

Financial Assistance Projects/Standard Indicator Reference (Disaster Risk Reduction through Pre-disaster Investment and Build Back Better)

Development strategic objective (JICA Global Agenda)	Types of infrastructure	Indicator examples		Policy and methods for setting indicators	Reference projects by type of infrastructure		
					Country name	Project name	FY of evaluation
	[Earthquake disaster countermeasures] Improvement of earthquake resistance of important facilities (national and local government offices, disaster management headquarters and operational base buildings, fire departments, hospitals, schools, buildings designated as evacuation facilities, structures for lifelines/communication, etc.)	<b>Operation indicators</b>	<b>Basic indicators</b> Number of important buildings constructed and earthquake-proofed to meet earthquake-resistant building standards and other official standards (national and regional development plans, national and regional disaster risk reduction plans, proper location, maintenance of functions during disasters, energy conservation, barrier-free, etc.)	From the viewpoint of the effectiveness and sustainability of the project, it is necessary to confirm the following: <ul style="list-style-type: none"> <li>earthquake-resistant building standards and other official standards of the relevant country are met (national and regional development plans, national and regional disaster risk reduction plans, proper location, maintenance of functions during disasters, energy conservation, barrier-free, etc.);</li> <li>even after the project, the facilities are being appropriately maintained through periodic surveys of current conditions and necessary repairs;</li> <li>all residents have been informed that the facilities are important for disaster management office buildings, evacuation facilities, etc.; and</li> <li>measures to reduce disaster risk are being conducted continuously, including evacuation drills and emergency response drills by staff and local residents.</li> </ul>	Indonesia	The Project for Safe School Reconstruction in Devastated Areas of Earthquake in Offshore of Padang in West Sumatra Region	2010
		<b>Effect indicators</b>	<b>Basic indicators</b> (1) Number of users of public services essential for maintaining the social functions of the target important buildings (2) Number of employees and direct users of target important buildings (3) Maximum number of people who can use the building as an evacuation shelter in disaster time (4) Whether or not it is used as a base for relief and support activities for local residents				
		<b>Operation indicators</b> (1) Discharge capacity at flood control reference point (m <sup>3</sup> /s) (2) Annual maximum discharge at flood control reference point (m <sup>3</sup> /s) (3) Annual highest water level at flood control reference point (m) (4) Flood safety level by the measures (annual probability of exceedance) (5) Maximum/Total annual storage volume (m <sup>3</sup> ) / number of storage times in flood retention ponds <Common> - Budget amount (for maintenance) of the division related to the measures - Number of (management) employees in the department in charge of measures *In addition, as flood control measures, the following are also examined to show present situation/degree of improvement after a plan. a. Current flood safety level and plan scale (annual probability of exceedance) b. River channel specifications before the measures <ul style="list-style-type: none"> <li>Basic flood discharge (each station)</li> <li>River channel water level</li> </ul> c. River channel specifications after the measures <ul style="list-style-type: none"> <li>Design discharge distribution (stations including reference points)</li> <li>Design high water level (Note: An indicator that can be used in an implication that only spreads to a level set in the overall plan, and raising the high water level is not necessarily a goal.)</li> </ul>	<b>Basic indicators</b> (1) It is an effective indicator to evaluate whether the river can secure the discharge capacity by maintenance dredging and channel widening in a river where sedimentation in a series of sections is a problem due to embankment and widening. (2) Annual maximum discharge at the flood control reference point in the river improvement section of the project. When flood damage due to overflow or breach occurs and the flow rate (water level required for flow conversion) cannot be measured at the flood control reference point, it is an estimated value based on the runoff model calculation used during planning or the improved runoff model calculation based on the actual