

Building nations' resilient foundation for saving lives and developing economy

Disaster risk reduction (DRR) is directly linked to “Human Security” and “Sustainable Development.”

DRR is the basis for development as it saves people's lives and livelihoods. JICA supports programs on strengthening the capacity of partner countries to augment pre-disaster investment in DRR for the future. By 2030, JICA strives to substantially reduce the number of deaths, affected people, and economic losses caused by natural hazards.



To prevent damage from disasters, it is important to reduce the risk before it happens, and not after.

The primary cause of disasters is natural hazards. As such, it remains a challenge for us to predict the occurrence and the magnitude of disasters with precision. Sometimes, natural phenomena occur on a scale beyond our expectation. However, this does not mean that we should just conduct emergency responses to every disaster. There are things that we can do in advance to understand and reduce the risk based on scientific knowledge to minimize the impact of disasters. DRR can also protect economically and socially the vulnerable populations against the risk of falling into the negative spiral of poverty because of disasters.



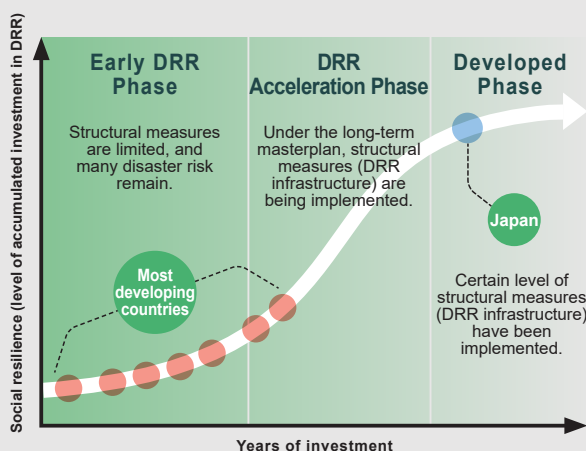
"Every US\$1 invested in risk reduction and prevention can save up to US\$15 in post-disaster recover."



"Every US\$1 invested in making infrastructure disaster-resilient saves US\$4 in reconstruction."



Source: UNDRR "Our impact"



Developing countries continue to face significant damages and losses from disasters due to low cumulative pre-disaster investment in DRR.

In rapidly developing countries, disaster risk is increasing because of the unregulated urban development without adequate disaster risk reduction plans and measures. Climate change can compound the effects of disasters with higher frequency and magnitude of extreme climate/weather events.

While other coping measures such as provision of evacuation facilities can reduce human casualties, society itself remains exposed to disaster risk and every small windstorm or earthquake can damage assets and infrastructure, bringing economic and social activities to a halt.

Governments in developing countries need to invest in proactive DRR to fundamentally reduce the risk.

- Investment in DRR.....reducing disaster risks by investing in structural (hard) and non-structural (soft) measures
- Pre-disaster investment in DRR.....identifying and understanding risks, and putting in place measures to reduce the risks before disasters occur

Japan's experience in integrating DRR with development is essential for developing countries.

As a country prone to many different types of hazards, Japan has achieved economic growth while confronting natural hazards, based on the belief that the same damage should not be repeated (see the figure below for the evolution of flood control). Japan's principles of DRR are reflected on

the Sendai Framework for Disaster Risk Reduction (SFDRR), which positions DRR as a development issue that forms the basis for economic and social development - and not as a response-oriented humanitarian issue. Japan continues to lead the world in the field of DRR.

● Changes in Flood Control in Japan Prepared with reference to data from the River Council, Ministry of Land, Infrastructure and Transport

Pre-modern	Flood control for settlement protection, rice field development and river transport (e.g. Shingen Tsutsumi, Tone River Eastward Transfer)
After the late Meiji period	Development of a national flood control plan (e.g. Enactment of the River Act (1896), Okozu floodway, Arakawa floodway)
Post-war	Post-war reconstruction and development of economic infrastructure (e.g., enactment of the Basic Act on Disaster Management in 1961) (Amendment of the River Act in 1964, improvement projects based on the basic policy and plan on river improvement)
Current	After rapid urbanization, launching a review of flood control plan considering the effects of climate change

Sendai Framework for Disaster Risk Reduction (SFDRR)

The guiding principles for global DRR were adopted at the Third UN World Conference on DRR, held in Sendai in March 2015. Japan led the discussion based on its disaster experiences that resulted to the global recognition of the principle of pre-disaster Investment in DRR has been recognized globally. The JICA Global Agenda is an initiative in line with this framework.

