

# Assessment Manual for Co-benefits

Junko MORIZANE

Overseas Environmental Cooperation Center, Japan (OECC)

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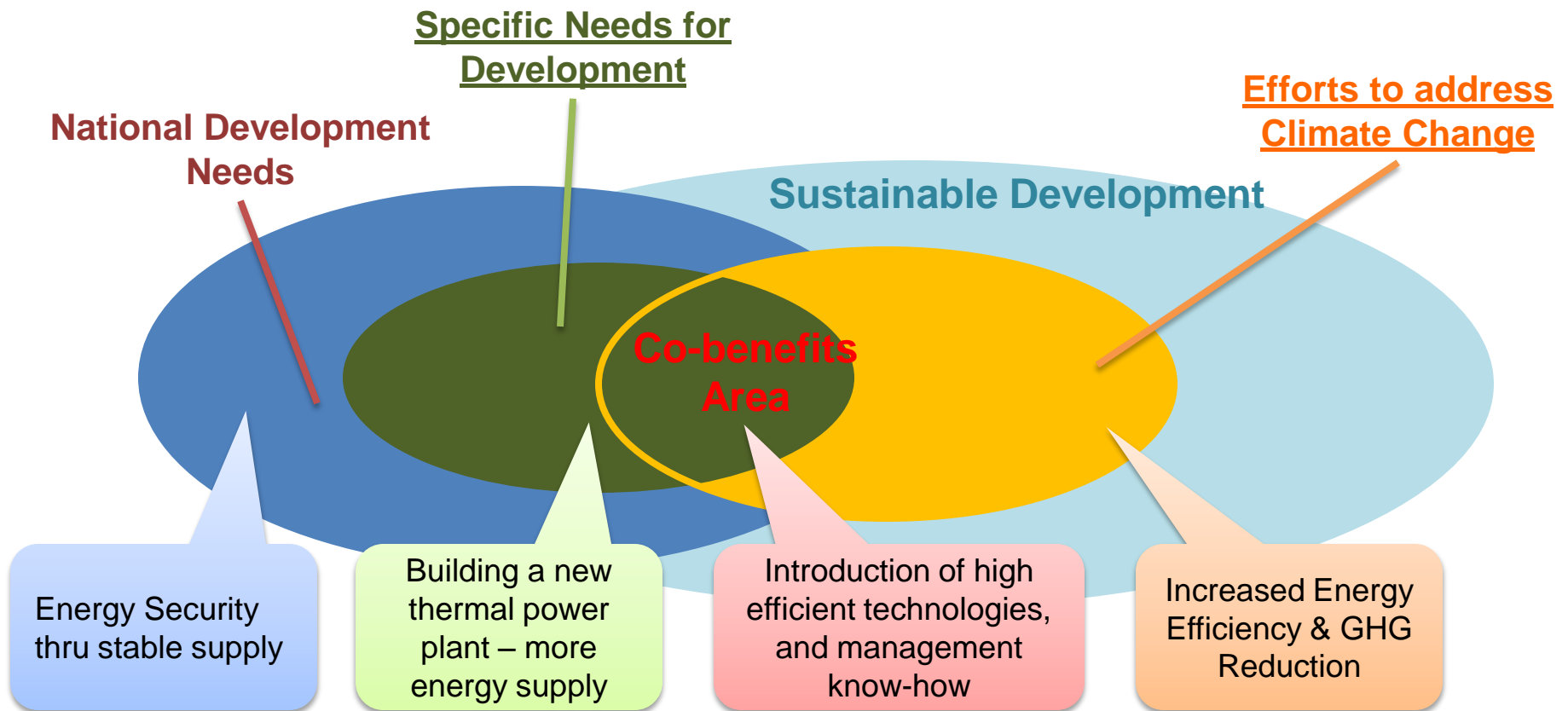
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# Outline

- Idea of Co-benefits
- Overviews of the Manual
- How to Use the Manual
- Trends of International Discussions
- Way Forward

