



Twenties Asia-Pacific Seminar on Climate Change
Promoting Strategic Development of Resilient Asia-Pacific



JICA efforts in supporting adaptation to climate change

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Hiroshi ENOMOTO
Deputy Director, Office for Climate Change,
Japan International Cooperation Agency (JICA)

Today's Topic

- JICA activities on adaptation to climate change(project level)
- JICA activities on adaptation to climate change (mainstreaming on adaptation national level)
- Mainstreaming adaptation within JICA
- Challenges on adaptation to climate change in JICA activities.



Loan :

Bangladesh: Khulna Water Supply Project

Loan Agreement Signed: May 18, 2011

Loan Amount: 15,729 Mil. JPY (approx. 200 Mil USD)

- Only about 22% of residents in Khulna, the third largest city in Bangladesh, have access to piped water supply service. Many unconnected households rely on shared public taps and spend on average 90 minutes to fetch water everyday.



- Khulna is located on the coastal belt of Bangladesh, and rivers running near the city are affected by salinity intrusion from Bengal Bay especially during dry season, and thus it is not easy to secure potable fresh water.

The objective of the project is expansion of reliable access to safe water. The project also functions as climate change adaptation thru salinity control facilities.

Bangladesh: Khulna Water Supply Project Countermeasures to combat enhanced salinity

Bangladesh NAPA (Nov 2005): Analyzes actual and potential adverse effects of climate change in coastal zones – identifying acute vulnerability including saline intrusion

ADB (co-financier) studies impact of climate change* on urban infrastructure, particularly water supply and drainage systems, in Khulna, the third-largest city in Bangladesh

*Similar approach to ADB-JICA-WB joint study “*Climate Risks and Adaptation in Asian Coastal Megacities*” (2010)

JICA consults with Bangladesh to determine method (salinity control reservoir), scale (trial of 4 possible cases to decide capacity) and operation (management using SCADA system) – observed salinity data used for consideration



Grant Aid (Program Grant Aid for Environment & Climate Change) Samoa: Program for Improving the Weather Forecasting System and Meteorological Warning Facilities

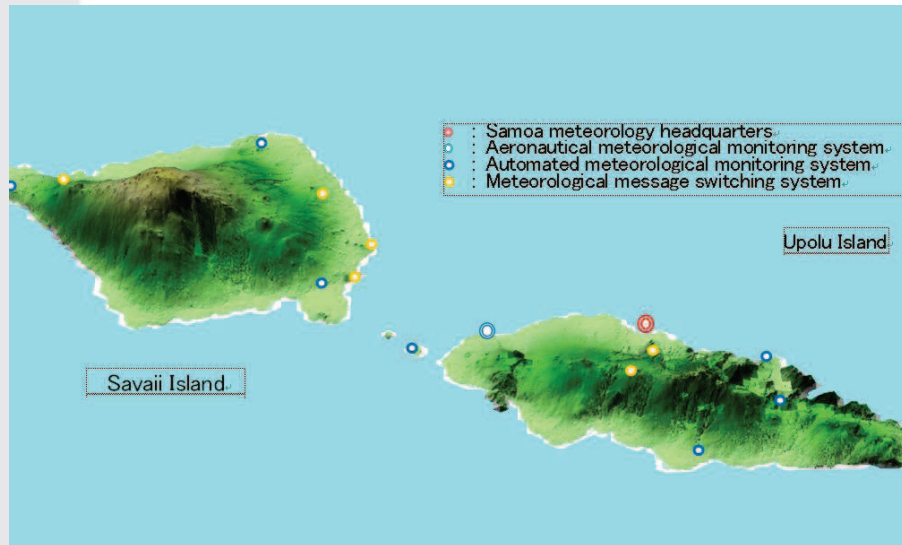
Enhancing weather forecasting ability and reducing vulnerability to natural disaster through improvement of system and facilities

“Program Grant Aid
for Environment and Climate Change”
(2010~2013, about 750 mil JPY (8 mil USD))

Grant aid offering a combination of tangible (facilities and equipment) and intangible (technical support) components