rainfall. (3) Annual highest water levels at flood control reference points in the river improvement section of the project (4) Direct evaluation indicator of safety improvement through investment by the measures (5) Evaluation indicator of the degree, contribution, and frequency of flood storage and damage reduction by flood retention ponds refer to the Metropolitan Outer Area Underground Discharge Channel) <Common> - Budget amount (for maintenance) of the division related to the measures: Indicators for strengthening the rehabilitation to continue pre-disaster investment based on the effectiveness of measures - Number of (management) employees in the department in charge of measures: Indicators for strengthening the system to stably demonstrate the effects of pre-disaster investment based on the effectiveness of measures *The following shall also be considered in the above examination. <ul style="list-style-type: none"> <li>Evaluating the current situation and the degree of safety after the plan.</li> <li>Determining the scale of the plan (degree of safety) by taking into consideration the actual condition of damage to the target water system, the degree of importance, and the economic effects.</li> <li>Calculating the basic flood discharge of the current river channel by the runoff calculation.</li> <li>Calculating the planned flood discharge after implementation of measures based on the basic flood discharge</li> <li>Evaluating the water level reduction amount at each station due to the implementation of the plan</li> </ul>	The Philippines Pasig-Marikina River Channel Improvement Project (Phase III) (ODA loan project) 2011 The Philippines Flood Risk Management Project for Cagayan River, Tagoloan River and Imus River (ODA loan project) 2011 The Philippines Flood Risk Management Project for Cagayan de Oro River (ODA loan project) 2014 Vietnam Second Ho Chi Minh City Water Environment Improvement Project (II) (ODA loan project) 2009			

Disaster risk reduction (Implementing pre-disaster investment)	[Flood control measures] Embankment, anti-flood ponds, etc.	<p><b>Effect indicators</b></p>	<p><b>Basic indicators</b></p> <p>(1) Number of deaths from past floods (2) Number of victims in past floods (3) Amount of damage reduction after implementation of measures (4) Flooded area reduced (km<sup>2</sup>) (5) Number of inundated houses reduced (6) Number of inundation damage cases reduced per year</p> <p><b>Supplementary indicators</b></p> <p>*If the effectiveness of the measures is to be shown, the following should also be considered in comparison with past maximum flood. (1) Amount of damage (local currency: yen conversion value is also shown) (2) Inundation hours (3) Reduced inundation depth (m) (4) Reduced road flooding hours (5) Maximum/Total annual drainage facility operating hours</p> <p>*In addition to river flooding, we will consider prevention and deterrence of inland inundation damage caused by the difficulty of inland water drainage due to the high outside water level as a flood control measure effect.</p>	<p>Among the basic effect indicators, (4) to (6) shall be as follows.</p> <p>(4) Flooded area (km<sup>2</sup>): The actual inundation area in the case of a flood that breaches or overflows an embankment at river improvement sections / sections with storage effect at flood retention ponds of the project or in the case of poor inland water drainage due to a rise in the river water level. In the case where no breach or overflow occurred and there was no rise in the river water level or flood that caused poor inland water drainage, it is indicated as 0. (The cumulative value also evaluates the effectiveness of measures against small and medium-sized floods.)</p> <p>(5) Number of inundated houses reduced: The number of inundated houses in the case of a flood that breaches or overflows an embankment at river improvement sections / sections with storage effect at flood retention ponds of the project or in the case of poor inland water drainage due to a rise in the river water level. In the case where no breach or overflow occurred and there was no rise in the river water level or flood that caused poor inland water drainage, it is indicated as 0. (The cumulative value also evaluates the effectiveness of measures against small and medium-sized floods.)</p> <p>(6) Number of inundation damage cases per year: The number of inundation damages caused by the breakage or overflow of embankments in the river improvement and floodplain storage effect areas of the project, and the number of inundation damages caused by poor inland water drainage due to the rise in river water level.