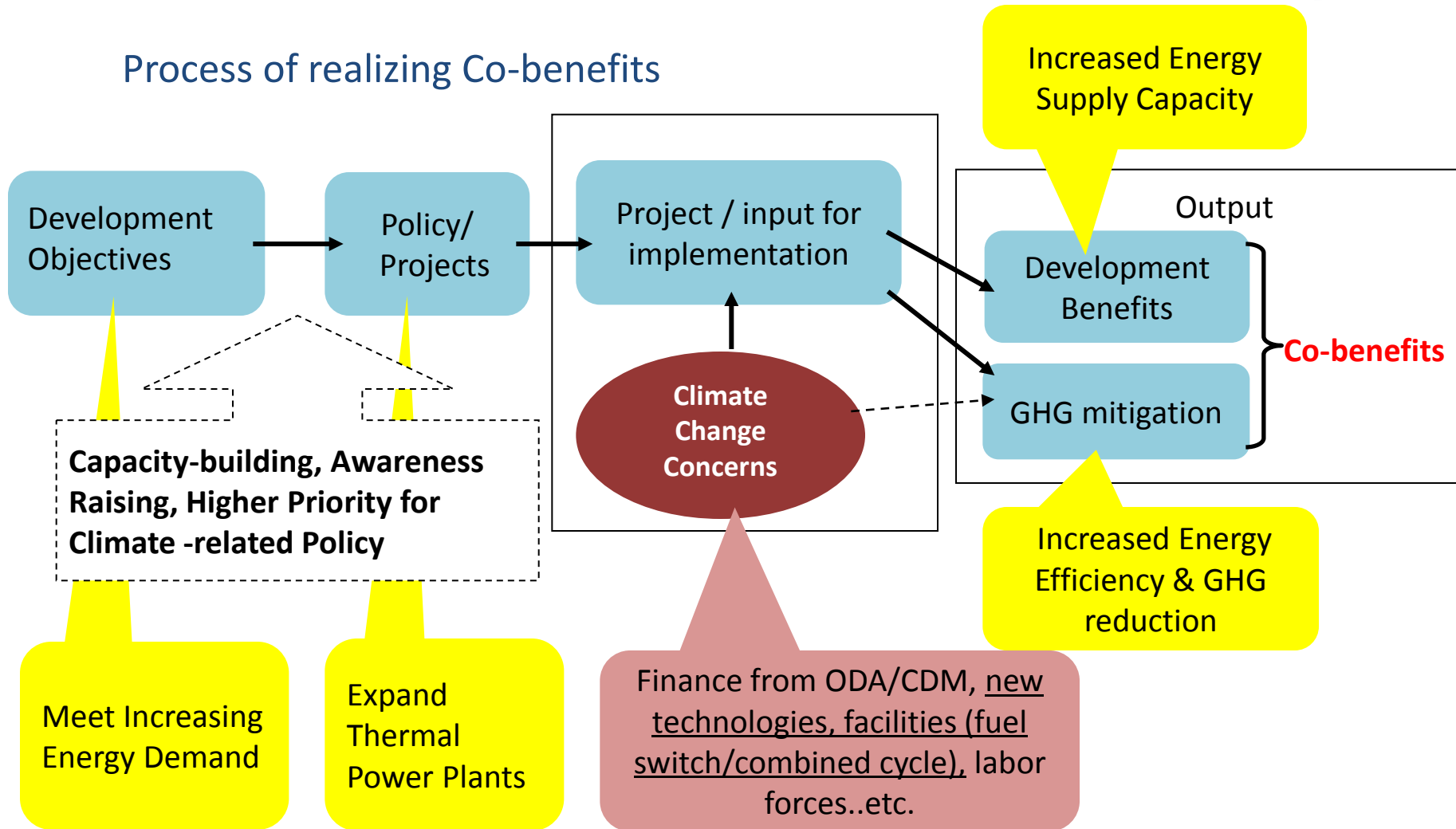
# Idea of Co-benefits

- Integrated Efforts to address climate change concerns, while meeting development needs



# Action Area for Co-benefits

## Process of realizing Co-benefits



# Meeting Development and GHG mitigation needs with Interface of Co-benefits

Development Needs (Focused Areas)	Project Example	Development Benefits	Climate Change
Meeting Energy Demand	Power Plant Construction	Meeting larger Power Demand	GHG Mitigation (GHG Emission Reduction)
Economic Infrastructure (Urban Transport, Port facilities)	Mass-transit system	Better Mobility & Economic Efficiency	
Environmental Protection	MSW Processing facility	Higher processing capacity	
Production Sector with higher technologies	Renew/maintenance of Facility	Higher productivity	
Agriculture/ Rural Development	New Farming Facilities	Higher productivity Increase Income	
Less Geographical Gap in Development Level	Rural electrification	Improved life quality	

