

Towards Low-Carbon Society Research Infrastructure Supporting LCS

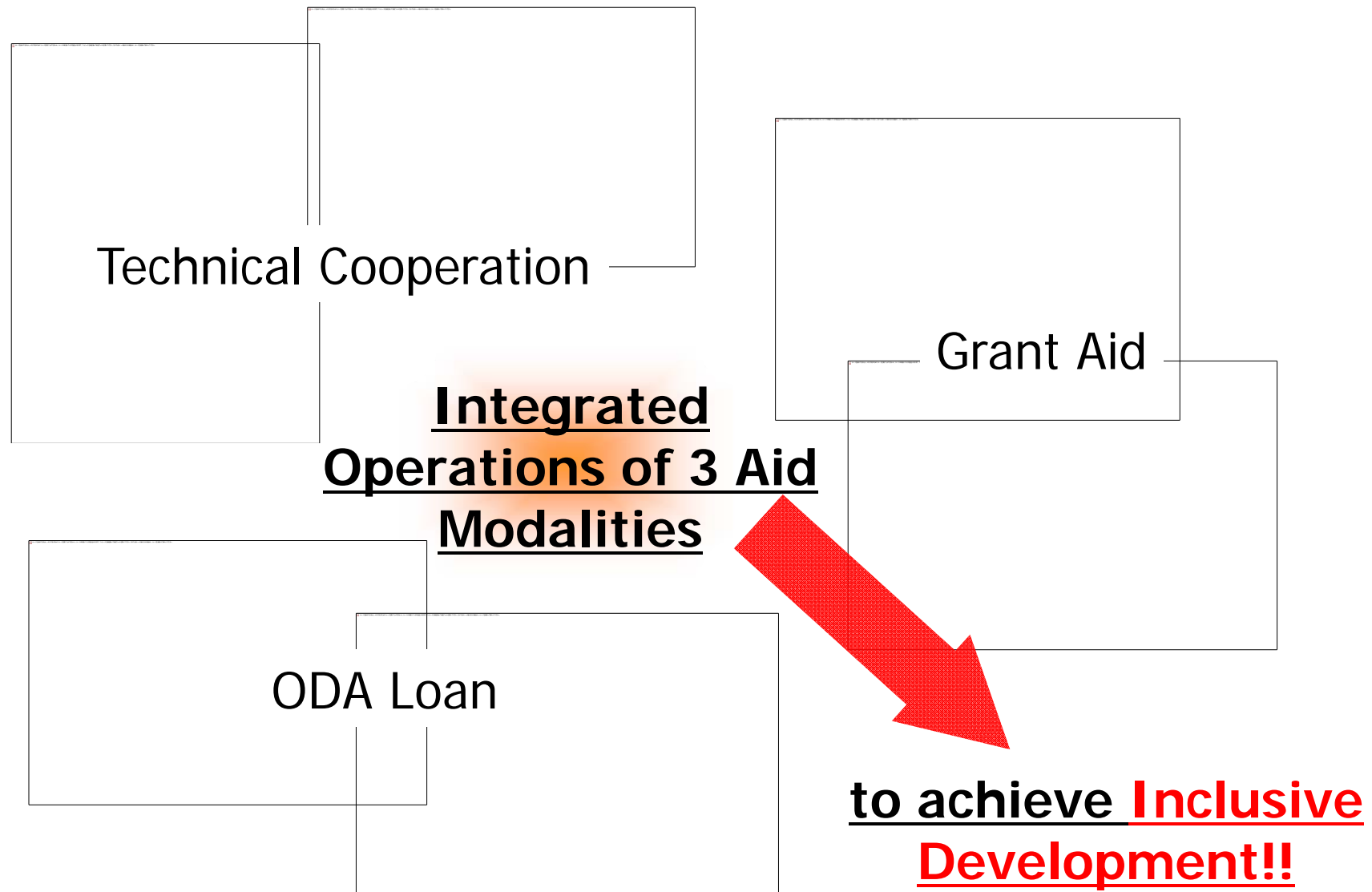
November 17, 2010

Togo Uchida

Japan International Cooperation Agency (JICA)

