GRANDE International Symposium
October 20, 2012, Tohoku University, Sendai, Japan

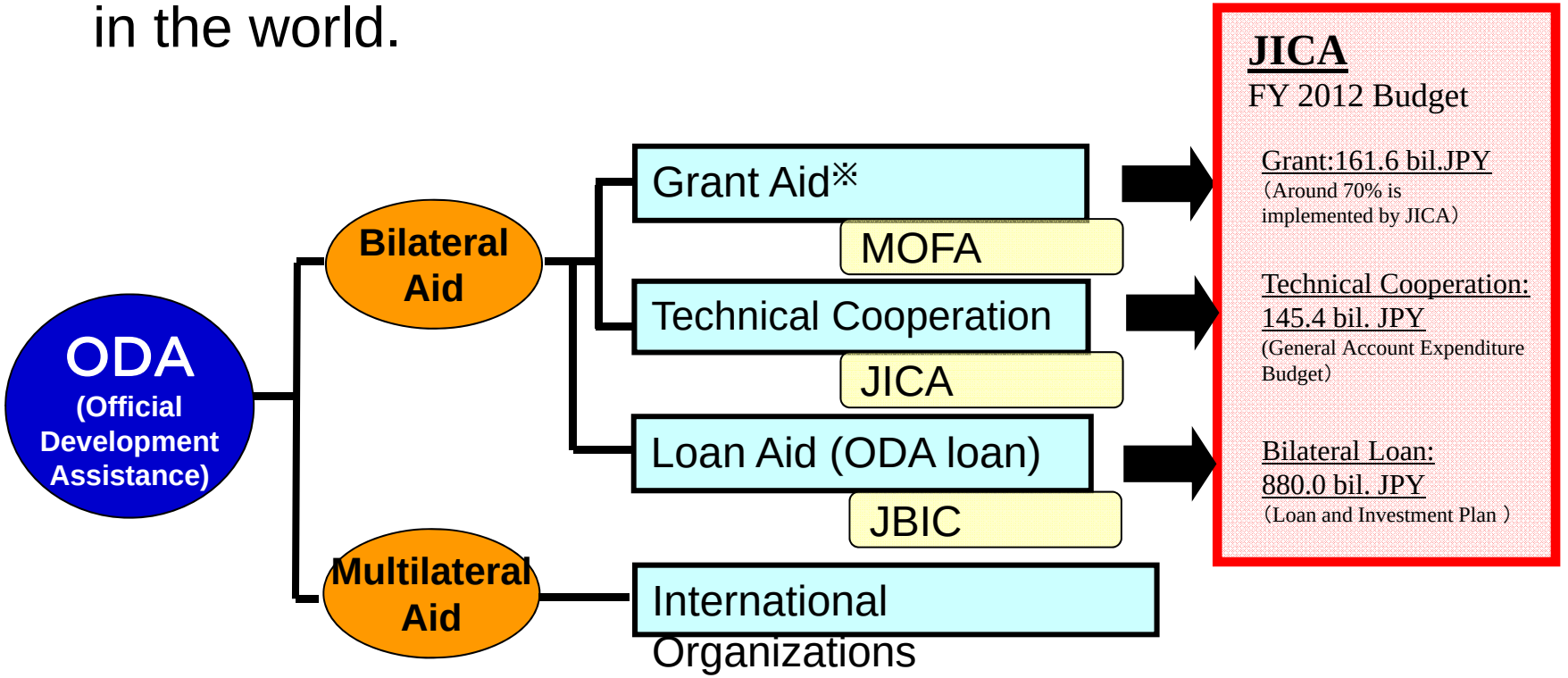
JICA's International Cooperation on Climate Change and Water Resources Management

October 20, 2012

Katsuyoshi SUDO
Global Environment Department
Japan International Cooperation Agency (JICA)

Japanese ODA and JICA

- JICA provides strategic and effective ODA through integrated, comprehensive and seamless implementation of Technical Cooperation, Loan Aid and Grant Aid as one of the largest ODA executing agency in the world.