</p> <p>(1) The amount of damage to inundated areas in the case of a flood that breaches or overflows an embankment at river improvement sections of the project or in the case of poor inland water drainage due to a rise in the river water level.</p> <p>(2) The inundation hours estimated from the relationship between the depth of water at the flood control reference point and the ground height in the embankment in the case of a flood that breaches or overflows an embankment at river improvement sections of the project or in the case of poor inland water drainage due to a rise in the river water level.</p> <p>(3) If flood/inundation analysis simulation is possible, the calculated inundation depth assuming no measures, or the inundation depth at the time of similar-scale flood. The effectiveness of the prevention and suppression of flooding and the prevention and suppression of inland water retention due to the lowering of the outside water level are evaluated. (However, note the use as an indicator when drainage facilities that are expected to have a significant effect are installed.)</p> <p>(4) Inundation hours of flooded roads in the case of a flood that breaches or overflows an embankment around river improvement sections of the project or in the case of poor inland water drainage due to a rise in the river water level.</p> <p>(5) Total operating hours of drainage pump stations and pumps. It is evaluated that the period of power drainage by the pump is shortened due to the lowering of the outside water level.</p> <p>It is important to understand external forces through the relationship between rainfall amount, spatiotemporal distribution, and phenomena (water level and discharge) for all operation and effect indicators. In other words, it is necessary to confirm whether a system capable of grasping external forces is in place by conducting rainfall observation with sufficient spatiotemporal density from normal times. (Note: The above is to avoid an inappropriate evaluation that project effects have occurred simply because the flow rate, water level, and damage status are kept below the prescribed level (and vice versa), even though the target rainfall scale for flood control has not occurred, although they are important indicators of flood specifications). In addition, it is not only the case for flood control measures but also for the case of structural measures in general that evaluation should be made based on the relationship with external forces.</p>	Indonesia	Flood Control Sector/Loan (ODA loan project)	2008
		[Inland water measures] drainage channels, drainage pump stations, etc.	<p><b>Operation indicators</b></p>	<p><b>Basic indicators</b></p> <p>(1) Planned size (e.g. 50 mm/h) (2) Enhanced drainage capacity (m<sup>3</sup>/sec) (3) Increased capacity of drainage pump station (m<sup>3</sup>/sec) (4) Flood safety level by the measures (year) (5) Inundated area (ha) (6) Design rainfall depth (mm/hour) (7) Maximum/Total annual drainage facility operating hours · Amount of waste disposed at drainage pump stations and amount of dredging of drainage canals</p>	<p>To keep track of the operation, it is desirable to check whether the actual values meet or exceed the design values after the construction work has been completed.</p> <p>The drainage capacity depends on the cross section and the inclination of the drainage. Therefore, it is important to make sure that garbage, etc. does not block the drainage. If public awareness, social education, etc. for residents in surrounding areas are incorporated into the project, evaluation of the effects will also be considered (refer to the details of issues, rehabilitation, etc. in past cases). During the preparatory survey, determine the size of the area that could be inundated by rain with different return periods, so that the project effects can be presented quantitatively, for example the expected reduction in the inundated area. In addition, determining effectiveness could be difficult because of increased peak flood discharge due to development particularly in upstream areas, or increased inflow from the surrounding area due to improvement of the drainage function of the target area, etc. (reduction of inundation damage in adjacent district, etc.). Therefore, it is necessary to clarify the preconditions of the plan.</p>	Cambodia	The Project for Flood Protection and Drainage Improvement in the Municipality of Phnom Penh