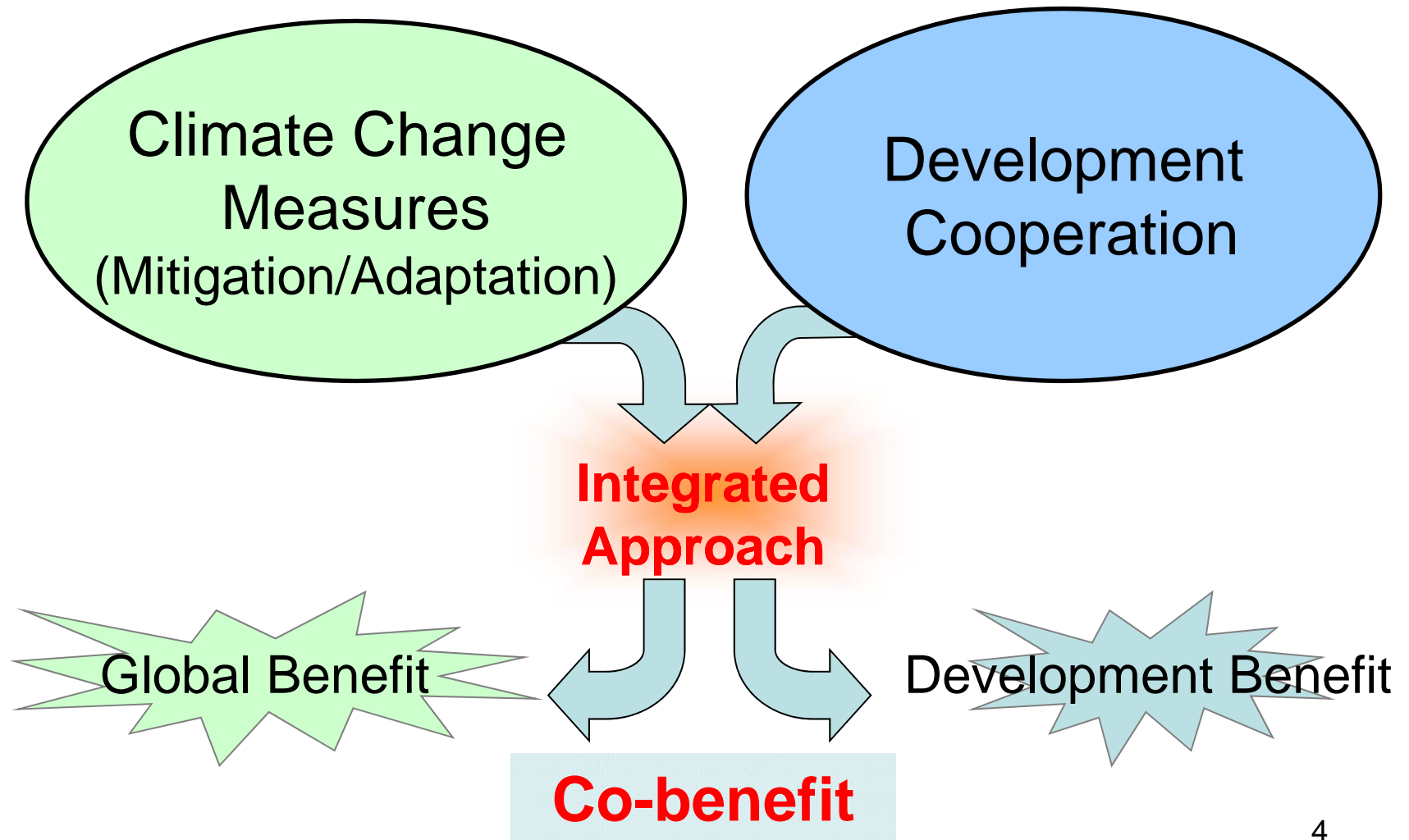
Thailand Office

Basic Information of JICA

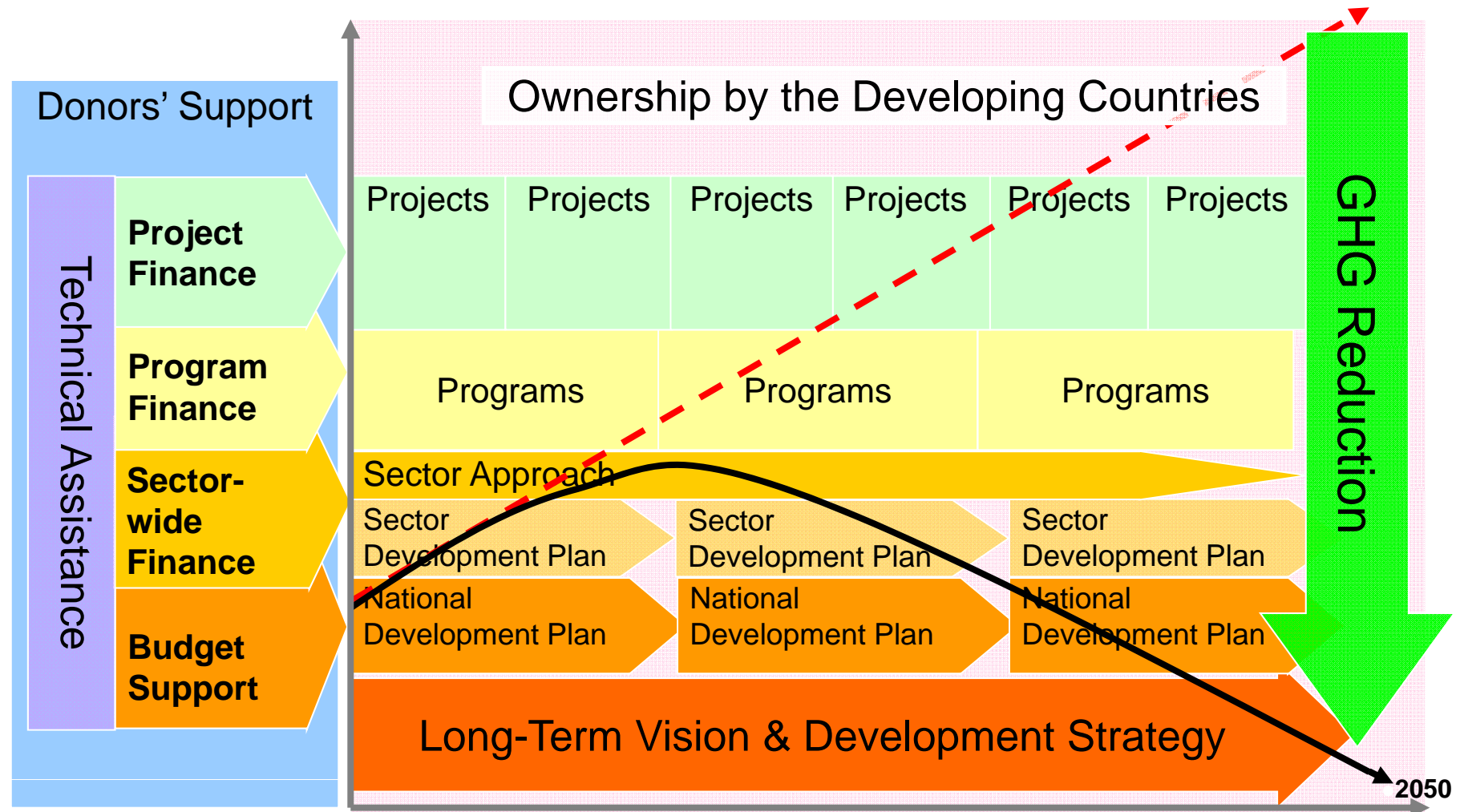


Climate Change and Development