Equipment installed at Samoa meteorology headquarters



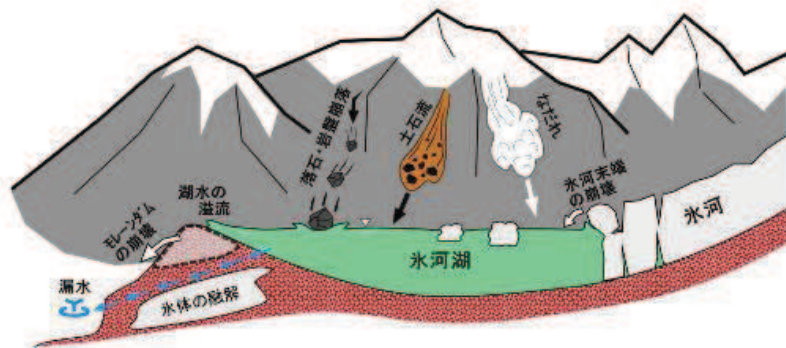
- Expected outcomes include:
 - Nationwide meteorological monitoring system allowing early warning of weather related disasters, providing detailed information on cyclones
 - Accumulation of weather data helping global climate change research as well as improving local scientific knowledge of weather impact on industries



Science and Technology Research Partnership for Sustainable Development (SATREPS)

Bhutan: The Study on Glacial Lakes Outburst Floods (GLOF) in Bhutan Himalaya

- This is a Technical cooperation program conducted under the Science and Technology Research Partnership for Sustainable Development, together with Japan Science and Technology Agency (JST).
- Through the joint assessment of the GLOF risk in Bhutan Himalayas, the capacity for conducting investigation and research on GLOF phenomena and making plans for effective disaster management are expected to be strengthened.



Source: Jiri Komori,
Univ. of Nagoya



Science and Technology Research Partnership for Sustainable Development (SATREPS)

Integrated Study Project on Hydro-Meteorological Prediction and Adaptation to Climate Change in Thailand

In this project, the Earth Observation System will be integrated into a natural anthropogenic modeling system for hydrology and water resources assessments, and a decision-making support system in developing countries for planning and implementing the nationwide adaptation in water-related areas under climate change will be developed in order to ensure the sustainable development across the globe.





Science and Technology Research Partnership for Sustainable Development (SATREPS)

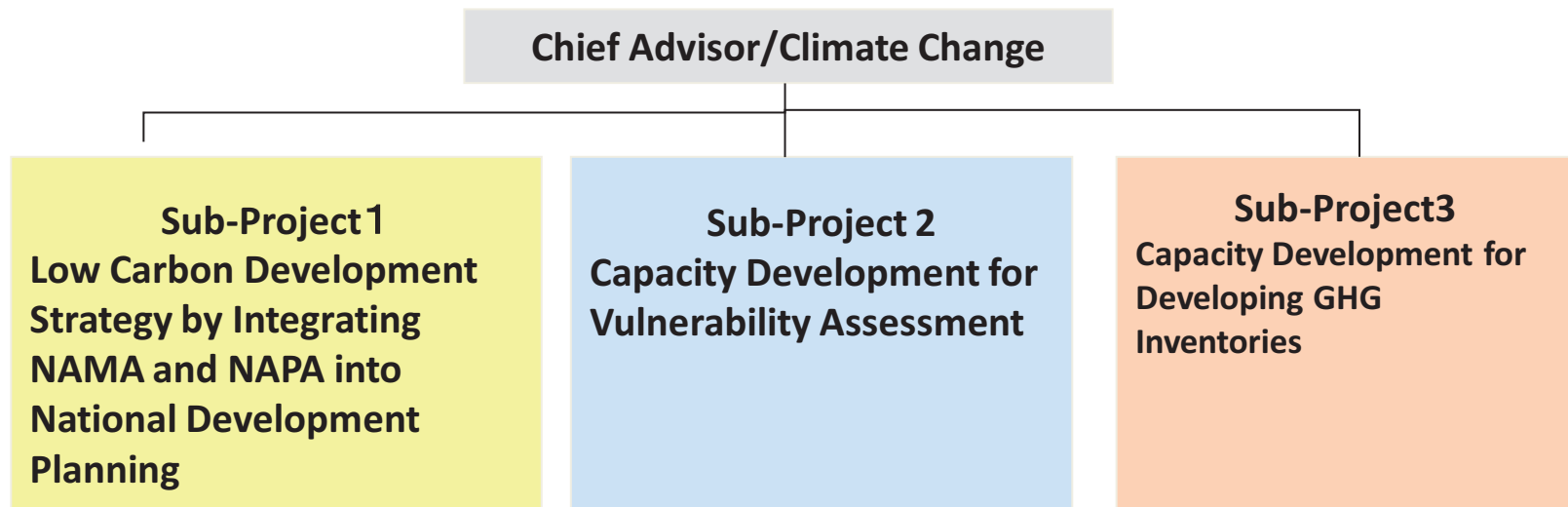
Tuvalu: Project for Eco-technological management of Tuvalu against sea level rise