		<p><b>Effect indicators</b></p>	<p><b>Basic indicators</b></p> <p>(1) Number of deaths from past floods (2) Number of victims in past floods (3) Amount of damage reduction after implementation of measures (4) Flooded area reduced (km<sup>2</sup>) (5) Number of inundated houses reduced (6) Number of inundation damage cases reduced per year</p>		Vietnam	Second Ho Chi Minh City Water Environment Improvement Project (II) (ODA loan project)	2007

		<p><b>Supplementary indicators</b></p> <p>*If the effectiveness of the measures is to be shown, the following should also be considered.</p> <p>(1) Flooded area due to amount of rainfall with a probability of once every two years (km<sup>2</sup>)</p> <p>(2) Maximum annual inundation depth due to amount of rainfall with a probability of once every 10 years (m)</p> <p>It should be noted that how to express the "probability of once every X years" depends on the target of each country.</p>				
[Sediment disaster measures (Debris flow measures)] Construction of "Sabo" dams and roads for maintaining the dams	<p><b>Operation indicators</b></p>	<p><b>Basic indicators</b></p> <p>(1) Amount of trapped sediment (m<sup>3</sup>)</p> <p>(2) Amount of sediment discharged (m<sup>3</sup>)</p> <p>(3) Number of target streams (number of branches)</p> <p>(4) Protected population (people and households)</p> <p>(5) Amounts of assets subject to protection (number of units and re-procurement costs of important facilities *excluding roads)</p>	<p>In the preparatory survey, past disaster records should be studied, and the project effects should be calculated based on the expected damage.</p> <p>The effectiveness of "Sabo" dams is evaluated by comparing the amount of damage at a certain rainfall, or by the amount of damage reduced after maintenance compared to damage caused by past disasters.</p>	The Philippines	The Project for Flood Disaster Mitigation in Camiguin Island	2009
	<p><b>Effect indicators</b></p>	<p><b>Basic indicators</b></p> <p>(1) Number of deaths reduced</p> <p>(2) Number of victims reduced (people and households)</p> <p>(3) Amount of damage reduction after implementation of measures</p> <p>(4) Number of affected units reduced</p> <p>(5) Number of debris flows relative to baseline rainfall</p> <p><b>Supplementary indicators</b></p> <p>(1) Reduction rate of the number of days for removal of stored sediment (effect of roads for maintenance)</p>	<p>Debris flow of (5) is defined as a disaster that is associated with casualties, damage to infrastructure, buildings, agricultural facilities, etc.</p>	Honduras	The Project for Flood and Erosion Control Measures for the Choloma River	2005
[Sediment disaster measures (Landslide measures)] Structures for preventing landslides (collecting well works; water collecting, drainage, and horizontal boring works; channel works; soil removal works; and embankment works)	<p><b>Operation indicators</b></p>	<p><b>Basic indicators</b></p> <p>(1) Mitigation of landslide movements</p> <p>(2) Safety factor *1</p> <p>(3) Groundwater level</p>	<p>*1. "Safety factor" is a ratio between the sliding force and the resistance. For general landslide prevention work, the current safety factor is assumed to be in a range between 0.95 and 1.00 depending on the current landslide conditions. Thus, the design safety factor is set to be between 1.10 and 1.20 considering generally the landslide occurrence and movement mechanisms, the importance of the objects that are to be protected, the level of damage expected, etc.</p> <p>*2. The death toll will be reduced by issuance of evacuation advisories through monitoring of landslides. Properties, such as buildings, are generally difficult to be protected although it depends on the size of the landslide.</p>	Honduras	The Project for Landslide Prevention in Tegucigalpa Metropolitan Area	2011
	<p><b>Effect indicators</b></p>	<p><b>Basic indicators</b></p> <p>(1) Number of deaths reduced *2</p> <p>(2) Number of victims reduced</p> <p>(3) Amount of damage reduction after implementation of measures</p> <p>(4) Number of affected units reduced</p>				
[Tsunami and storm surge control measures] Development of seawalls, dredging water areas in front of seawalls	<p><b>Operation indicators</b></p>	<p><b>Basic indicators</b></p> <p>(1) Extension of developing shore protection structures (in the case of shore protection structures)</p> <p>(2) Overtopping height of tsunami and storm surge</p> <p>(3) Increased number of observation stations</p> <p>(4) Increased number of data transmission stations</p> <p>(5) Lead time from event confirmation to warning issue (minutes)</p>	<p>There were no deaths in Malé Island by Indian Ocean tsunami in 2004. However, the economic value of Malé Island having been protected is not clear because the asset values of the various types of infrastructure on Malé Island are unknown. In the preparatory survey, it is important to examine casualties and economic damage, calculate the disaster risk and economic damage assumption in advance, and then quantitatively show the reduction effect of disaster risk associated with the pre-disaster investment.</p> <p>*3 Identify the awareness of the islanders and residents through interviews, etc.</p>	Maldives	The Project for the Seawall Construction in Malé Island (Phase 3)	2006