Aligning Climate Change and Development based on Co-benefit Approach



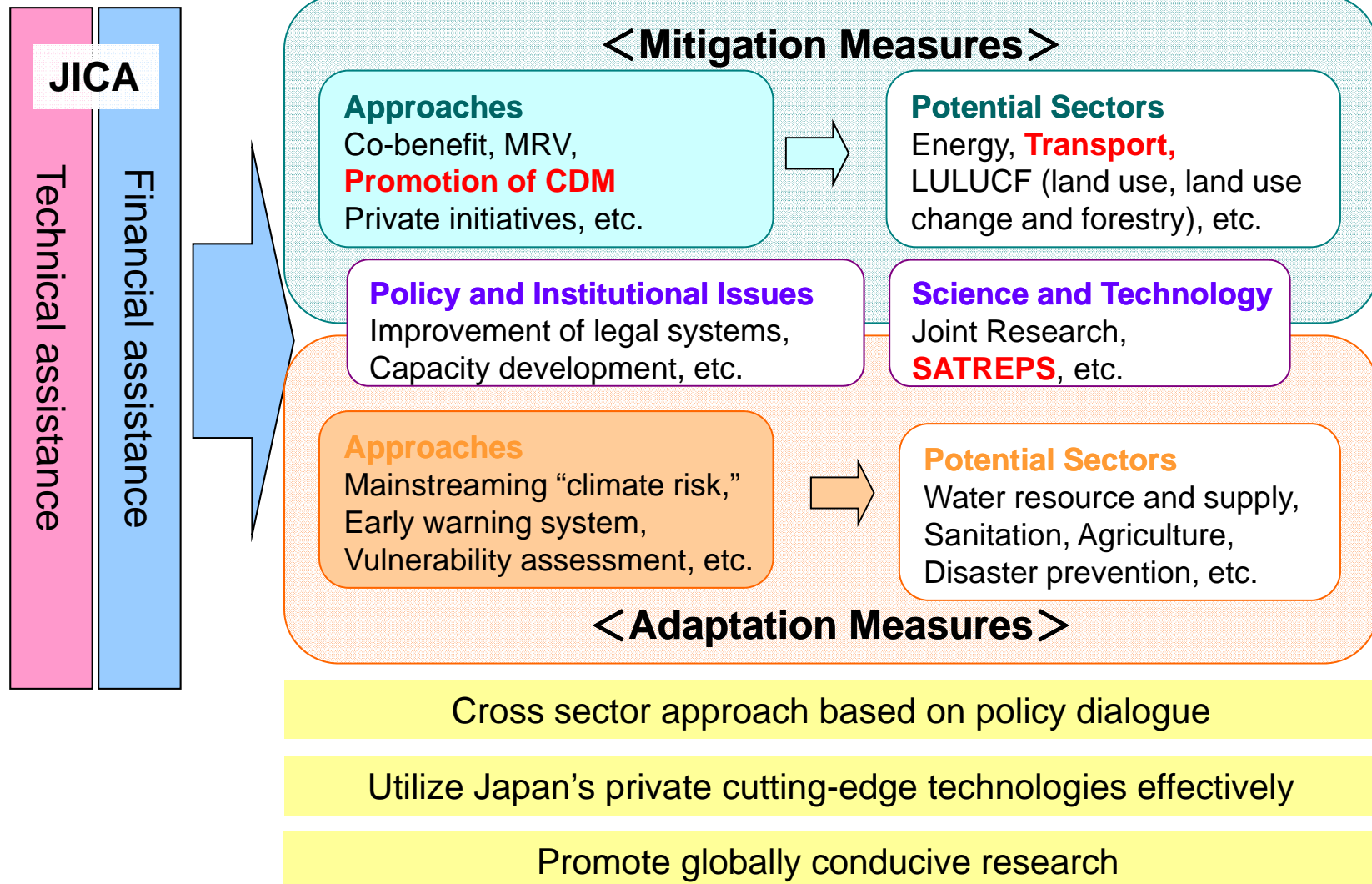
Aligning Climate Change and Development based on Co-benefit Approach



