

# Development of Climate-Resilient and Sustainable Urban Cities

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# Contents

- 1. Role of Cities** in sustainable development
- Achieving Goal 11(Sustainable Cities and Communities), through the countermeasures of **Climate Change and Waste Management**
- 3. International Cooperation for sustainable urban development by MOEJ**



# Cities in SDGs

## SUSTAINABLE DEVELOPMENT GOALS

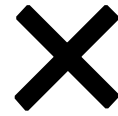


Sustainable Development Goal 11  
Make cities and human settlements inclusive, safe, resilient and sustainable



## SDGs?

Wide  
coverage



Applicable  
for All

Common understanding of “Sustainable development”



Whole Government+  
All Stakeholders



Solve the

Economic/ Social / Environmental issues <sub>3</sub>



## Cabinet decided

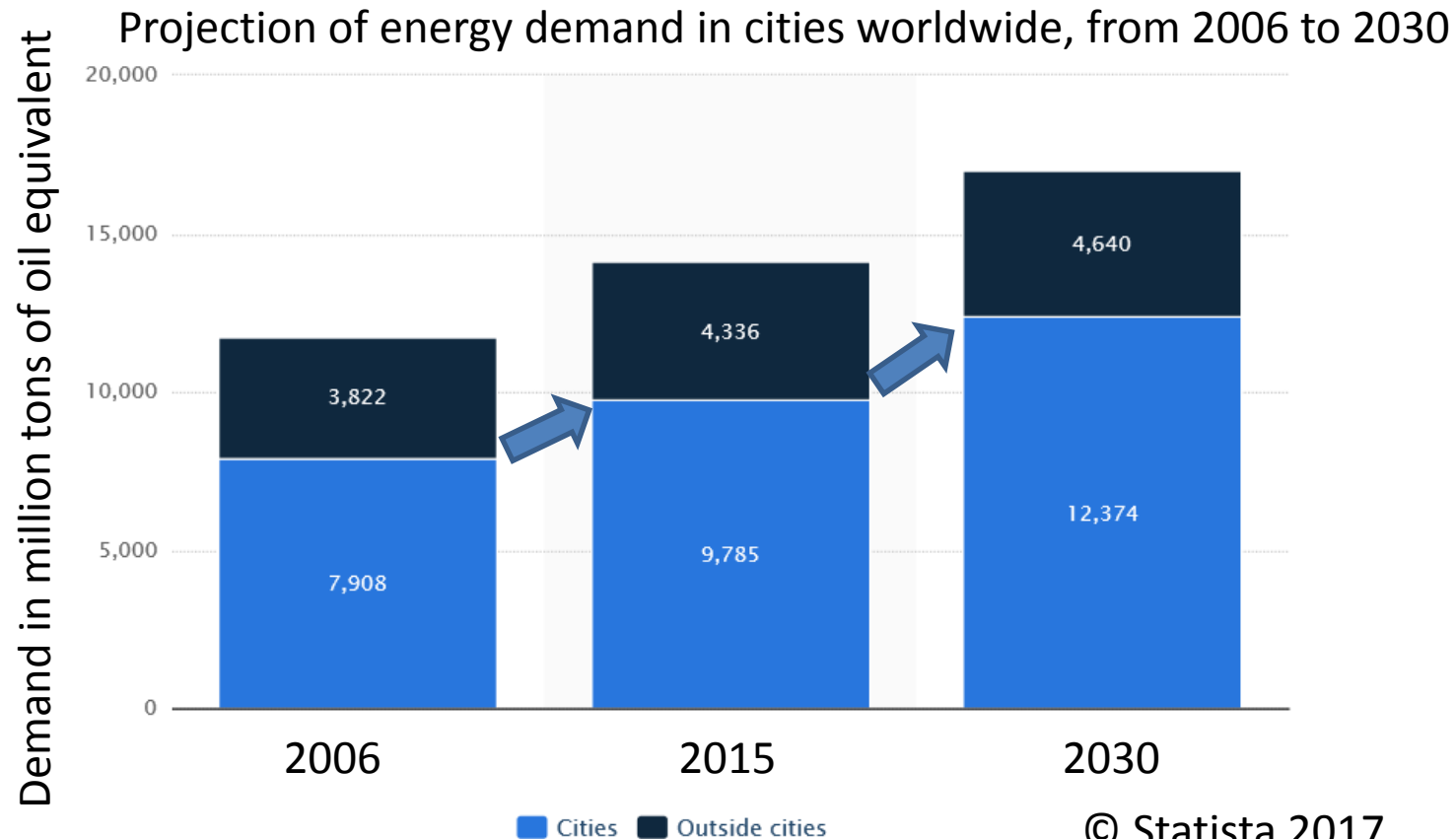
### **“The SDGs Implementation Guiding Principles (2016)”**