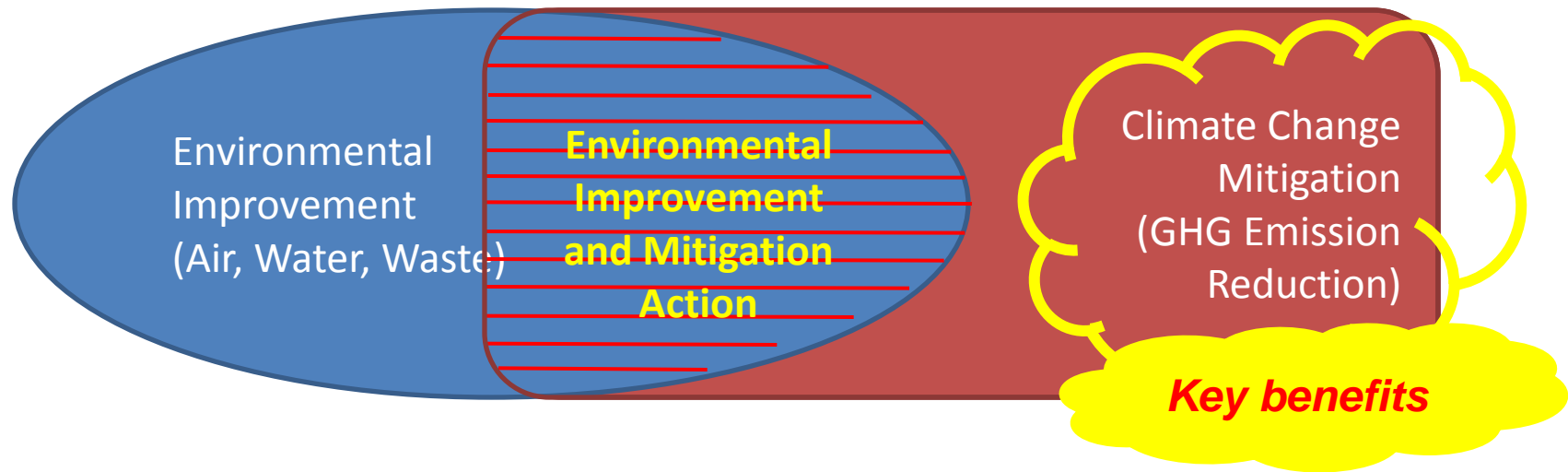
MSW: Municipal Solid Waste

# Environmental Benefits as part of Developmental Co-benefits

Co-benefits Action Area	Project Examples	Environmental Improvement Benefits	Climate Mitigation Benefits
Air Quality Management	Improvement of combustion efficiency	Air pollutant (SOx, NOx, and dust) reduction	CO2 Reduction
	Waste heat recovery		
	Fuel Switching		
	Transport		
Wastewater Treatment	Prevention of methane emission from sludge	Improvement of water quality	CH4 Reduction
	Utilization of biomass residue for energy		
Waste Management	Segregating & composting of municipal solid waste	Proper treatment of waste	CH4 Reduction
	Utilization of biomass waste as energy	Reduction of waste amount	

# Focus of Assessment – GHG reduction benefit and other benefits

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In case of CDM projects....

- CDM project's key benefits=GHG emission reduction
- CDM project's co-benefits=environmental improvement and other developmental needs

# Overviews

- Manual for Quantitative Evaluation of the Co-benefits Approach to Climate Change Projects (Version 01)
  - Published in June 2009
  - By the Ministry of the Environment, Japan (MOEJ)
  - Japanese and English text
  - Introduction at the side events in 2009



# Overviews: Objectives

- Quantitative assessment tools for CDM projects' co-benefits
- Focusing on “environmental pollution control”
  - Air quality management
  - Water quality management
  - Waste management
- Promoting public/private sector to develop and implement co-benefits CDM projects

# Overviews: Structure

- Chapter1: Co-benefits approach in general
- Chapter2: Quantitative evaluation
  - Purpose
  - Procedure
  - Evaluation categories: air, water and waste
  - Evaluation indicators in three focusing areas
  - Timing of evaluation
  - Case studies in three focusing areas (including calculation excises)

Manual for Quantitative Evaluation of the  
Co-Benefits Approach to Climate Change Projects

Version 1.0

June 2009

Ministry of the Environment, Japan

# Overviews: Indicators and Tiers

- Level of evaluation

Tier1

- Semi-qualitative evaluation by using an appropriate grading system

Tier2

- Quantified evaluation by collected and/or default data and calculation formula

Tier3

- Quantified evaluation by collected data and calculation formula

- Indicators

Area	Indicators for co-benefits
Air	SOx NOx Dust
Water	COD Odor
Waste	Coverage ratio of collection area Recycle ratio Amount of waste COD Odor