For Achieving Low Carbon & Climate Proofing Society

1. Promoting **integrated cooperation** addressing climate change in development cooperation :
Direction of JICA's Operation
2. Aligning climate change and development based on the **co-benefits approach**
3. Realizing **tangible development projects** from the perspective of climate change mitigation and adaptation
4. Tackling **challenging research projects** to elaborate innovative approaches: Science and Technology Research Partnership for Sustainable Development (SATREPS)

Addressing Climate Change in Development Cooperation



Mass Transit System Project in Bangkok

Mass Transit System Project in Bangkok

Mass Transit System Project in Bangkok

<Background>

- Road Coverage (% of City Area)
Washington DC, Paris (over 20%)
Tokyo, Osaka (approx 15%)
Bangkok (less than 10%)
- Vehicle Sales in Thailand
600,000 - 700,000 (every year)
- Limitation of improving other means of transport infrastructure (such as road system and bridges) and also limitation on waterborne transportation
- Imposing traffic restrictions is unrealistic (at this point)



JICA
Finance

- Blue Line (Bang Sue—Hua Lamphong (20km))
: Completed 2004
- Purple Line (Bang Yai—Bang Sue (23km))
: to be completed in 2013
- Red Line (Bang Sue—Rangsit (26km))
: to be completed in 2014

Issue - How to Finance

Expensive but....

To Maximize the Effect of
Mass Transit System



Multiple Lines should be
implemented A.S.A.P.

Two-tiered System - Best way?

■ For Public Sector

- Significant saving of initial investment (Private sector will bare some cost)
- Expectation of efficient operation and maintenance by private sector
- Mitigation of uncertainty of cash flow

■ For Private Investor

- Wider preferential treatment (50% deduction of import duty, exemption from corporate income tax for 8 years, etc.)
- Less initial investment, compared to BOT
- Direct linkage of operational efforts and return

Possible Solutions in Finance to enhance availability & sustainability

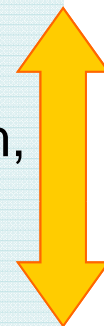
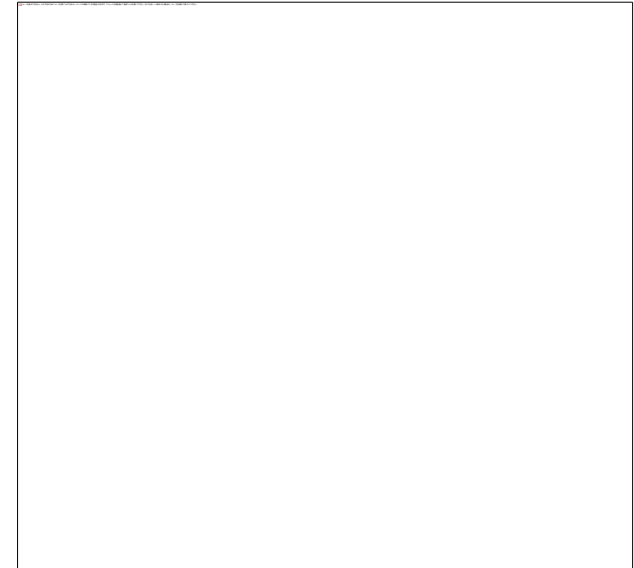
- Private Sector Investment
- Public Sector Project utilizing ODA
- PPP: Public-Private Partnership – Best Mix of Private and Public
- To capture and maximize various Business Opportunities other than Fare Box, e.g. commercial development: Shops, Ads, Real Estate, etc.
- To register the Project as **CDM**