※Non-project Assistance and Emergency Grant Assistance remain with MOFA

Water Resources Mgt.: JICA's Priority

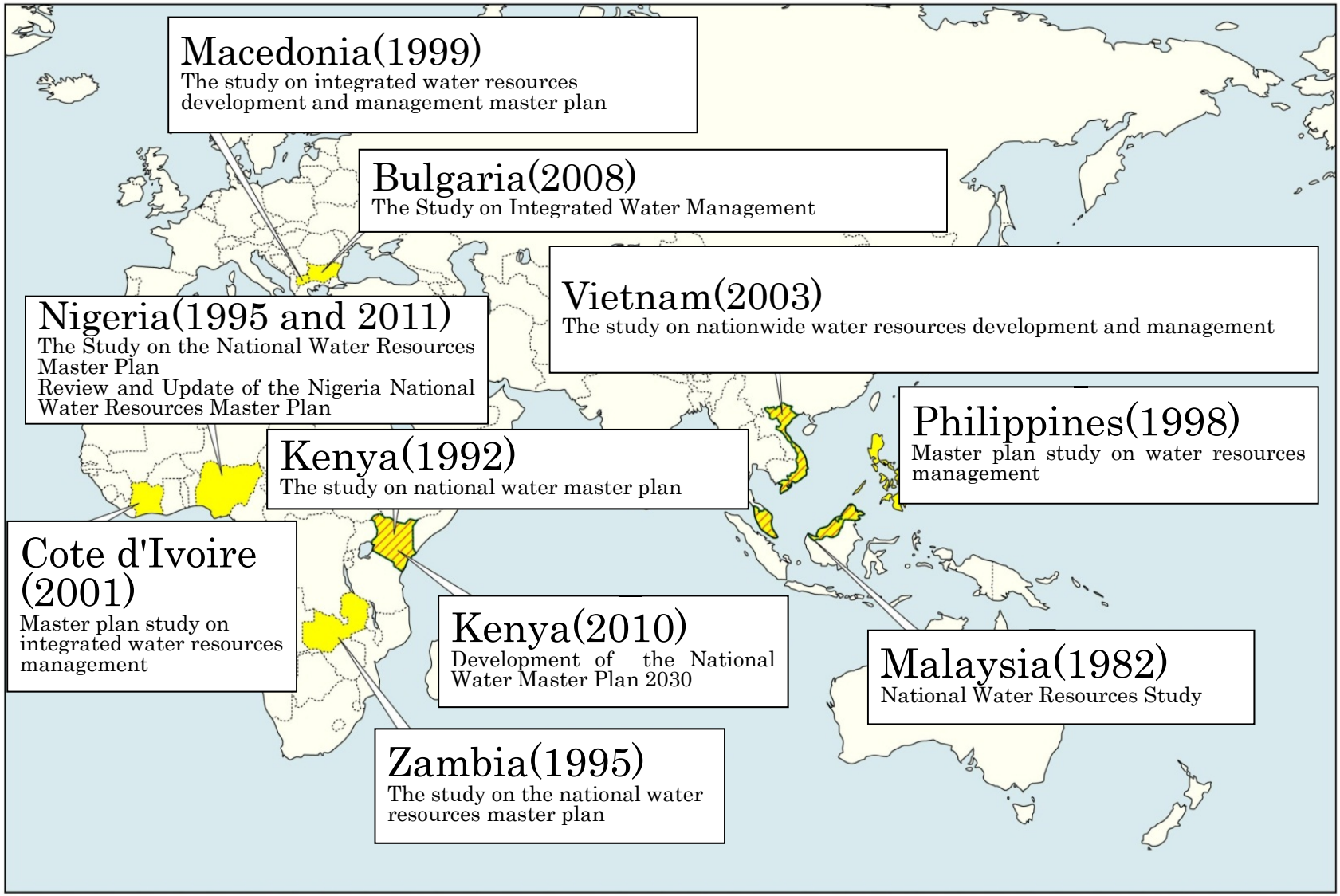
Traditional:

- Formulation of water resources management plans
- Capacity development of RBOs
- Strengthening hydro-meteorological observations

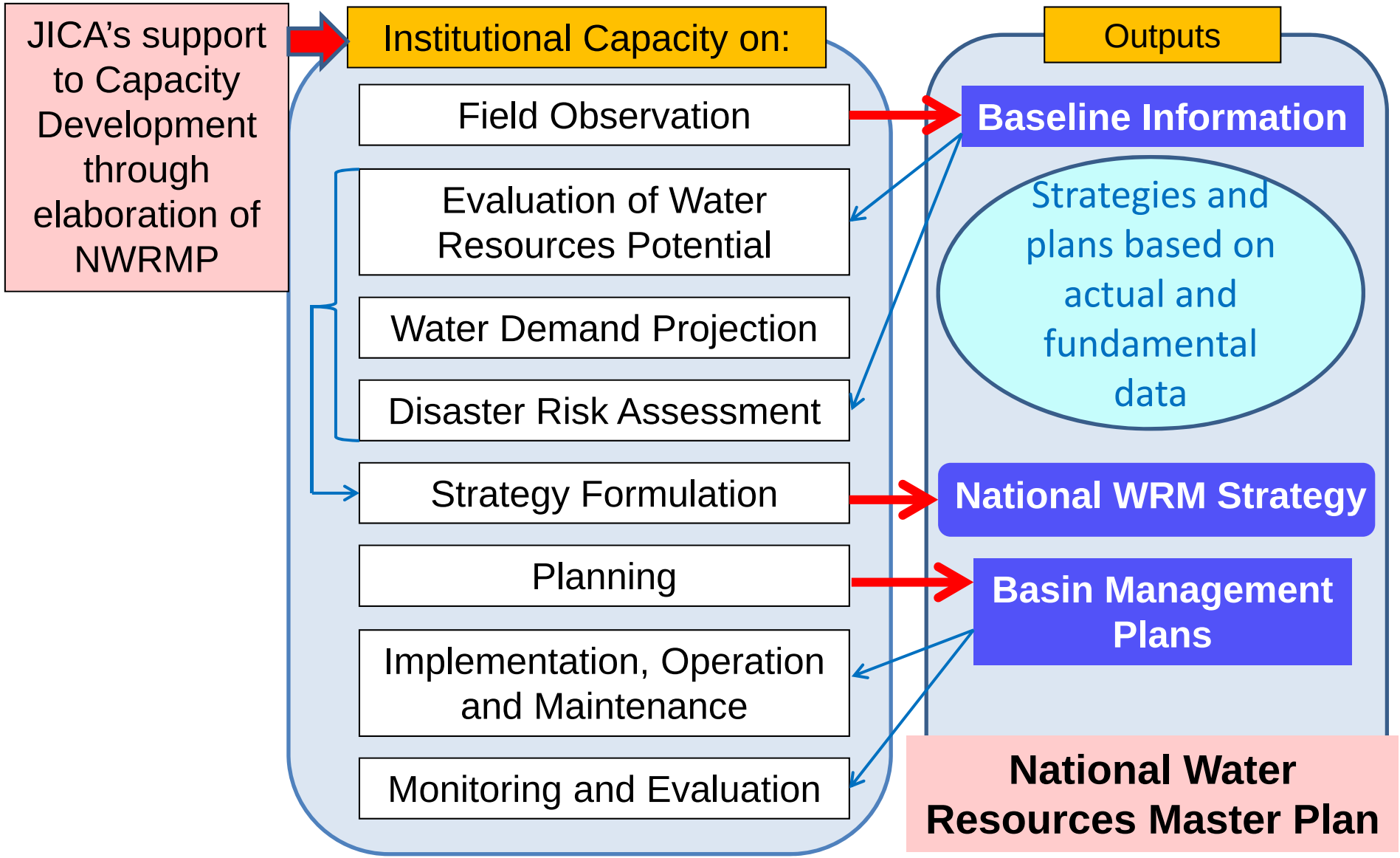
Current: Taking climate change effects into account