#### Priority Areas and Policies

1. Empowerment of All People
2. Good Health and Longevity
3. Growth Market, Revitalization of Rural Areas, Technological Innovation
4. Sustainable and Resilient Land use, Quality Infrastructure
5. Energy Conservation, Renewable Energy, Climate Change Measure, Sound Material – Cycle Society
6. Conservation of Environment, including Biodiversity, Forests and Oceans
7. Achieving Peaceful, Safe and Secure Societies
8. Strengthening the Means and Frameworks of the Implementation of the SDGs



# Role of Cities in sustainable development (1)



In 2030, it is expected that **energy demand in cities** will reach 12.4 billion metric tons of oil equivalent, **amounting to 73 percent** of the world's energy demand.

\*“cities” refers to all urban areas, including towns.

Source : OECD/IEA (2008) World Energy Outlook 2008



## Role of Cities in Sustainable Development (2)

### Projection of Urban Population and Waste generation

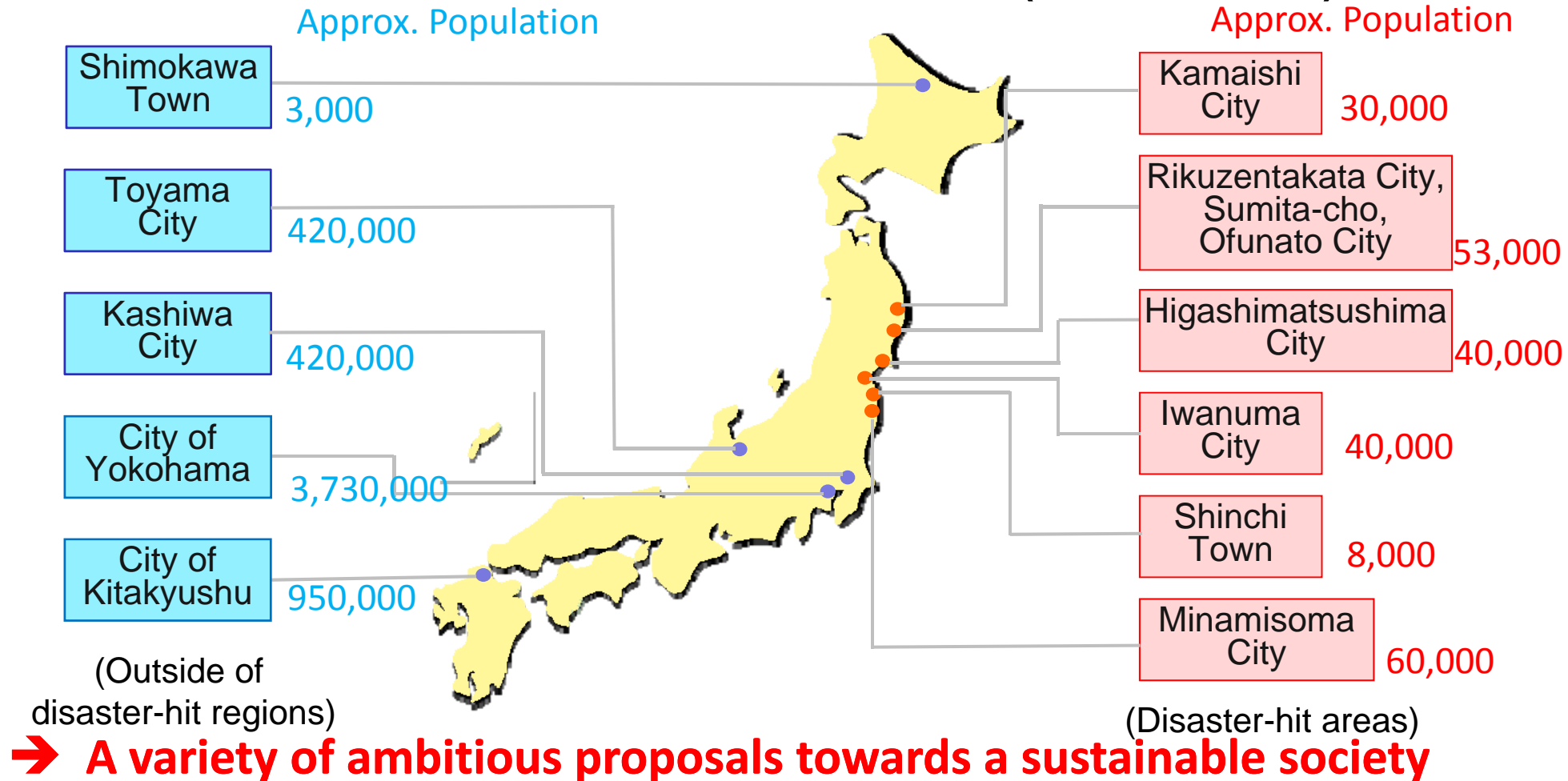
Region	Current			Projection 2025		
Data in Urban	Population (millions)	Waste generation Per Capita (kg/capita/day)	Waste generation (tons/day)	Population (millions)	Waste generation Per Capita (kg/capita/day)	Waste generation (tons/day)
East Asia Pacific	777	0.95	738,958	1,229	1.5	1,865,379
South Asia Region	426	0.45	192,410	734	0.77	567,545

