all countries, in particular developing countries, for <b>early warning, risk reduction and management of national and global health risks</b></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><b>Open Data:</b> “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><b>Hazard:</b> 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><b>Risk:</b> 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><b>Country:</b> 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><b>Target 13.3:</b> Improve <b>education, awareness-raising</b> and human and institutional <b>capacity</b> on <b>climate change mitigation, adaptation, impact reduction and early warning</b></p> <p><b>Target 15.3:</b> By 2020, <b>combat desertification, restore degraded land and soil</b>, including land affected by desertification, drought and floods, and strive to achieve a land-degradation-neutral world</p>

	<p><b>Target 2.4:</b> By 2030, ensure sustainable food production systems and implement <b>resilient agricultural</b> practices that increase productivity and production, that help maintain ecosystems, that <b>strengthen capacity for adaptation to climate change, extreme weather, drought, flooding and other disasters</b> and that progressively improve land and soil quality</p> <p><b>Target 11.5</b> By 2030, significantly reduce <b>the number of deaths</b> and <b>the number of people affected</b> and substantially decrease the direct economic losses relative to global gross domestic product caused by <b>disasters</b>, including water-related disasters, with a focus on protecting the poor and people in vulnerable situations</p> <p><b>Target 13.1</b> Strengthen <b>resilience and adaptive capacity to climate-related hazards and natural disasters</b> in all countries</p> <p><b>Target 3.d</b> 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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# Part II

## General Comments

## 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.

- 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 databases<sup>1</sup> 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.

### (Inputs in the 1<sup>st</sup> OEIWG)

- **Japan:** We should focus on the natural hazards as the priority issue.
- **State of Palestine:** It would be important to have an indicator that points to unnatural disasters, caused by humans.
- **Belarus:** We should better define the term disaster. E.g. the number of minor disasters and then the ministry in country will see what these types of disasters are.
- **Indonesia:** In our case there are so many small-scale disasters that are the biggest source of our losses.
- **El Salvador:** It is important to look at both slow on-set and small scale disasters.

## 2. 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

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<sup>1</sup> DesInventar website: [http://www.desinventar.net/index\\_www.html](http://www.desinventar.net/index_www.html)

disaggregation should be a national responsibility<sup>2</sup>. 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).

#### **(Inputs in the 1<sup>st</sup> OEIWG)**

- **Philippines:** It may be best to leave the level of disaggregation for the national level to decide, because some countries may wish to make policy decisions relevant to their particular circumstances that require data disaggregated in ways specific to their policy needs.

### **3. 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.

#### **(Inputs in the 1<sup>st</sup> OEIWG)**

- **US:** We need to standardize evaluation and methodology and be mindful of data collection constraints.
- **Italy:** Important to consider the quality of the data but also important to go forward.

### **4. 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.

#### **(Inputs in the 1<sup>st</sup> OEIWG)**

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<sup>2</sup> 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>

- **India:** Indicators related or overlapping with SDG proposals should be retained, as making the link.

## 5. 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.

### (Inputs in the 1<sup>st</sup> OEIWG)

- **Mexico:** Framework of 15 years could be divided into 5 year pieces. That will make it possible to see if the indicators are functional and we have all the data needed.

## 6. 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.

### (Inputs in the 1<sup>st</sup> OEIWG)

- **Czech Republic:** We need to keep global indicators as simple as possible. To simplify this indicator, the indicators could be limited to those that are easily collected at the global level while greater detail can be applied at the national level.