

## Indicator 11.5.2

### Indicator Name, Target and Goal

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

**Target 11.5** By 2030, significantly reduce the number of deaths and the number of people affected and substantially decrease the direct economic losses relative to global gross domestic product caused by disasters, including water-related disasters, with a focus on protecting the poor and people in vulnerable situations

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

### Definition and Rationale

#### ○ Definition

This indicator measures the following three components attributed to disasters: the ratio of direct economic loss in relation to GDP, damage to critical infrastructure, and the number of disruptions to basic services.

#### ○ Concepts

- Economic loss: economic impact that consists of direct economic loss and indirect economic loss.
- Direct economic loss: the monetary value of the total or partial destruction of physical assets existing in the affected area. Direct economic loss is nearly equivalent to physical damage.
- Indirect economic loss: a decline in economic value added as a consequence of direct economic loss and/or human and environmental impacts.
- Damage to critical infrastructure: the number of healthcare facilities and educational facilities damaged or fully destroyed by disasters, the number of electricity and gas supply facilities damaged by disasters or the number of households which had their electricity or gas supply cut due to disasters, and the amount of damage to roads, bridges, and sewerage attributed to natural disasters.
- Number of disruptions to basic services: the number of disrupted educational services and healthcare services attributed to disasters.

## ○ Rationale and Interpretation

To report on this indicator, the indicator for the Global Target C of the Sendai Framework for Disaster Risk Reduction 2015-2030 will be used for the ratio of direct economic loss in relation to GDP, the indicator for the Global Target D-1 of the Sendai Framework for Disaster Risk Reduction 2015-2030 will be used for serious damage to infrastructure, and the indicator for the Global Target D-5 of the Sendai Framework for Disaster Risk Reduction 2015-2030 will be used for the number of disruptions to basic services.

Among the global targets of the “Sendai Framework for Disaster Risk Reduction 2015-2030” adopted at the Third UN World Conference on Disaster Risk Reduction in March 2015, “Target C: Reduce direct disaster economic loss in relation to global gross domestic product (GDP) by 2030” and “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” will contribute to sustainable development and strengthen economic, social, health, and environmental resilience. The economic, environmental, and social perspectives would include poverty eradication, urban resilience, and climate change adaptation.

The open-ended intergovernmental expert working group on indicators and terminology relating to disaster risk reduction (OIEWG) established by the United Nations General Assembly (resolution 69/284) has developed a set of indicators to measure global progress in the implementation of the Sendai Framework, which was endorsed by the UNGA (OIEWG report A/71/644).

## **Data Sources and Collection Method**

Ministry of Land, Infrastructure, Transport and Tourism:

“Statistics on Building Disaster” - “Estimated Amounts of Building Damage”

“Statistics on Water-related Disaster Damage” - “Statistics on Water-related Disaster Damage to General Assets” - “Amounts of Damage to Assets of Business Establishments by Industrial Classification”

“Statistics on Disaster Damage to Public Infrastructure” - “Appraised Amounts by Infrastructure Type”

Ministry of Education, Culture, Sports, Science and Technology:

“Disaster Restoration Project Expenditure”

“Number of Schools and Other Facilities for Which Disaster Restoration Projects Were Implemented”

“Number of Public Schools That Were Temporarily Closed, Temporarily Reduced Class Hours, or Implemented Similar Measures”

Numerical data provided by the Ministry of Agriculture, Forestry and Fisheries

Numerical data provided by the Ministry of Health, Labour and Welfare

Numerical data provided by the Ministry of Economy, Trade and Industry

## **Method of Computation and Other Methodological Considerations**

### ○ Computation Method

This indicator consisting of three components is calculated for each of those components.

(1) The ratio of direct economic loss in relation to GDP is calculated as a simple summation of related indicators from the disaster loss databases of Japan divided by its GDP (based on the System of National Accounts). (See the Method of Computation for Indicator 1.5.2)

(2) Damage to critical infrastructure is calculated as a simple summation of the numerical values of the following D1 to D4:

- D1: The number of damaged or fully destroyed healthcare facilities attributed to disasters;
- D2: The number of damaged or fully destroyed educational facilities attributed to disasters;
- D3: The number of electricity and gas facilities damaged by disasters or the number of households which had their electricity or gas supply cut due to disasters; and
- D4: The number of disaster cases that were related to roads, bridges, or sewerage, and that were administered by the national government or by local governments with national subsidies.

(3) The number of disruptions to basic services is calculated as a simple summation of the numerical values of the following D5 and D6:

- D5: The number of disruptions to educational services attributed to disasters; and
- D6: The number of disruptions to healthcare services attributed to disasters.

It is necessary to consider integrating the three components in the future on the basis of reviews by the United Nations, etc.

○ Comments and Limitations

(1) The ratio of direct economic loss in relation to GDP: see the section concerning Indicator 1.5.2

(2) Damage to critical infrastructure

- D1: The number of facilities is based on the compilation of the numbers counted by prefectures.
- D2: With regard to national and public schools, the number of educational facilities means the number of national and public schools which suffered certain damage eligible for disaster restoration project subsidies c, and which made applications for such subsidies. With regard to private school facilities and public social education facilities, the number of educational facilities means the number of schools, etc. which became eligible for subsidies since the disasters they had suffered were designated as disasters of extreme severity, and which made applications for such subsidies.
- D4: Subsidized projects of prefectures are limited to those projects in which the amount of damage was 1.2 million yen or more, and subsidized projects of municipalities are limited to those projects in which the amount of damage was 600 thousand yen or more. Furthermore, national road projects are limited to those projects in which the amount of damage was 5 million yen or more at each disaster site. The period of statistics is from January 1 through December 31 of the year.
- D5: Disruptions are counted not by referring to the number of disruption days or that of households affected by disruptions but by employing a simple method of counting each disruption in terms of 1 or 0.
- D6: The number of facilities is based on the compilation of the numbers counted by prefectures.

**Data Disaggregation**

N/A

## **References**

N/A

## **Custodian Ministries of Data**

Cabinet Office

Ministry of Education, Culture, Sports, Science and Technology

Ministry of Health, Labour and Welfare

Ministry of Agriculture, Forestry and Fisheries

Ministry of Economy, Trade and Industry

Ministry of Land, Infrastructure, Transport and Tourism

## **Custodian Ministries of Related Policies**

Cabinet Office

Ministry of Land, Infrastructure, Transport and Tourism

## **International Organizations**

United Nations Office for Disaster Risk Reduction (UNDRR)