Source :What a Waste: A Global Review of Solid Waste Management (World Bank Group,2012)

# Cities' Action for SDGs

## - Environmental Future Cities -

Future Cities selected by the Government (11 cities: 2011)



Cited from Presentation by Dr. Shuzo Murakami on 6<sup>th</sup> International Forum on the Future City Initiative



# Climate Change

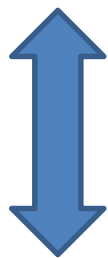
# Climate Change

The Law on Promotion of Global Warming  
Countermeasures (1998)

Cabinet Decision (2015)

## Mitigation

Central Government



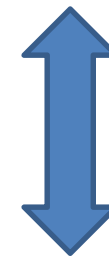
Plan for Global  
Warming  
Countermeasures

Local Government

- For Government Operation
- For Area-wide Plan

## Adaptation

Central Government



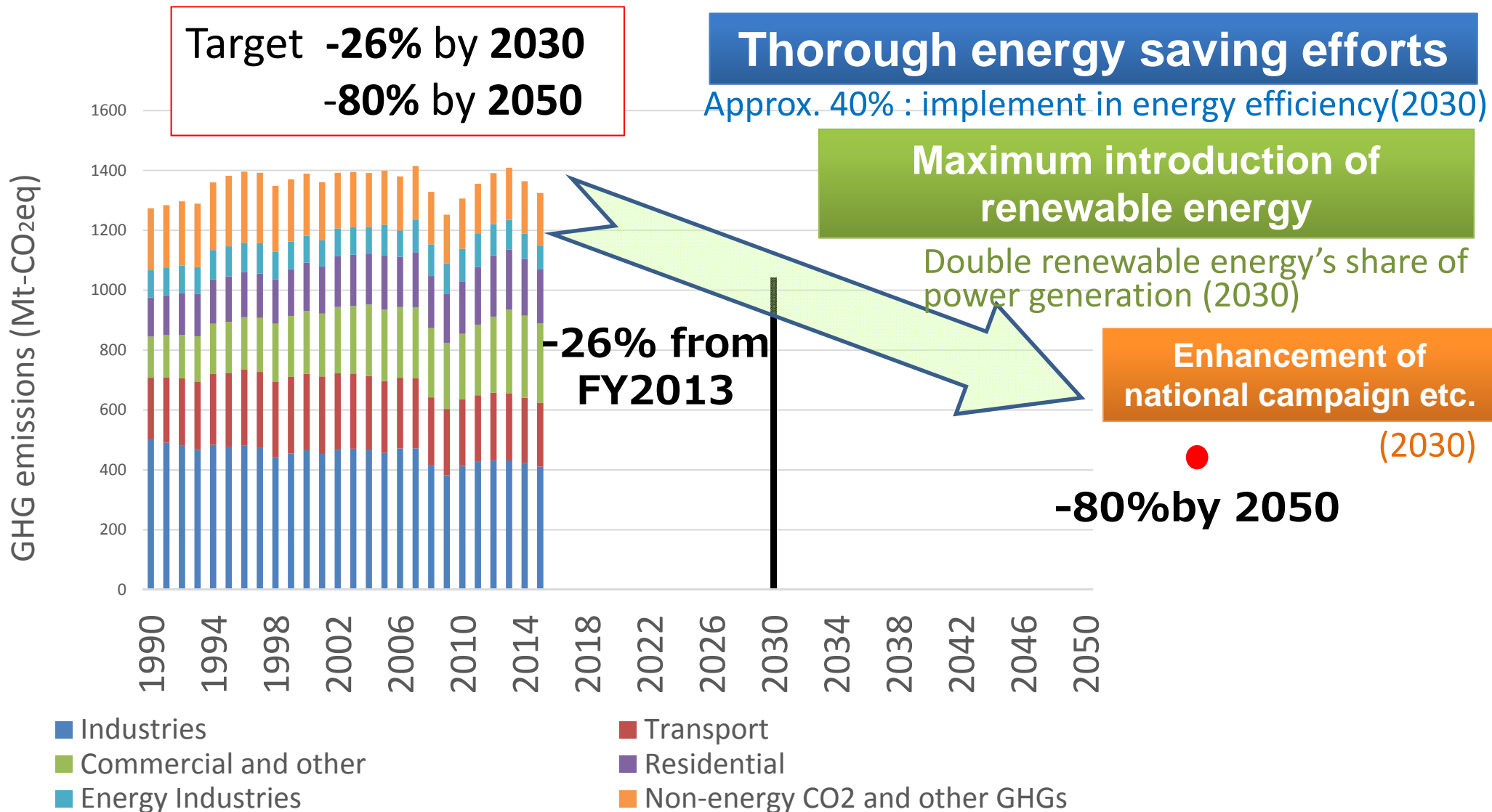
National Plan for  
Adaptation to the Impacts  
of Climate Change