	<p><b>Effect indicators</b></p>	<p><b>Basic indicators</b></p> <p>(1) Number of deaths</p> <p>(2) Number of victims</p> <p>(3) Amount of damage</p> <p>(4) Increased capacity in tsunami and storm surge monitoring and accuracy (becoming able to issue detailed warnings)</p> <p>(5) Reduction of necessary time to transmit information on tsunami and storm surge</p> <p>(6) Disaster risk reduction effects in tsunami (reduction in number of deaths and missing, reduction in number of fishing vessels affected, and economic effects)</p> <p>(7) Securing safe moorings for small vessels</p> <p>(8) Reduction in necessary costs for shore protection maintenance as a result of developing strong shore protection structures</p>				

			(9) Detectable wave height				
			<b>Supplementary indicators</b> (1) Awareness of the islanders and residents regarding the disaster risk reduction effects that shore protection structures have (providing safe and secure living environment) *3				
[Earthquake disaster control measures] [Volcanic disaster control measures] Equipment for seismic observation at seismographic stations and for data transmission from the stations; equipment for the observation at intensive volcano observatories and equipment for data transmission from the stations and from the relay points for transmitting intensive observation data; etc.		<b>Operation indicators</b>	<b>Basic indicators</b> (1) Increased number of seismic observation stations (2) Increased number of volcano observation stations (3) Increased number of data transmission stations		The Philippines	The Project for Improvement of Earthquake and Volcano Monitoring System (Phase 2)	2007
		<b>Effect indicators</b>	<b>Basic indicators</b> (1) Increased capacity in earthquake detection and accuracy (becoming able to detect all earthquakes around 4.0 or more in magnitude) (2) Increased capacity in volcano monitoring and accuracy (becoming able to issue detailed warnings) (3) Reduction of necessary time to transmit information on earthquake and volcano (4) Number of residents informed by warning transmission				
		<b>Operation indicators</b>	<b>Basic indicators</b> (1) (Daily) rainfall monitoring in weather forecasting services (2) Issuance of warnings and advisories for heavy rain and typhoons (including cyclones and hurricanes) in weather forecasting services, and resulting reduction of casualties and property damage (3) Using rainfall forecast of Terminal Area Forecast (TAF) in aviation weather services (4) Monitoring low-level wind shear in aviation weather services (to date, no results have been obtained through grant aid)		Sri Lanka	The Project for the Establishment of a Doppler Weather Radar Network	2015
Weather monitoring radar		<b>Effect indicators</b>	<b>Basic indicators</b> (1) Improving the frequency and scope of provision of rainfall information and heavy rain warnings to disaster management organizations		Bangladesh	The Project for Improvement of Meteorological Radar System in Dhaka and Rangpur	2015
			<b>Supplementary indicators</b> (1) Advance measures against heavy rain and typhoons, etc. and evacuation activities are implemented in a timely manner. (2) Casualties and property damage caused by flood disasters, sediment disasters, and storm surges associated with heavy rain and typhoons, etc. are reduced.		Pakistan	The Project for Installation of Weather Surveillance Radar at Karachi	2015
		<b>Operation indicators</b>	<b>Basic indicators</b> (1) Surface observation equipment: number of observation stations, number of observations at meteorological observatories, and number of reports from meteorological observatories to main station (2) Weather information process networking equipment: increase in available weather observation information and data, and start of numerical weather prediction (3) Wind profiler: number of observations of high winds		Pakistan	The Project for Establishment of Specialized Medium Range Weather Forecasting Center and Strengthening of Weather Forecasting System	2014
					Myanmar	The Project for Establishment of Disastrous Weather Monitoring System	2013