- A sand production-transportation-sedimentation model which is considered effects of human activities and global warming is developed and eco-engineering technology adapted to the Tuvaluan situations to create and/or restore sandy beach is proposed.
- Capacity and awareness of the research staff, government officials and local communities to conserve and restore the coastal environment and ecosystem are improved.







Technical Assistance: Project of Capacity Development for Climate Change Strategy in Indonesia

- (1) Implementing Agencies : BAPPENAS(National Development Planning Agency), BMKG(Agency for Meteorology, Climatology, and Geophysics), KLH(Ministry of Environment), and others
- (2) Project area : Whole area of Indonesia, Pilot Area
- (3) Project : 2010-2014 5years



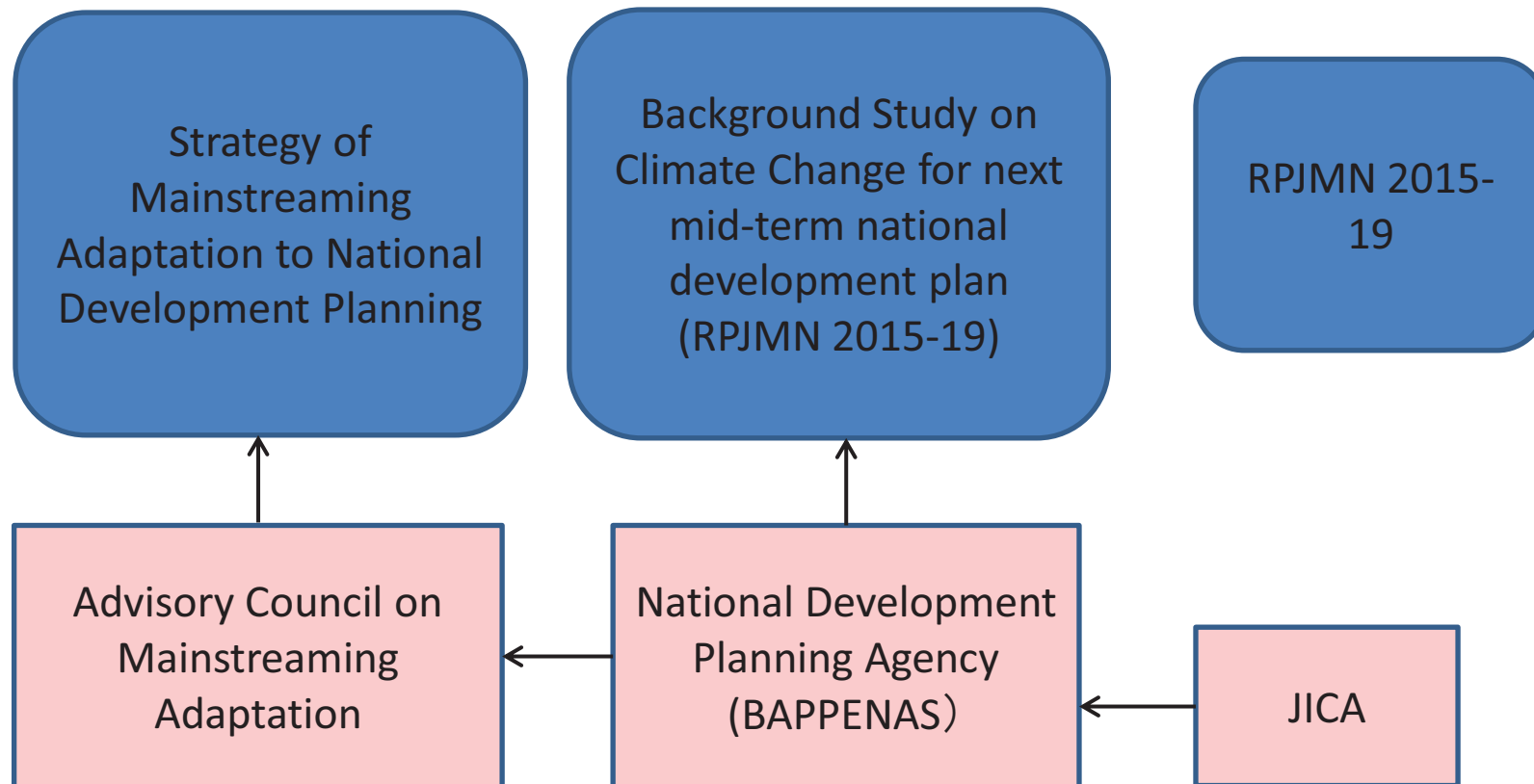


Technical Assistance: Project Project of Capacity Development for Climate Change Strategy in Indonesia Mainstreaming adaptation: work flows

	2011	2012	2013	2014	2015
Concept note for mainstreaming adaptation to national development planning					
Draft strategy for mainstreaming adaptation to national development planning					
Background study on climate change for the next mid-term development plan (RPJMN 2015-19)					
RPJMN 2015-19					



Technical Assistance: Project Project of Capacity Development for Climate Change Strategy in Indonesia Mainstreaming adaptation: work schedule





Climate Finance Impact Tool (JICA Climate-FIT) June 2011

- JICA has prepared Climate Finance Impact Tool (JICA Climate-FIT) ,a reference document which contains the following components in order to facilitate consideration of policies and formulation of projects for assisting climate change related measures in developing countries.