Local Government

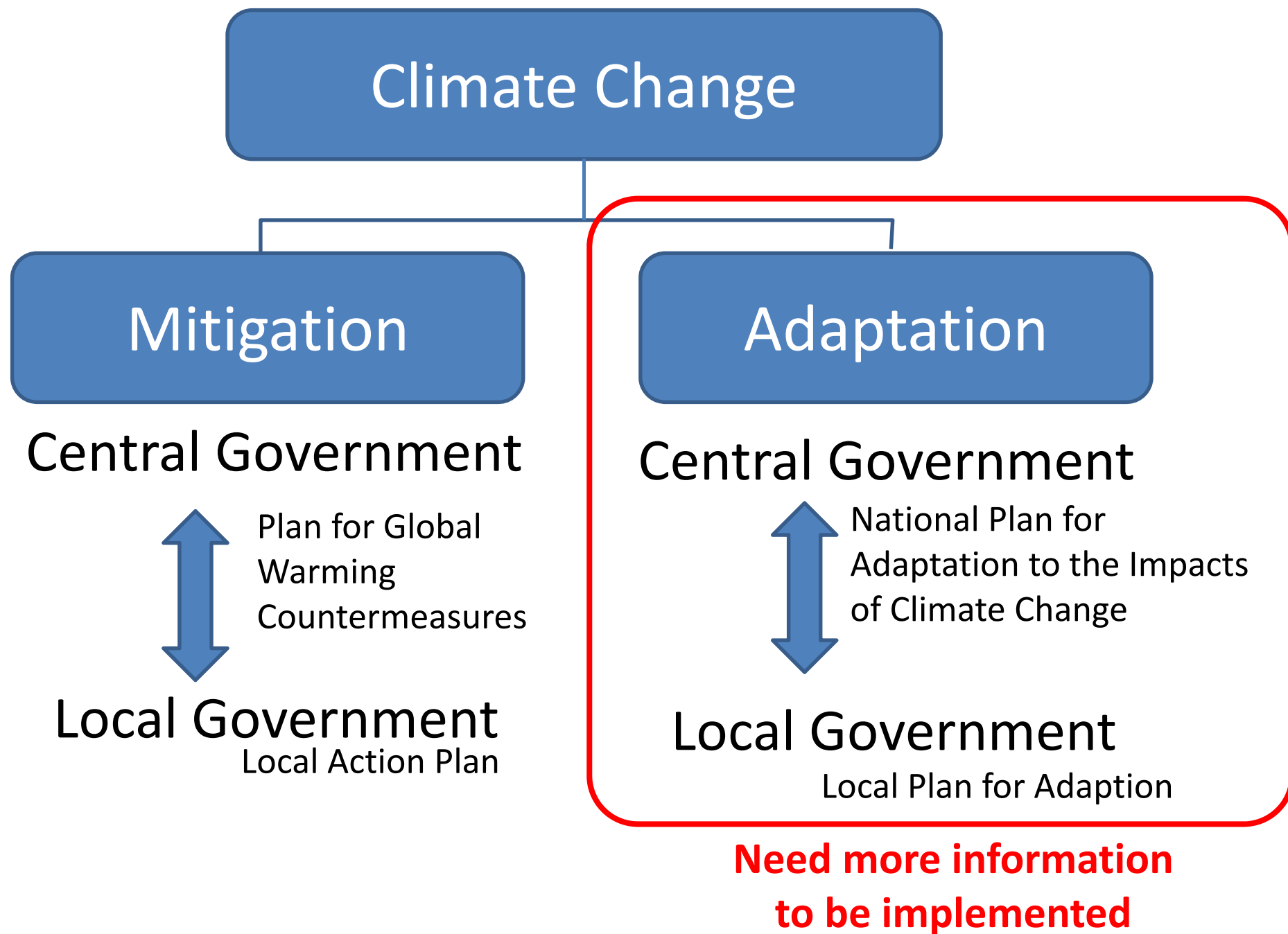
Local Plan for Adaption

# Mitigation

## GHG reduction targets of Japan



Source: National Greenhouse Gas Inventory Report of JAPAN (2016)





# Adaptation: National Plan for Adaptation to the Impacts of Climate Change in Japan

Cabinet Decision @ 2015

## ■ Basic Strategy

1. **Mainstreaming** adaptation into government policies
2. Enhancement of **scientific findings**
3. **Promotion** of understanding and cooperation through sharing and providing information on **climate-related risks**
4. **Promotion** of adaptation in **local governments**
5. **Promotion** of **international cooperation** and **contribution**



# Adaptation: Climate Change Adaptation Platform (A-PLAT)



The A-PLAT aims at being a basis for **adaptation actions** of **local governments**, **businesses**, and citizens in Japan. In cooperation with relevant ministries and agencies, it **provides information** for meeting users' needs; develops and furnishes tools to promote adaptation actions; and collects, organizes, and provides the best practices.