# Overviews: Indicators and Tiers

Table 1-3 Examples of Key Areas<sup>8</sup> and Evaluation Methodologies of the Co-Benefits Approach to Climate Change

Activity Using Co-Benefit Approach to Climate Change	Details of GHG Reduction Effect	Details of Co-Benefits	Evaluation Indicator <sup>9</sup>	Recommended Evaluation Methodology <sup>10</sup>	Type of Co-benefit	Target Area
-Fuel switching at a thermal power plant -Fuel switching of on-site power generator at a factory	Reduced CO <sub>2</sub> emissions due to fuel switching (from heavy oil to natural gas with lower carbon content)	Reduced sulphur oxide (SO <sub>x</sub> ) emissions due to fuel switching (from heavy oil to natural gas with lower sulphur content)	SO <sub>x</sub> Fossil fuel consumption	Tier 2 or Tier 3	Air pollution prevention	Environmental protection
-Improve combustion efficiency of a thermal power plant, factory, etc.	Reduced CO <sub>2</sub> emissions due to reduced fossil fuel consumption, due to improved combustion efficiency	Reduced SO <sub>x</sub> emissions due to reduced fossil fuel consumption, due to improved combustion efficiency				
-Install energy conserving equipment in a factory	Reduced CO <sub>2</sub> emissions due to reduced fossil fuel consumption, due to improved energy efficiency	Reduced SO <sub>x</sub> emissions due to reduced fossil fuel consumption, due to improved energy efficiency				
- Install heat recovery/use systems in a cement kiln and coking furnace, etc. <sup>11</sup>	Reduced CO <sub>2</sub> emissions by using waste heat for power generation or other use, replacing fossil fuel use for power or heat generation	Reduced SO <sub>x</sub> emissions by using waste heat <sup>12</sup> for power generation or other use, replacing fossil fuel use for power or heat generation				
-Use fly ash from cement kiln and slag from blast furnace to make cement	Reduced CO <sub>2</sub> emissions due to reduced fossil fuel use, due to reduction in cement use because of the use of fly ash and blast furnace slag	Reduced SO <sub>x</sub> emissions from reduced fossil fuel use due to reduction in cement use, due to the use of fly ash and blast furnace slag				
		Reduction of waste	Waste volume		Sound waste management	
-Anaerobic treatment of concentrated organic wastewater <sup>13</sup>	Prevented leakage of CH <sub>4</sub> otherwise generated from oxidation pond	Prevented large discharges of concentrated COD effluent during heavy rains	COD	Tier 1	Water pollution prevention Offensive odor prevention	
-Aerobic treatment of domestic wastewater	Prevented leakage of CH <sub>4</sub> otherwise generated from untreated domestic wastewater	Reduced emissions of water pollutants (COD) from untreated domestic wastewater	COD	Tier 2 or Tier 3	Water pollution prevention	
- Methane gas recovery and reuse from municipal solid waste landfill	Prevent the generation of CH <sub>4</sub> from landfilled waste	Reduction of waste	Waste volume	Tier 2 or Tier 3	Sound waste management	
		Prevented generation of offensive odors	Offensive odor	Tier 2	Offensive odor prevention	
-Use of waste as fuel (power generation equipment, boiler)	Reduced CO <sub>2</sub> emissions due to reduced fossil fuel consumption,	Reduction of waste	Waste volume	Tier 2 or Tier 3	Sound waste management	

# How to use the Manual

## 1. Category

Selecting evaluation categories from three (3) focusing areas; Air quality management, water quality management and waste management

## 2. Indicator

Selecting evaluation indicators according to each co-benefits CDM projects and selected category

## 3. Level

Selecting evaluation level (Tier 1, 2 or 3) according to available data/information and selected indicator(s)

## 4. Calculation

Calculating environmental improvement effects (co-benefits) of CDM projects by using appropriate methodologies articulated in manual

Table 1-4 Methods to Evaluate Projects Using the Co-Benefits Approach to Climate Change: Evaluation Sheet (Draft)