- Estimation of climate change impacts
- Incorporation of climate change impacts into WRM plans (**formulation/implementation of adaptation measures**)

An Example of the "Traditional" Intervention
National Water Resources Master Plans

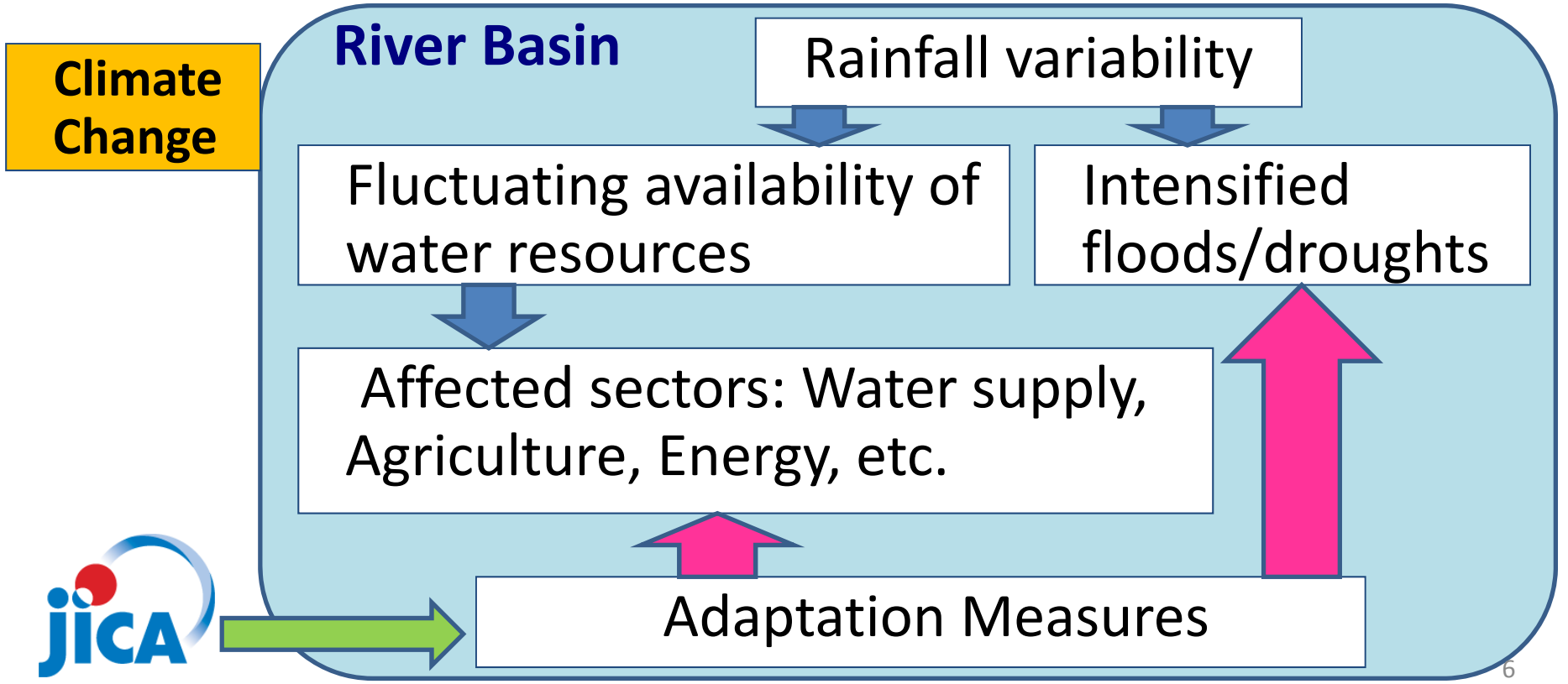


An Example of the "Traditional" Intervention
National Water Resources Master Plans