## e.g. National and Local Information > Nigata (District) > Projection for Rice Quality



基準期間の高温に因る品質低トリスノカ「低」(品種: コシヒカリ)の収量を1とした場合の相対値  
凡例: 予測に利用した排出シナリオと気候モデルを表しています

























### ●影響評価手法

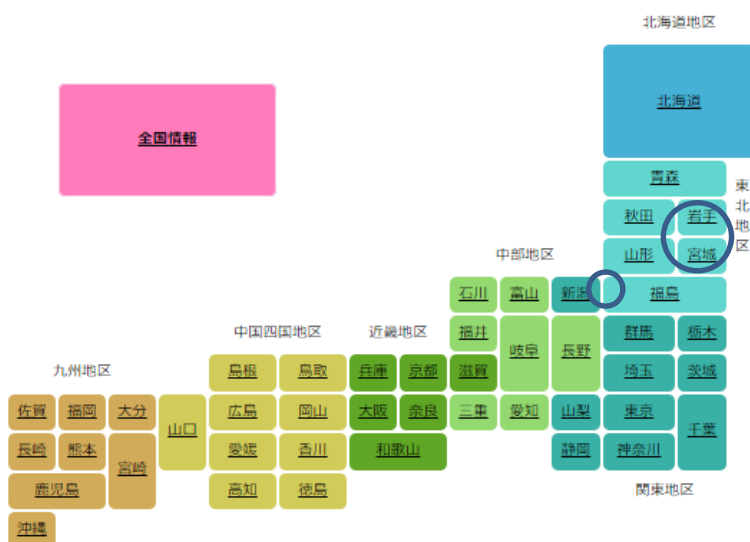
水稻の生長する速さを予測するモデル、コメ以外の部分も含めた植物としての総量を予測するモデル、そしてコメ収量を予測するモデルの3つのモデルを組み合わせて影響評価を実施。移植日は将来に渡って一定と仮定している。

※利用する気候/パラメータ: 気温(日平均、日最高、日最低)、日射量(日積算)、相対湿度(日平均)、風速(日平均)

### ●留意点

- ・移植日の移動や品種の変更は考慮していない。
- ・気候変動に伴う水需給や病虫害発生形態、台風などによる大規模災害の発生の変化などといった間接的に影響を与える要因は考慮していない。

MODEL	MIROC			MRI			GFDL			HadGEM		
YEAR	1981-2000	2031-2050	2081-2100	1981-2000	2031-2050	2081-2100	1981-2000	2031-2050	2081-2100	1981-2000	2031-2050	2081-2100
RCP 8.5												
RCP 4.5												
RCP 2.6												





# Adaptation: Regional Adaptation Consortium

- **Regional Adaptation Consortium** consisted of national and local governments, local research institutions etc.
- Main topics of study and discussion
  - **Experience and knowledge sharing** related to adaptation among regional councils members.
  - **Impact assessment** on climate change based on **sectoral needs in region**.
  - **Adaptation measures based on scientific findings**.

## National steering committee

- composed of MOEJ, MAFF, MLIT and relevant research institutions.
- supported by Climate Change Adaptation Platform (National Institute for Environmental Studies, JAPAN) as the Secretariat.