Co-Benefit Category		Specific Area of Co-Benefit	Evaluation Indicator	Selected Evaluation Indicator	Selected Evaluation Methodology			Evaluation Result
Main Category	Sub-Category				Tier 1	Tier 2	Tier 3	
Environmental protection	Environmental pollution prevention	Water pollution						
		Improvement of air quality						
	Waste management	Composting Recycling Waste volume COD Odors						
	Natural resource protection	Forest resource protection, water resource protection, land resource protection, natural resource protection, etc.						
Economic infrastructure improvements	Securing electricity, energy	Stable electricity supply, rural electrification, improved power generation efficiency, etc.						
	Transportation	Improved public transportation, increased efficiency of mobility/logistics, etc.						
Support for productive sector	Agriculture	Improved agricultural infrastructure, improved livestock sector infrastructure, etc.						
	Mining and manufacturing	Improved mining and manufacturing infrastructure, fostering of core mining and manufacturing industries, etc.						
Social infrastructure improvements	Education	Improved infrastructure for education and empowerment						
	Healthcare, population	Improved medical infrastructure, improved livelihood infrastructure, etc.						
	Water supply, sanitation	Improved waterworks, improved sanitation infrastructure, etc.						

# 5. Evaluation sheet

Completing an evaluation sheet

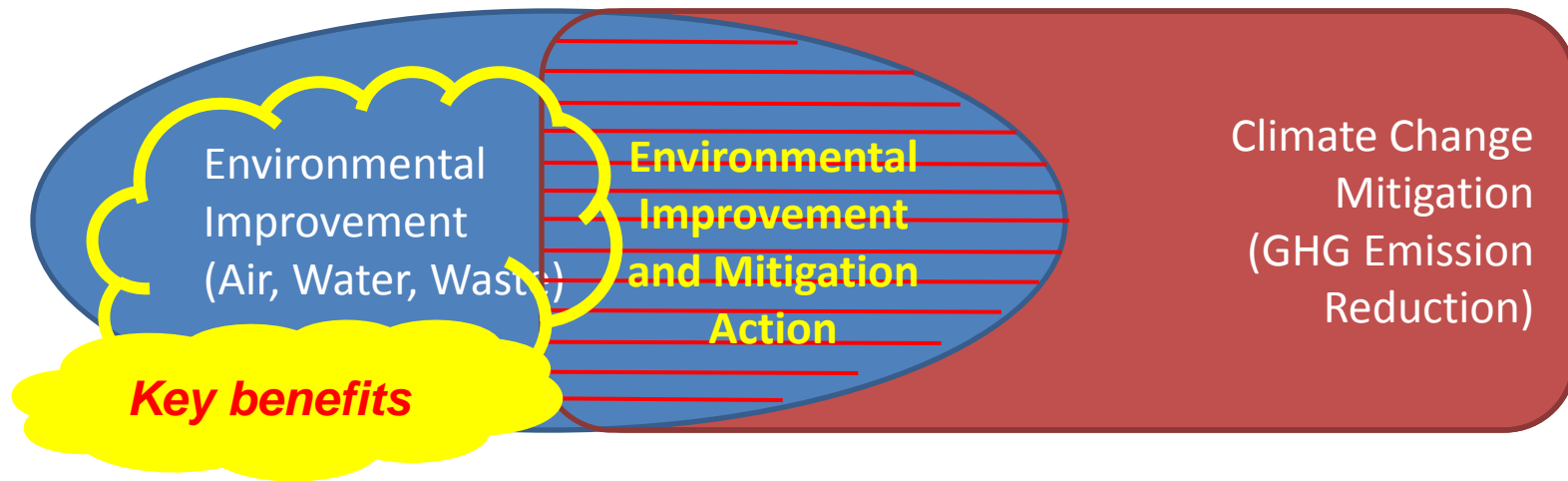
Next steps to be taken

- Improvement of the manual (Expanding categories and indicators)
- Application of the manual to a tangible CDM project

Shading indicates the scope of categories to be considered for future evaluation criteria.

# Focus of Assessment – GHG reduction benefit and other benefits

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In case of development activities....

- Key benefits=environmental improvement and other developmental needs
- Co-benefits=GHG emission reduction

# Assessment of Development Plan in terms of GHG Emission Reduction

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- Assessment of current plan in developing countries in terms of GHG emission reduction
  - Development plan, Pollutant control plan, Plan for climate change and etc.
  - National and/or Local level
- Evaluation Tool (“MRV” manner) for qualitative/quantitative evaluation of policy/plan and project
  - facilitating development and implementation of NAMAs
  - Facilitating to demonstrate realization of key benefits and co-benefits in a harmonized way (GHG reduction and

Development)