<p align="center"><b>Disaster risk reduction (Understanding disaster risk and strengthening disaster risk governance)</b></p>	<p><b>Surface observation equipment, weather information process networking equipment, and wind profiler</b></p>	<p><b>Effect indicators</b></p>	<p><b>Basic indicators</b>  (1) Increase in observation range and density  (2) Improving the type and accuracy of warnings and advisories that can be issued  (3) Improving the quality and quantity of archived data</p> <p><b>Supplementary indicators</b>  (1) Reduction in weather disaster-derived casualties and property damage (which was achieved through improved weather observation and forecasting accuracy)  (2) It will be possible to issue more prompt and accurate warnings for weather disasters, such as floods, sediment disasters, and storm surges.  (3) It will be possible to provide the public and related organizations with clear and accurate weather information more quickly than before.</p>		<p>Fiji</p> <p>Samoa</p> <p>Mongolia</p> <p>Sri Lanka</p>	<p>The Project for Improvement of Equipment for Disaster Risk Management</p> <p>The Programme for Improving the Weather Forecasting System and Meteorological Warning Facilities</p> <p>The Project for Improvement of Meteorological Information Network</p> <p>The Project for Improvement of Meteorological and Disaster Information Network</p>	<p>2013</p> <p>2010</p> <p>2008</p> <p>2007</p>
	<p><b>Flood forecasting and warning systems, river hydrological information observation network</b></p>	<p><b>Operation indicators</b></p>	<p><b>Basic indicators</b>  [Observation]  (1) Accuracy of rainfall and water level observation and spatiotemporal density (rainfall observation data density (number of stations/km<sup>2</sup>), number of river level and flow observation stations)  (2) Reduction of missing hydrological observation data</p> <p>[Analysis]  (1) Accuracy of the runoff analysis model</p> <p>[Warning issued]  (1) Percentage of warnings issued at the time of rainfall events that had rainfall of the standard value or more  (2) Lead time from event confirmation to warning issue (minutes)</p>		<p>Morocco</p>	<p>The Project for Flood Forecasting and Warning System in High Atlas Area</p>	<p>2010</p>
		<p><b>Effect indicators</b></p>	<p><b>Basic indicators</b>  [Warning issued]  (1) Evacuation rate (= number of evacuees/number of people to be evacuated)  (2) Percentage of warnings issued at the time of rainfall events that had rainfall of the standard value or more</p> <p><b>Supplementary indicators</b>  (1) Coverage (= number of persons and municipalities to whom forecasts and warnings can be transmitted / number of persons and municipalities)</p>				
	<p><b>Construction of schools-cum-evacuation facilities (such as cyclone shelters) and</b></p>	<p><b>Operation indicators</b></p>	<p><b>Basic indicators</b>  (1) Number of times the schools are used in evacuations/emergencies (times/year)  (2) Percentage of the local resident population that can be evacuated to the evacuation facilities</p> <p><b>Supplementary indicators</b>  (1) Number of people who can be evacuated in evacuation facilities  (2) Number of evacuees per toilet (average)  (3) Evacuation area per person at evacuation facilities (m<sup>2</sup>/person)</p>		<p>The Philippines</p>	<p>The Project for Evacuation Shelter Construction in Disaster Vulnerable Areas in Province of Albay</p>	<p>2011</p>

procurement and installation of the necessary equipment (water supply systems, toilets, and school facilities)	Effect indicators	<b>Basic indicators</b> (1) Number of evacuees (i.e. the number of people saved) during severe cyclones  <b>Supplementary indicators</b> (1) Number of enrolled students in the schools (2) Average number of students per class in the target school (including preschoolers)		Myanmar	The Project for Construction of Primary School-cum-Cyclone Shelter in the Area Affected by Cyclone "Nargis"	2009
Others (Indicator examples for projects that do not directly support infrastructure construction, such as policy incentivised loans)	Operation indicators	Number of municipalities that have prepared and published flood hazard maps  Number of municipalities that have prepared and published sediment disaster hazard maps	Check whether flood hazard maps and sediment disaster hazard maps have been prepared and published in the area.		Bangladesh	The Programme for Construction of Multipurpose Cyclone Shelters in the Area Affected by the Cyclone Sidr
	Operation indicators	Amount of standing independent financial resources for recovery & reconstruction	Check whether the central or local government budgets have independent financial resources (reserve funds in Japan) that can be immediately executed in the event of a disaster, and if so, how much.			