Other Implications

Modal Shift requires a lot of commitment and cooperation (i.e. integration between City Planning and Mass Transit Master Plan) ¹²

Blue Line

- Construction of mass rapid transport system (first subway) in Thailand. Total Length of 20km (Blue Line)
- July 2004 in service
- To relieve traffic congestion and improve the urban environment through the reduction of vehicles and emissions
- Civil Works (tunnels, tracks, stations) by **Public Sector: Mass Rapid Transit Authority (MRTA)**
- Rolling Stocks, Communication System, and Signals as well as O&M by **Private Sector: Bangkok Metro Public Company Limited (BMCL) – 25 Years Concessionaire** of Blue Line (to 2029)



**Two-tiered
System**

Blue Line

Investment by Public Sector

	(Million US\$)
Total Project Cost : Civil Works only (20km, all underground)	3,777 (100%)
Domestic finance (Budget from National Government)	1,500 (40%)
ODA Loans from Japan (6 loans)*	2,277 (60%)

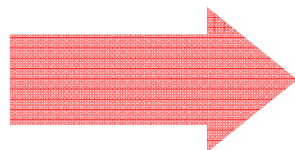
*1.283% interest rate (weighted average)

(US\$1=32Baht)

Investment by Private Sector

approx \$600 Million

(BMCL consolidated financial statements 2009)



Overall Cost (4,077 million USD)

Other Cooperation

- Technical Assistance
- Science and Technology Research Partnership for Sustainable Development (SATREPS)

Technical Assistance

Capacity Development and Institutional Strengthening for GHG Mitigation in the Kingdom of Thailand

2010.1-2011.12

●Background:

Thailand Greenhouse Gas Management Organization (TGO) has the task to promote and support all activities related to climate change mitigation in Thailand, and is responsible for promoting the strategies together with the Office of Climate Change Coordination (OCCC) under the Office of Natural Resources and Environmental Policy and Planning (ONEP) of the Ministry of Natural Resources and Environment.

However, since TGO is a new organization, established just two years ago, the organization has several fields that can be further improved.

●Project Purpose

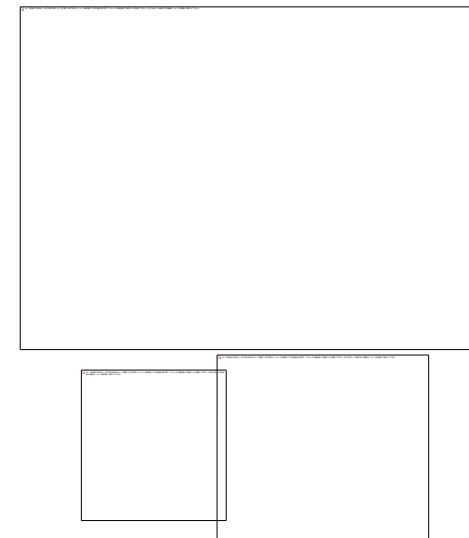
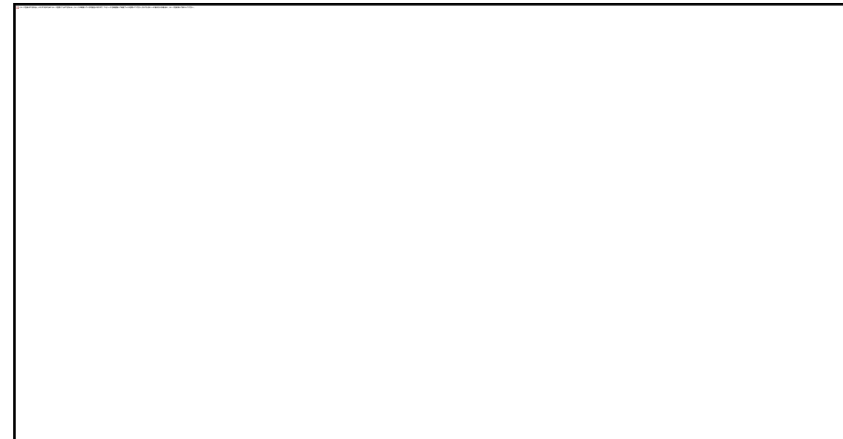
Capacity development for human resources and institutional strengthening on GHG mitigation for TGO will be achieved

●Project Outputs

- 1.The level of knowledge and expertise of TGO staff on GHG mitigation will be enhanced.
- 2.Capacity of TGO to provide training will be enhanced.
- 3.Capacity of TGO to review and monitor GHG mitigation project will be enhanced.
- 4.Capacity of TGO to manage information on GHG mitigation will be enhanced.