- 1.Mitigation: Methodologies for implementing measurement, reporting and verification (MRV) related to quantitative evaluation of mitigation projects that contribute to reduction or sequestration of greenhouse gases (GHG)
- 2.Adaptaion:Concepts and guidelines for mainstreaming adaptation considerations into projects that contribute to reduction of vulnerability against climate change, and sustaining and increasing adaptive capacity and resilience



Japan International Cooperation Agency (JICA)
Climate Finance Impact Tool
for Mitigation and Adaptation (Summary)

JICA Climate-FIT (Summary)

Draft Ver. 1.0

June 2011

Office for Climate Change
JICA Global Environment Department

Final Report for Study on Mainstreaming Climate Change Considerations into JICA Operation (Summary) by NIPPON KOEI CO., LTD.

Composition of the report

Chapter 1 Outline of the Study
Chapter 2 Review of the Existing Documents/Materials

Chapter 3 Basic concept of adaptation measures

- The basic concept
- Vulnerability assessment
- Adaptation Project and regular development project with Adaptation Options
- Maladaptation
- Evaluation and monitoring adaptation effect
- Required data

Chapter 4 Selection of target sub-sectors

- Sub-sectors on general adaptation projects
- Previous loan aid achieved (Classify yen loan funded projects from 1995 to 2010)
- Integration of sub-sectors with classification of yen loan funded projects
- Loan provided by other donors
- Selection of target sub-sectors