Preparation of construction machinery, work vehicles (such as bulldozers and dump trucks), etc. needed for repair and restoration of public facilities affected by disasters	Operation indicators	<b>Basic indicators</b> (1) Construction machinery operating rates (%) (2) Length of restored roads after being affected by floods (3) Number of bridges restored after being affected by floods (4) Annual average daily traffic (vehicles/day, vehicles/24 hours)	It is important to confirm that the whether the concept of Build Back Better (Note) set forth in the Sendai Framework for Disaster Risk Reduction is reflected.  (Note) The aim is to build a society that is more resilient to disasters, rather than restoring to pre-disaster conditions, so that similar disasters do not cause similar damage.  It may be difficult to identify the pre-disaster conditions in the preparatory survey for this type of project because the pre-disaster traffic and other data may be difficult to obtain.	Bangladesh	The Project for Supply of Equipment and Materials for Flood Disaster Relief	2006
	Effect indicators	<b>Basic indicators</b> (1) Reduction in the time required to get to the destination (hours)  <b>Supplementary indicators</b> (1) Passenger transport volume (passenger/km) and volume of freight (tons/year) (2) Driving costs saved (yen and the amount in local currency per year) (3) Increase in the average driving speed (km/hour) (4) Reduction in the number of road shutdown days per year due to natural disasters (days/year) (5) Improvement in access to infrastructure (schools, health centers, etc.) (people/day)				
Restoration of affected roads and bridge facilities	Operation indicators	<b>Basic indicators</b> (1) Annual average daily traffic (vehicles/day, vehicles/12 hours) (2) Reduction in the number of days required for recovery and reconstruction	It is important to confirm that the whether the concept of Build Back Better set forth in the Sendai Framework for Disaster Risk Reduction is reflected.  It may be difficult to identify the pre-disaster conditions in the preparatory survey for this type of project because the pre-disaster traffic and other data may be difficult to obtain.	The Philippines	The Project for Flood Disaster Mitigation in Camiguin Island	2009

Disaster risk reduction (Promoting Build Back Better (BBB))		<b>Effect indicators</b>	<b>Basic indicators</b> (1) Reduction in the time required to get to the destination (hours) (2) Impact in recovery and reconstruction (early transportation of relief personnel, supplies and materials, etc.) <b>Supplementary indicators</b> (1) Reduction in the frequency of inundation by raising roads (2) Making bridges earthquake-resistant and resistant to fluid power in floods (3) Passenger transport volume (passenger/km) and volume of freight (tons/year) (4) Driving costs saved (yen and the amount in local currency per year) (5) Increase in the average driving speed (km/hour) (6) Reduction in the number of road shutdown days per year due to natural disasters (days/year) (7) Improvement in access to infrastructure (schools, health centers, etc.) (people/day)				
	Recovery and Reconstruction of Housing	<b>Operation indicators</b>	<b>Basic indicators</b> (1) Number of disaster-resilient housing units constructed in accordance with the technical guidelines	It is important to confirm that the whether the concept of Build Back Better set forth in the Sendai Framework for Disaster Risk Reduction is reflected.	Nepal	Emergency Housing Reconstruction Project (ODA loan project)	2015
		<b>Effect indicators</b>	<b>Basic indicators</b> (1) Number of beneficiaries who received housing reconstruction funds (number of households) (2) Percentage of female households received housing reconstruction funds <b>Supplementary indicators</b> (1) Average amount of housing reconstruction funds received per household				
	Recovery and Reconstruction of School	<b>Operation indicators</b>	<b>Basic indicators</b> (1) Number of earthquake-resistant school buildings at the project site	It is important to confirm that the whether the concept of Build Back Better set forth in the Sendai Framework for Disaster Risk Reduction is reflected.	Nepal	Emergency School Reconstruction Project (ODA loan project)	2015
<b>Effect indicators</b>		<b>Basic indicators</b> (1) Number of students studying in restored schools (2) Number of enrolled students in target schools (3) Maximum number of people who can use the building as an evacuation shelter in disaster time (4) Utilization of the school facilities as evacuation sites by local residents <b>Supplementary indicators</b> (1) Enrollment rate of men and women in primary secondary education (%)					
Recovery and Reconstruction of Hospitals, etc.	<b>Operation indicators</b>	<b>Basic indicators</b> (1) Number of restored hospital wards	It is important to confirm that the whether the concept of Build Back Better set forth in the Sendai Framework for Disaster Risk Reduction is reflected.	Nepal	The Program for Rehabilitation and Recovery from Nepal Earthquake	2015	
	<b>Effect indicators</b>	<b>Basic indicators</b> (1) Number of beneficiaries of medical services					