## Regional councils

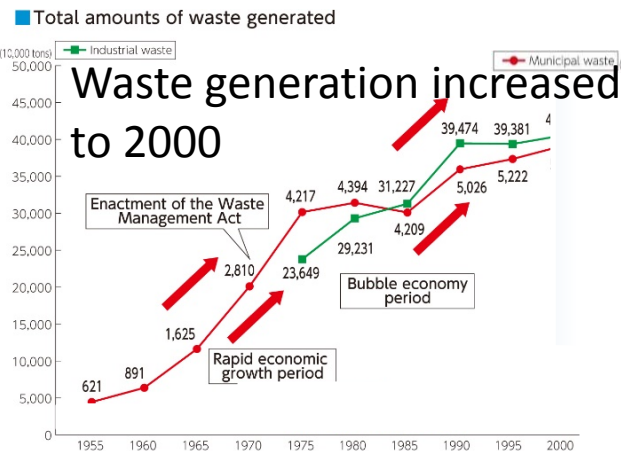


# Waste Management





# Waste Management: Experiences in Japan



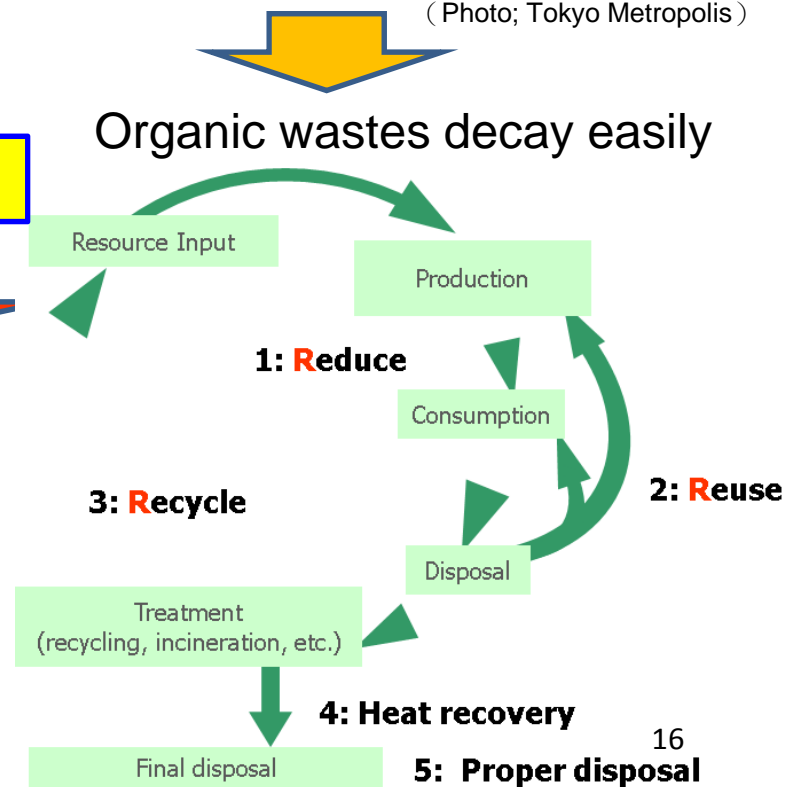
( Photo; Tokyo Metropolis )

Source: Compiled from MOE, Waste Management in Japan: Survey on the Discharge and Disposal of Industrial Waste (annual editions)

**Difficulty of securing sites for final disposal**

**Solutions**

- 3R (Reduce, Reuse, Recycle) policy for Waste Reduction
- Incineration-Based Sanitation Treatment etc.