Chapter 5 Basic Concept and Guidelines for Adaptation Measures

Identification of adaptation project

Composition of materials for each sub-sector

Target sub-sectors

- 1) Basic concept of adaptation
- 2) Guidelines for “Adaptation project”
- 3) Guidelines for “Regular development project with Adaptation Options”

Projection of future climate

- ① Water Resource (1. Water resources)
- ② Agriculture and Food (2. Irrigation and drainage, 3. Farmland management enhancement)
- ③ Forestry/Natural Environment Conservation (4. Forest preservation/ afforestation, 5. Ecosystem Integrity)
- ④ Disaster Management (6. Flood control, 7. Coastal protection, 8. Landslide disaster prevention, 9. Disaster prevention information system)
- ⑤ Urban/ Regional Development (10. Rural/urban development)
- ⑥ Transportation (11. Bridge, road and railway, 12. Port and airport)
- ⑦ Sanitary Improvement (13. Water supply, 14. sewage/ urban drainage, 15. Medical/ health care)

Vulnerability assessment

- **Purpose of adaptation = To reduce vulnerability** to climate change
- **Planning adaptation =** Necessary to identify and **evaluate vulnerability**
- To **evaluate vulnerability**, the following steps were established in reference to the UNDP guidebook (2010).

Steps and summary of vulnerability assessment in target sectors (Adaptation Project)

Step 1 Identification of the Hazards and Sensitivity to Climate Change	1) Assess past and present climate trends and risks
	2) Assess future exposure to climate hazards and changes a) Study future weather conditions after climate change b) Study other factors related to socioeconomic changes
	3) Assess sensitivity to future climate change a) Study past damage situation b) Study the counter measures taken c) Assess sensitivity to future climate change
Step 2 Determine Adaptive Capacity to Climate Change	4) Assess adaptive capacity, etc. to climate change a) Identify of adaptive capacity to climate change b) Identify factors exacerbating climate change impacts
Step3 Assessment of Vulnerability	5) Assess vulnerability Assessment of vulnerability to climate change in the target region in consideration of factors of Steps 1 and 2. Identification of differences in vulnerability within the target region, in case there are substantial differences.

Adaptation project and regular development project

(1) Difference between Adaptation project and regular development project with adaptation option

Guidelines for adaptation measures was developed based on classification by "**Adaptation project**" and "**Regular development project with Adaptation options.**"

However, it is not realistic to draw a clear line between the two types, and there may be variations between them.

- Adaptation project

The main objectives of the projects is adaptation.