【Outcome targets by 2030】

- Reduced mortality
- Reduced number of affected people
- Reduced economic losses
- Reduced damages to critical infrastructures and disruption of basic services

Approach 1

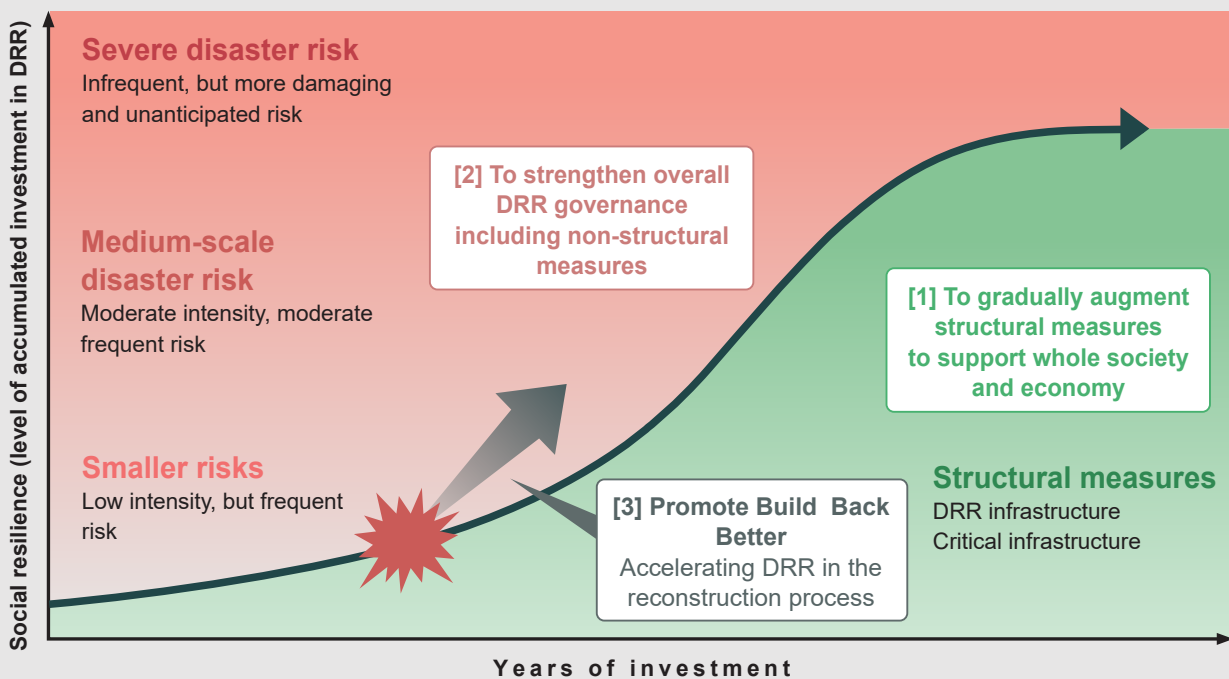
Promote structural measures to support the nation's development foundation

JICA implements model projects that are high priority and high impact as the pre-disaster investments in DRR in metropolitan areas where population and capital are concentrated. Through these model projects, JICA aims to instill the approaches and principles of DRR that are appropriate to the country. Pre-disaster investment required in public works would be primarily in forms of DRR infrastructures for flood management, sedimentation control, and coastal erosion control. Additional pre-disaster investment is also necessary to sustain the functions of the critical infrastructure such as lifeline facilities for transportation, electricity, water supply and communication, and educational and medical facilities even in the event of a disaster. JICA also supports for strengthening the capacity of the responsible organizations to enable them to implement, finance, operate and maintain structural measures sustainably. In the figure below, the measure to increase the green area is "Approach 1".

Approach 2

Strengthen overall governance for DRR, including non-structural measures

JICA supports establishing an all-round system consisting of various ministries, agencies, and local governments in charge of DRR, with the aim of improving the national capacity for planning and implementing holistic DRR measures in a sustainable and systematically organized manner. Our cooperation in non-structural measures includes observation technologies and understanding of disaster risks, development of regulatory systems for land use, and early warning to deal with risks that cannot be reduced in advance. Approach 2 deals with disaster risks that have not been addressed at present. In the figure below, even though the green area expands in an S-shaped curve, there should remain the residual risk illustrated as the red area above the S-shaped curve.



Approach 3

Promote "Build Back Better"

In the post-disaster recovery and reconstruction, we have to boost up disaster risk reduction based on the global definition of "Build Back Better." JICA contributes to the reconstruction of countries and societies that are more resilient to natural hazards by reducing fundamental disaster risks and overcoming existing vulnerabilities through development of structural measures. During the reconstruction process of the earthquake in Nepal in 2015, JICA proposed the measures for DRR based on risk assessment that considered future risks.