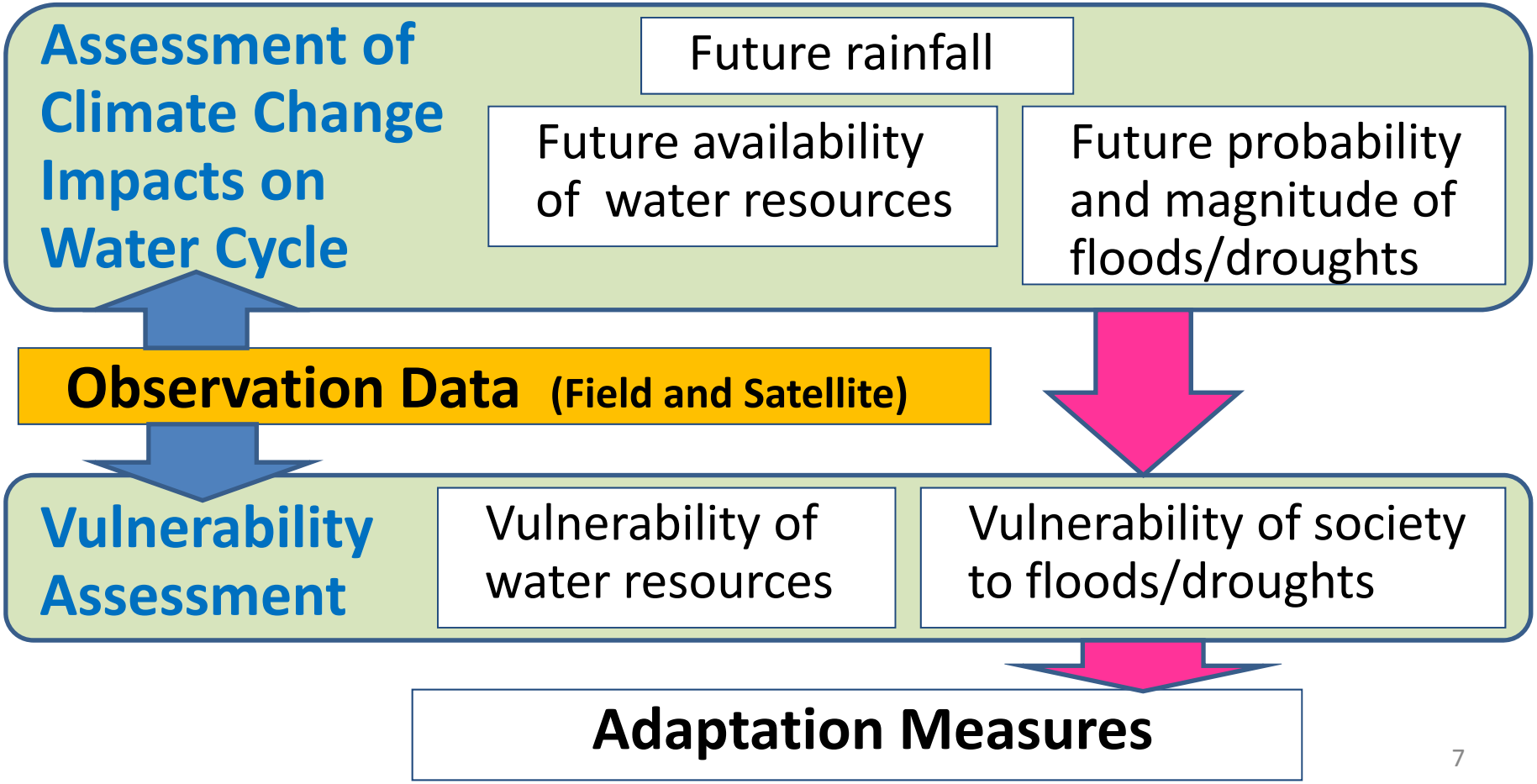
"Current" Interventions
Taking Climate Change into Account