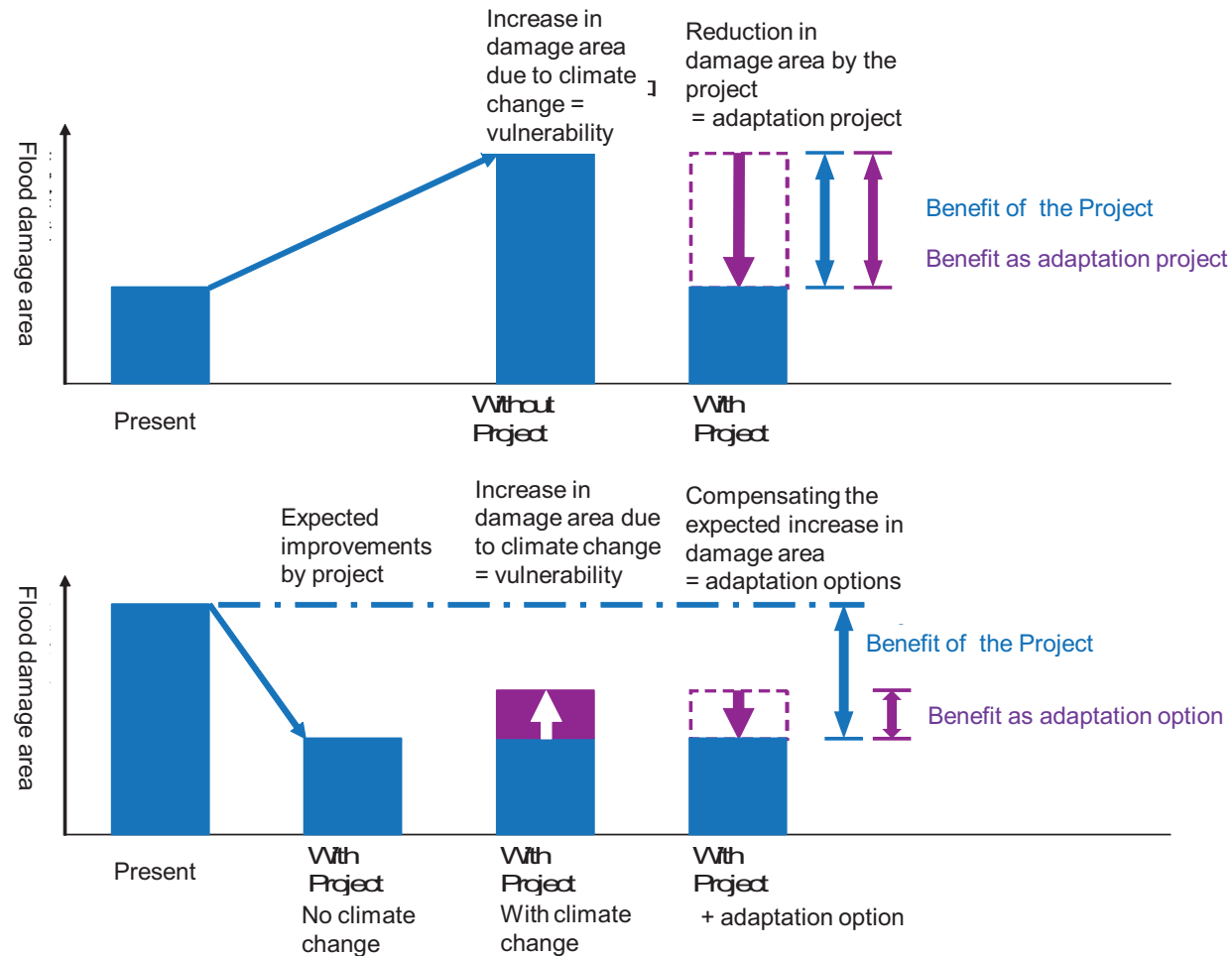
- Regular development project with adaptation options

Projects designed to adapt to the impacts of the climate change in achieving their main objectives