●Organization

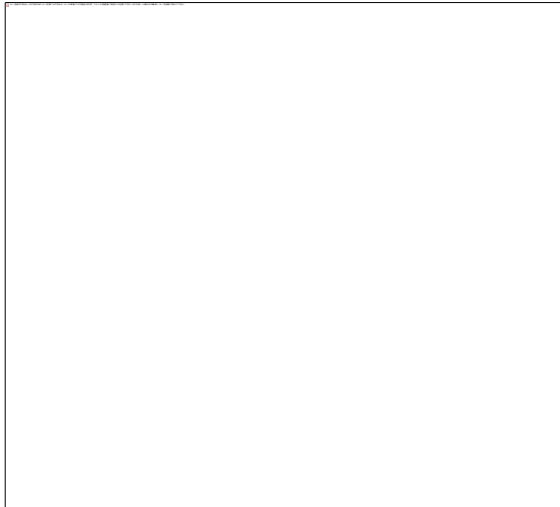
Thailand Greenhouse Gas Management Organization (TGO)



Technical Assistance

Capacity Building on Climate Change Adaptation and Mitigation for Implementation in Bangkok

2009.6-2012.5



●Background:

Bangkok with nearly 10million populations contributes up to 43 million tons of greenhouse gases (GHG) in 2007.

Bangkok Metropolitan Administration (BMA) set up the Action Plan

1)Expand the mass transit and improve traffic system; 2) promote the use of renewable energy; 3)Improve building electricity consumption efficiency; 4)Improve solid waste management and wastewater treatment efficiency; and 5)Expand park area. This action plan aims to reduce greenhouse gas emission by at least 15% of the total emission anticipated in the year 2012 under business as usual projection.

Climate change issue is quite new to BMA officials, who encountered difficulties for the implementation of Action Plan on Global Warming Mitigation.

●Project purpose:

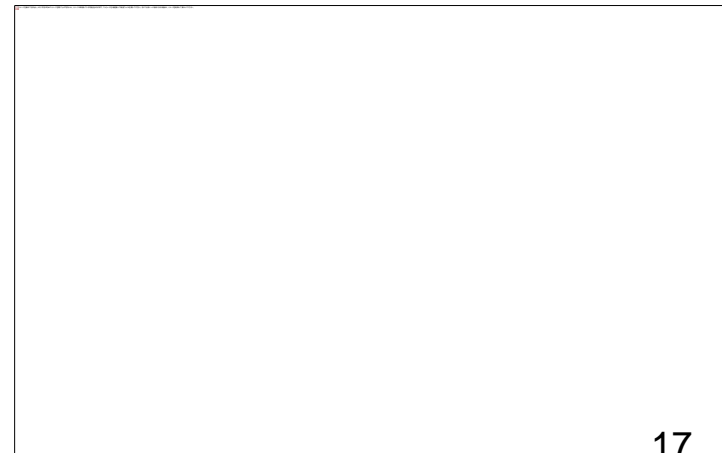
Capacity of BMA to implement the Action Plan on Global Warming Mitigation is strengthened.

●Project outputs:

- 1)The organization capacity of BMA to tackle the issue of climate change in an integrated manner is increased.
- 2)The capacity of BMA staffs in implementing each of the five initiative of Action Plan is increased.