Damage of the 2015 Nepal Earthquake Disaster

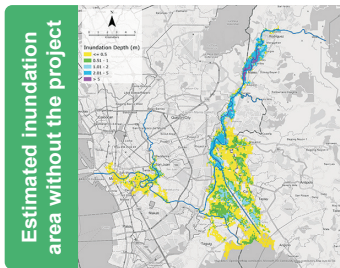
The long-term support to the Philippines' DRR investment underpins the development of Manila

Since the 1970s, JICA has been supporting DRR investment in the Philippines through flood control planning, capacity building, and human resource development. In 1999, the government of the Philippines established a department that specializes in flood control – only one of its kind among developing countries. The department has rapidly increased its budget for flood control.

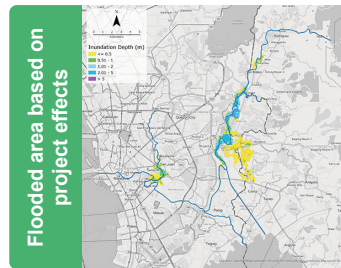
In the case of the Typhoon Ulysses in 2020, it is estimated that these projects reduced the economic damage by about 85%.

●Typhoon Ulysses in 2020

Analysis : CTI Engineering International Co., Ltd.
Map : @OpenStreetMap contributors/CC BY-SA

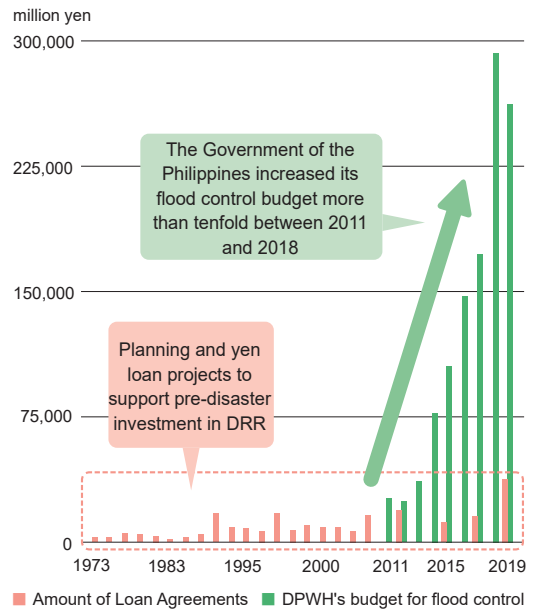


» Estimated damage without the project : **13 billion dollars**
» Estimated number of people affected by the disaster without the project : **1 million**



» Estimated damage : **2 billion dollars**
» Estimated number of affected people by the disaster : **0.03 million**

●Pre-disaster Investment in the Philippines

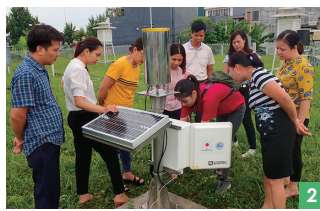


(Prepared based on DPWH data and JICA data.
DPWH : Department of Public Works and Highways, Philippines)

Other examples of cooperation



OYO Corporation



Japan Meteorological Business Support Center



- 1 In Bangladesh, to strengthen the earthquake resistance of buildings, JICA implemented projects that focused on training engineers and preparing manuals.
- 2 Development of meteorological radars and capacity building of meteorological agencies in several countries including Vietnam and the Philippines.
- 3 In Brazil, JICA has also started to implement structural measures based on risk assessment for flash flood.

Collaborating with Partners

Collaborating with diverse actors can be an effective way to reduce disaster risk in developing countries.

The need for DRR is ever increasing in developing countries. To effectively respond to this, Japan has put more priority on pre-disaster investment in DRR over the years than on immediate disaster responses. Such pre-disaster investment experience and knowledge has been particularly accumulated in the public such as ministries, agencies, and local governments. However, coordination with relevant agencies such as the private sector, NGOs, universities, and other organizations in Japan as well can be also effective. JICA will also collaborate with other donors and

international organizations, sharing the philosophy of Japan's DRR. "DRR Leaders Capacity Development for the Sendai Framework Implementation" is a long-term study and research program hosted by Japanese universities. The program is part of Japan's contribution to generating cadres of DRR experts and future leaders from developing partner countries. Japan will continue to contribute to the global efforts for DRR through collaborative approach with world-class public and private individuals as its resource.



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Japan International Cooperation Agency (JICA) is an international cooperation organization that is centrally responsible for the implementation of bilateral assistance among Japan's Official Development Assistance. JICA cooperates with about 150 countries and regions around the world.



What is Global Agenda?

JICA's cooperation strategies for global issues. JICA, with its partners, aims to show global impacts realizing the goals set under JICA Global Agenda. JICA Global Agenda and its goals will be shared among partner countries and various actors, enhancing dialogue and collaboration, therefore, maximizing the development impacts. Through these efforts, JICA will comprehensively contribute to the achievement of the SDGs by 2030 as well as realize Japan's Development Cooperation Charter which focus on "human security," "quality growth," and "addressing global challenges".