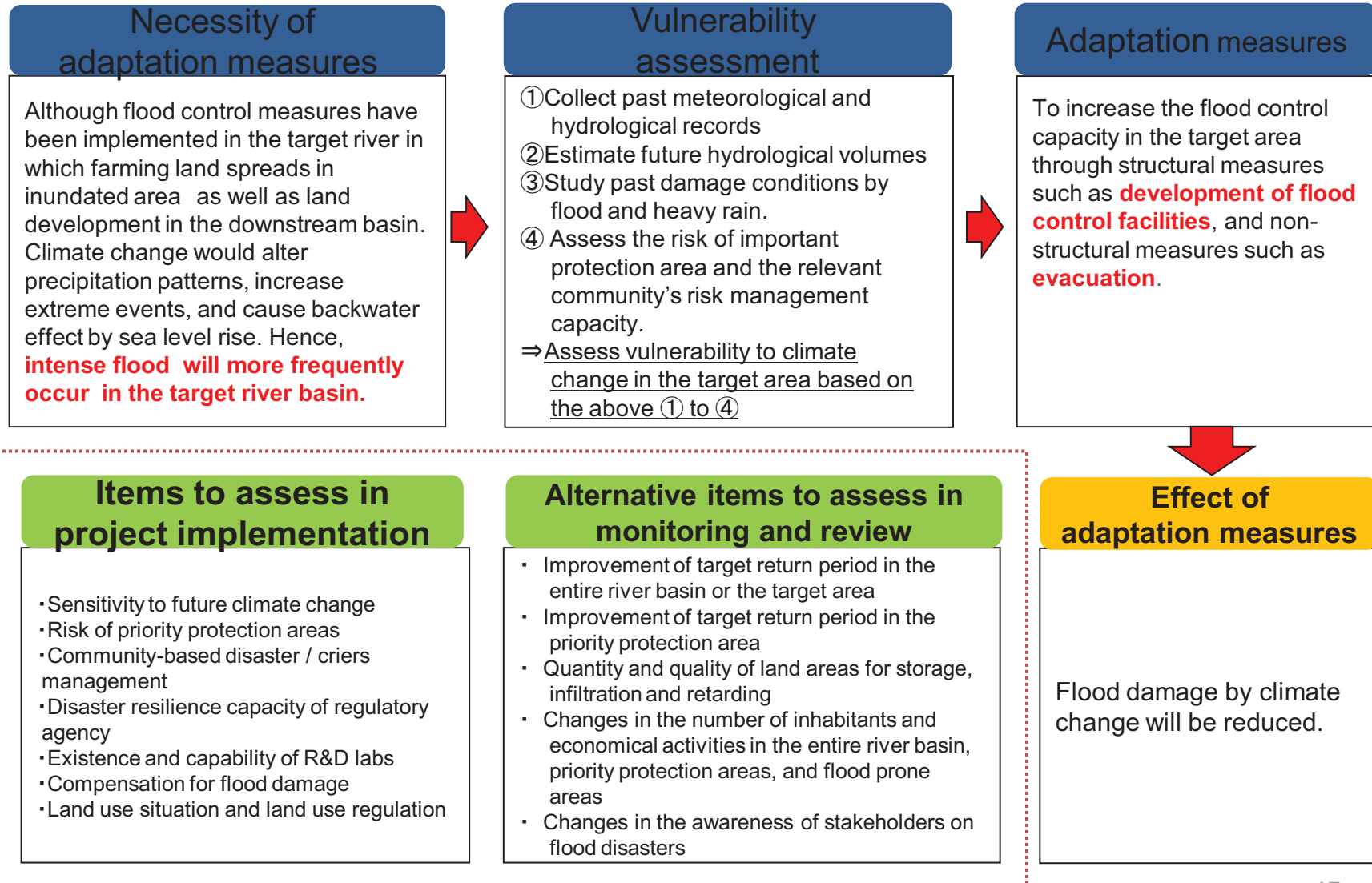
	Adaptation project	Regular development project with adaptation options
Definition	Projects formulated to reduce vulnerability in climate change in the existing system. E.g., projects to improve existing facility to adapt to the increased vulnerability caused by the change of external forces due to climate change.	Projects not mainly aiming to reduce the vulnerability, but is designed to adapt to the impacts of climate change in achieving their main objectives. E.g., infrastructure development/ rehabilitation projects that are planned or designed in consideration of increased external forces stemming from climate change.
Example of projects	<ul style="list-style-type: none"> - Drainage of a glacial lake with the risk of collapse by global warming - Expansion of existing irrigation systems to address the crop damage caused by increased frequency and intensity of drought. - Disaster prevention project to strengthen resilience against potential hazards that might occur in association with inundation of roads due to increased flood risk by climate change. 	<ul style="list-style-type: none"> - Mangrove afforestation project in consideration of the sea level rise to protect coastal areas and ecosystems. - Flood control project primarily aimed to contribute to economic development in consideration of external forces caused by increased frequency of extreme events and rainfall. - Road construction project which takes into account potential flood damage caused by climate change to design the route and related facilities.

Adaptation project and regular development project

Example of differences between “Adaptation project” (above) and “Regular development project with adaptation options” (below) (Flood control)



3. Basic Concept and Guidelines for Adaptation Measures Flood Control



Challenges on adaptation to climate change

- Mainstreaming within JICA began recently.
- Adaptation and development project
JICA has implemented diverse projects in adaptation area (water, agriculture, disaster) within as usual development project. Few projects incorporate adaptation issues and including vulnerability assessment.
- Vulnerability assessment (what depth, cost, data availability, uncertainty)
- How to incorporate result of vulnerability assessment into project design?(project cost , adaptation benefit)