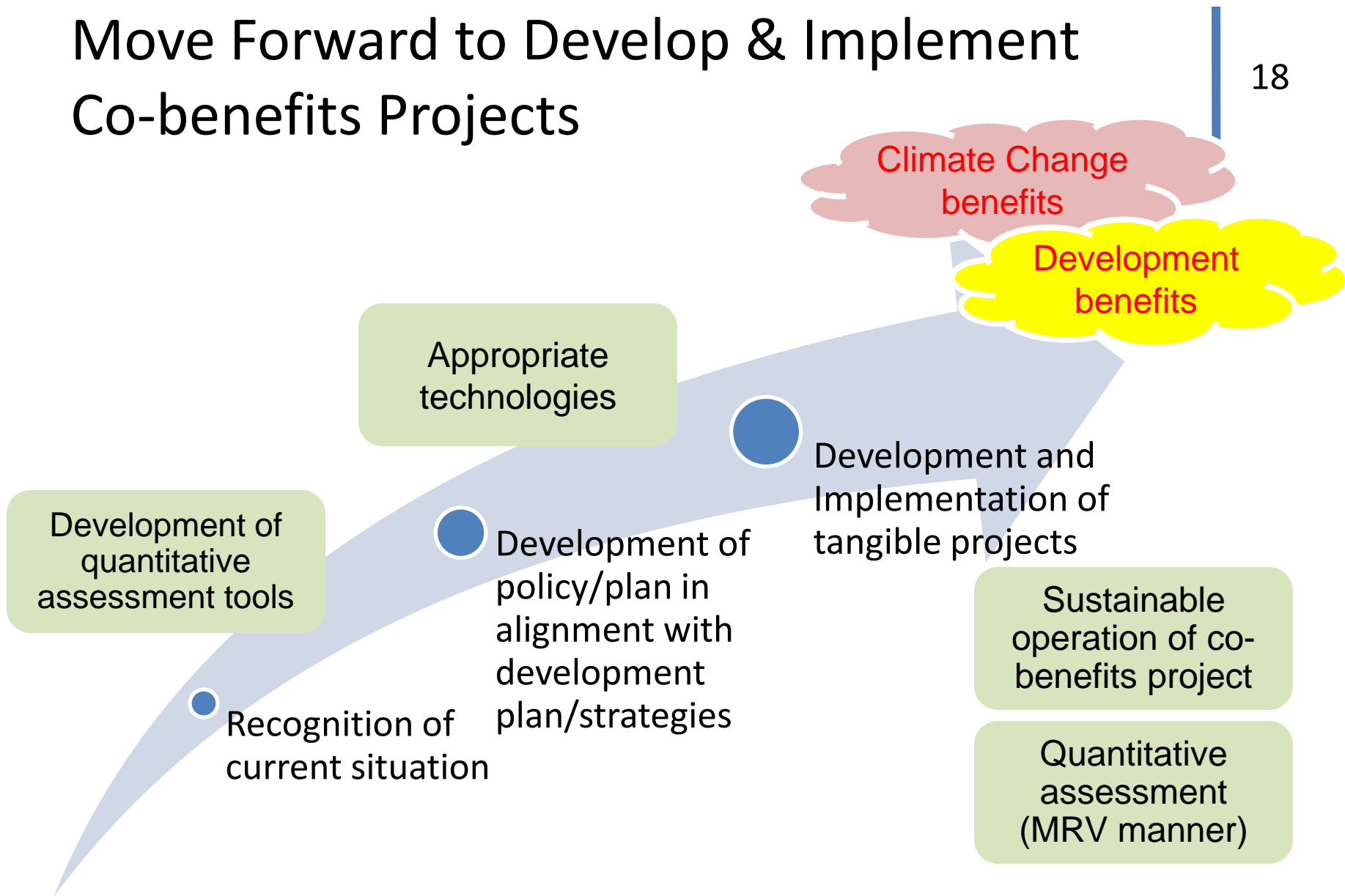
# Assessment of Development Plan in terms of GHG Emission Reduction

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- Quantitative assessment of a “Plan” of a Chinese City
  1. Quantitative assessment of Pollutant emission reduction
  2. Quantitative assessment of GHG emission reduction
  3. Recognition of positive effect for both pollutant control and climate change mitigation
- Valuable reference information and data for development of future plan
- Guideline for quantitative assessment of a “Plan” to be completed

# Move Forward to Develop & Implement Co-benefits Projects

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# Thank you

Junko MORIZANE

Overseas Environmental Cooperation Center, Japan  
(OECC)

morizane@oecc.or.jp

<http://www.kyomechg.org>

<http://www.kyomecha.org/cobene/index.html>