Currently JICA is supporting developing countries' efforts for improving water resources management, particularly on formulation and implementation of adaptation measures to climate change



Based on Observation Data

Climate change prediction and vulnerability assessment based on earth observations are basis for planning of adaptation measures



Cases of the "Current" Interventions
Taking Climate Change into Account

Case1

Indonesia

Formulation of overall river basin management plans + Capacity development

Case 2

Philippines

Vulnerability assessment of the water supply

Case 3

Malaysia

Formulation of flood management plans

Case 4

Kenya

Implementation of adaptation measures: community-based flood management

Case 1: Indonesia
"The Project for Assessing and Integrating Climate Change Impacts into the Water Resources Management Plans for Brantas and Musi River Basins"

Concept of the project

Data collection and observation in pilot two river basins
Collection of natural condition data including rainfall, air temperature, discharge, and water table, etc., and additional field observation.

Simulation of climate change impacts in the pilot two river basins
Simulating future rainfall for hydrological modeling considering climate change impacts in the Brantas and Musi river basins

Future safety level assessment in the pilot two river basins
Assessing water resources vulnerability and resilience under the climate change (Effect of mitigation in terms of CO_2 reduction from peat lands also to be examined in the Musi river basin)

Recommendations for water resources management with climate change impacts in the pilot two river basins
Recommendations for reflecting climate change impacts on water resources management plans * (POLA and RENCANA)

Preparation of guidelines for measures
Preparing guidelines to be applicable to POLA and RENCANA in other river basins in Indonesia, taking climate change issues into account

Dissemination for other basins in Indonesia
Disseminating outputs on the pilot two river basins to other river basins using prepared guidelines by Indonesia side

Pilot project site

Strengthening the capability of Indonesia Side
Strengthening the capability of Indonesia side to formulate water resource management plans considering climate change

***Water resources management plan in Indonesia**

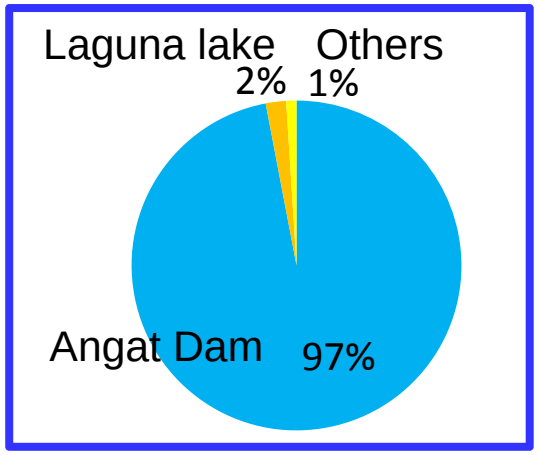
- POLA (Water Resources Management Strategic Plan)
- RENCANA (Water Resources Management Implementation Plan)

Case 2: Philippines

Study for Water Security Master Plan in Metro Manila

1. Background

- 97% of water from single water source (Angat Dam)
- Metro Manila is rapidly growing with possible water shortage in near future



2. Objective of the Study

- Evaluation of water development projects proposed by WB
- based on the water balance analysis and vulnerability (target year: 2040)

3. Outline of the Study

- River runoff simulation based on WEB-DHM (Water and Energy Budget-based Distributed Hydrological Model)
- Vulnerability assessment of water resources
- Water balance analysis in the target year
- Evaluation of effectiveness of the proposed projects
- Proposal for optimization of the water facilities operation