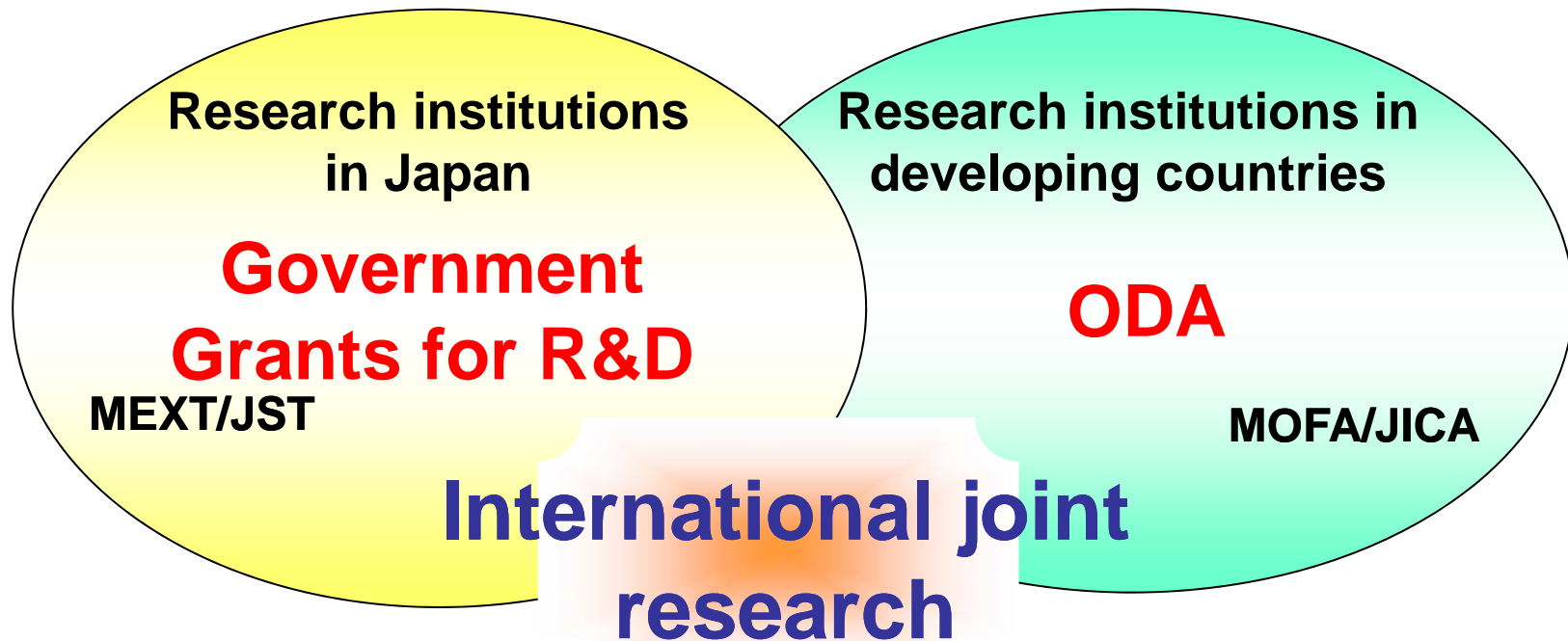
● Organization :

Department of Environment,
Bangkok Metropolitan Administration (BMA)



Science and Technology Research Partnership for Sustainable Development SATREPS

Complemented framework of
development and research assistance



MEXT: Ministry of Education, Culture, Sports, Science and Technology
JST: Japan Science and Technology Agency

MOFA: Ministry of Foreign Affairs
JICA: Japan International Cooperation Agency

SATREPS (Mitigation)

[India]

○ Research Partnership for the Application of Low Carbon Technology in India

[Vietnam]

○ Sustainable Integration of Local Agriculture and Biomass Industries

[Indonesia]

○ Wild Fire and Carbon Management in Peat-forest in Indonesia

[Thailand]

○ Research and Development for water reuse technology in tropical regions

○ Innovation on production and automotive utilization of biofuels from non-food biomass

[Brazil]

○ Research on Ethanol Production from Sugarcane Wastes

○ Carbon Dynamics of Amazonian Forests

SATREPS

Research and Development for water reuse technology in tropical regions

2009.5-2013.3

● Background

Southeast Asian country located in tropical regions often suffer from drought in the dry season and flood in the wet reason. Thailand is the country leading the economic growth in Southeast Asia. The promotion of 3R(Reduce, Reuse and Recycle) of water resource is needed there for elimination of the access to safe water and conservation of water quality. This project research and development of water reuse technologies which contribute to the 3R of water resource in Thailand and other tropical countries.

● Project purpose:

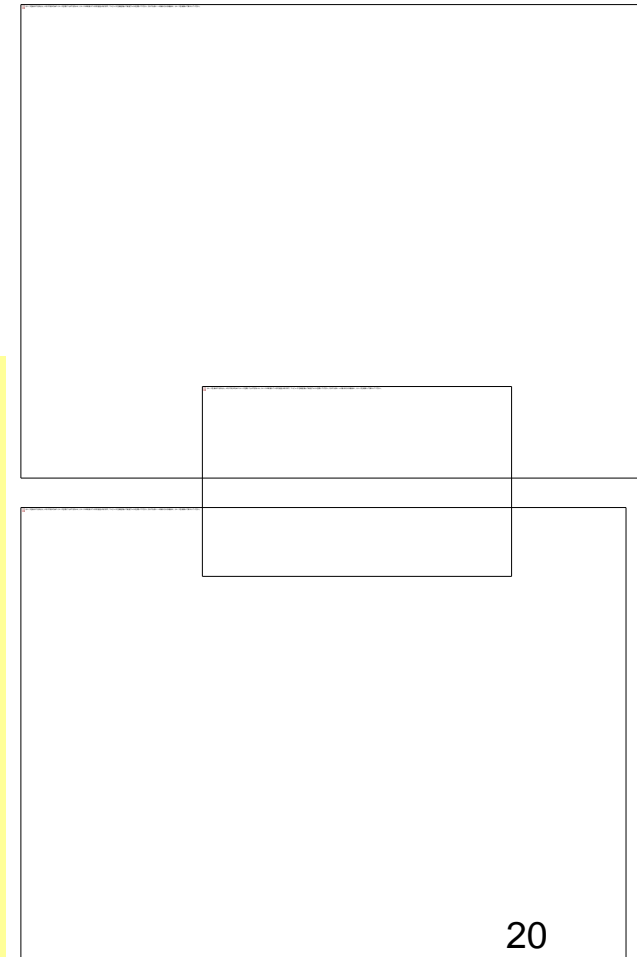
Appropriate water reuse technology is newly developed for wide application with an establishment of institutional framework for effective management in Thailand.

● Project outputs:

- 1) Institutional framework for research, development and promotion of water reuse technology is developed.
- 2) New energy-saving (or net energy-balanced) decentralized water reclamation and reuse system is developed to practically install for on site operation.
- 3) New water reuse technology with resource production (or GHG emission reduction) is developed to practically install for on-site operation.
- 4) Effective management and monitoring system for community – based water reuse is developed.

● Partner country organization:

Environmental Research and Training Center, Chulalongkorn University,
Kasetsart University



SATREPS

Innovation on production and automotive utilization of biofuels from non-food biomass FY2010-2014

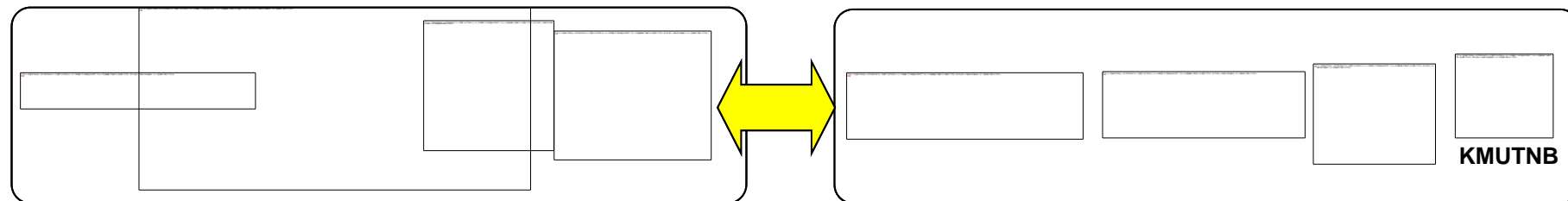
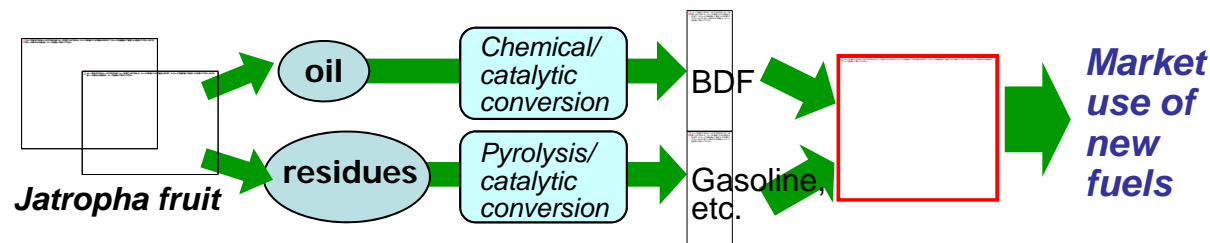
●Background:

Sustainable introduction of biofuels into the transportation sector is a promising measure to reduce the causes of climate changes, so there have been pressing demands for the development of the innovative technology to produce transport fuels from non-food biomass. In this project, we will develop the scientific and technological bases for the production of transport biofuels, and for the evaluation of biofuels in automotive utilization and in life cycle assessment (LCA).

We will focus on Jatropha as a non-food biomass, and will develop the novel biofuels production technology from Jatropha residues in addition to the technology for production of high quality biofuels from Jatropha oil to enhance its over-all utilization efficiency.

●Project Outputs

1. Production of high quality BDF from Jatropha oil, including LCA evaluation
2. Production of bio-oils from Jatropha residues
3. Upgrading of bio-oils, including LCA evaluation
4. Evaluation of engine and emission performances of new fuels
5. Capacity building and technology transfer



Thank you

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