Metro Manila and Adjoining Areas

Effective adaptation measures are identified based on scientific grounds

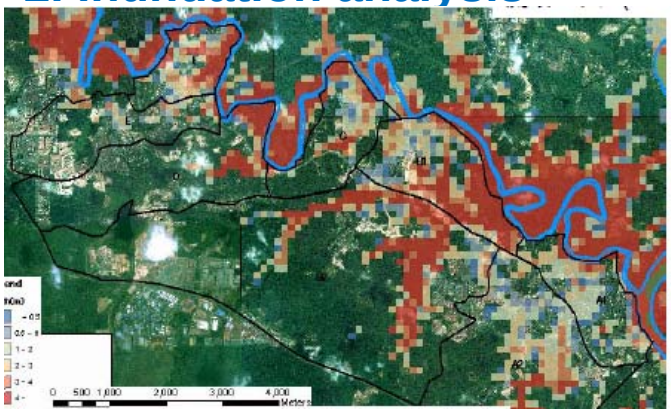
Case 2: Malaysia
Flood Control Plans for the Pahang Basin

Formulation of an Integrated Flood Management Plan taking climate change effects into account (target year: 2025)

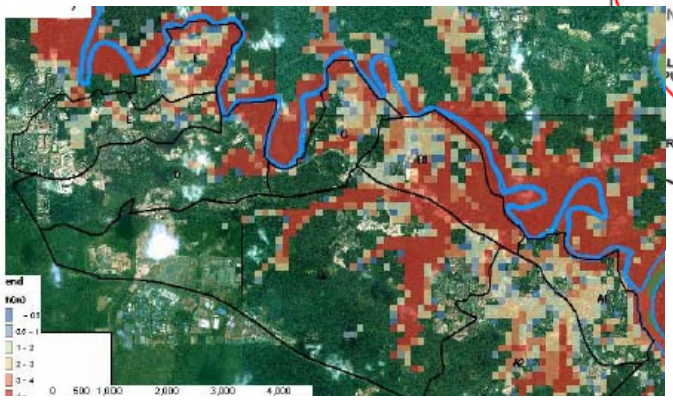
1. Estimation of future rainfall

- Selection of GCMs
- Collection of climate prediction simulation results (outputs of the selected GCMs)
- Evaluation of climate change effects

2. Inundation analysis



Present inundation area with 50-year rainfall event



Future inundation area with 50-year rainfall event

3. Risk evaluation

- Potential victims
- Potential evacuees

4. Adaptation measures proposed

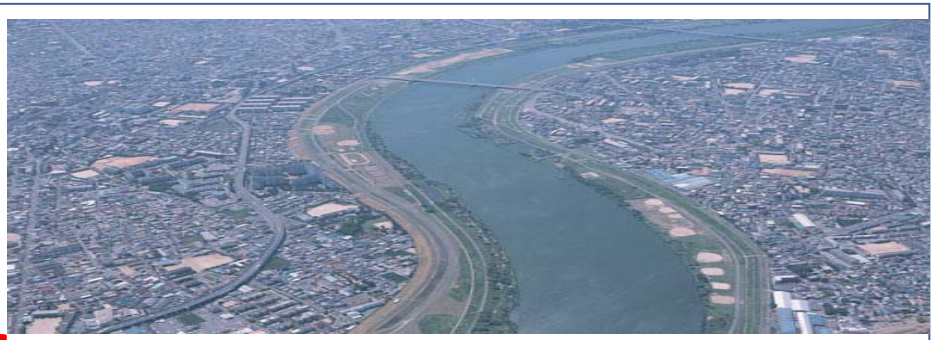
- Hardware (construction of dikes)
- Software (Hazard map, Early warning, Evacuation system, Land use control, etc.)

New Approach to Flood Control under Climate Change
Basic Concept

◆ There is no option but to live with floods.

● **Conventional approach**

Long liner bank system along river from river mouth to mountain



● **Proposed new approach**

Multi-layered measures in a river basin

Step 1 **Protection of strategic areas by structures**

Step 2 **Urban planning and land use regulation for risk areas**

Step 3 **Community-based disaster management (CBDM)**

Case 4: Kenya
Community-based disaster management

Embankment improvement

Evacuation road raising

Case 4: Kenya
Community-based disaster management

Evacuation drill

Disaster education

Thank you very much
for your kind attention.

For any queries, please contact by emailing to:
Sudo.Katsuyoshi@jica.go.jp