# Waste Management : Solution (1)

## Incineration-Based Sanitation Treatment

### Waste incineration facilities in Japan



Ota Incineration Plant

- Constructed in 2014
- Full continuance combustion fire grate Incinerator
- Incineration capacity; 600 tons/day
- Power generation capacity; 22,800kW

(Photo: Clean Authority of TOKYO 23cities)

#### Advantages of waste incineration

***Reduction of waste volume***

***Hygienic treatment of waste***

***Waste to energy***

**+ Resident friendly**

Regulation on emission

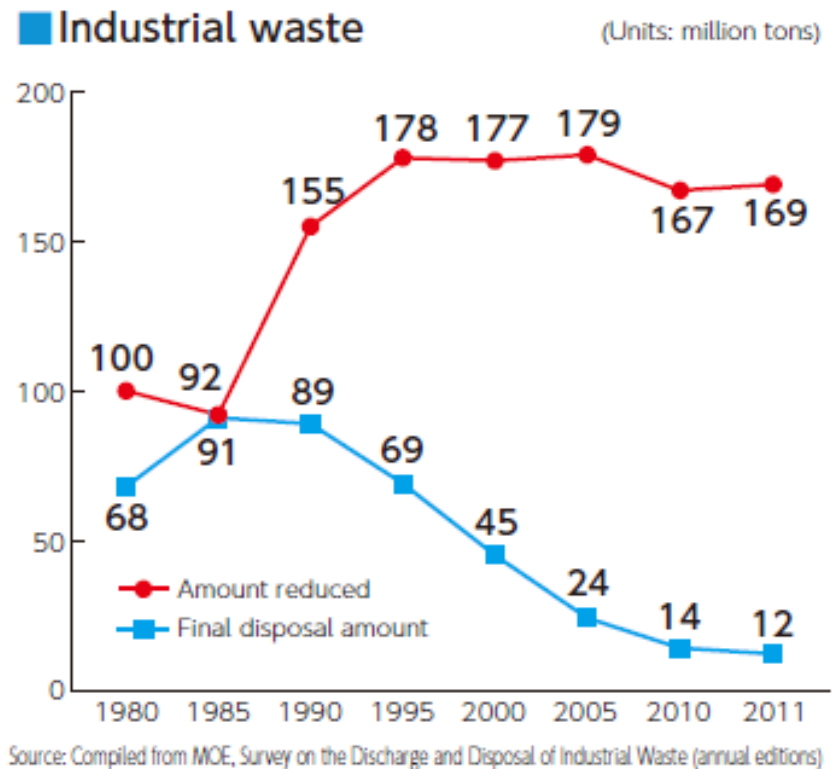
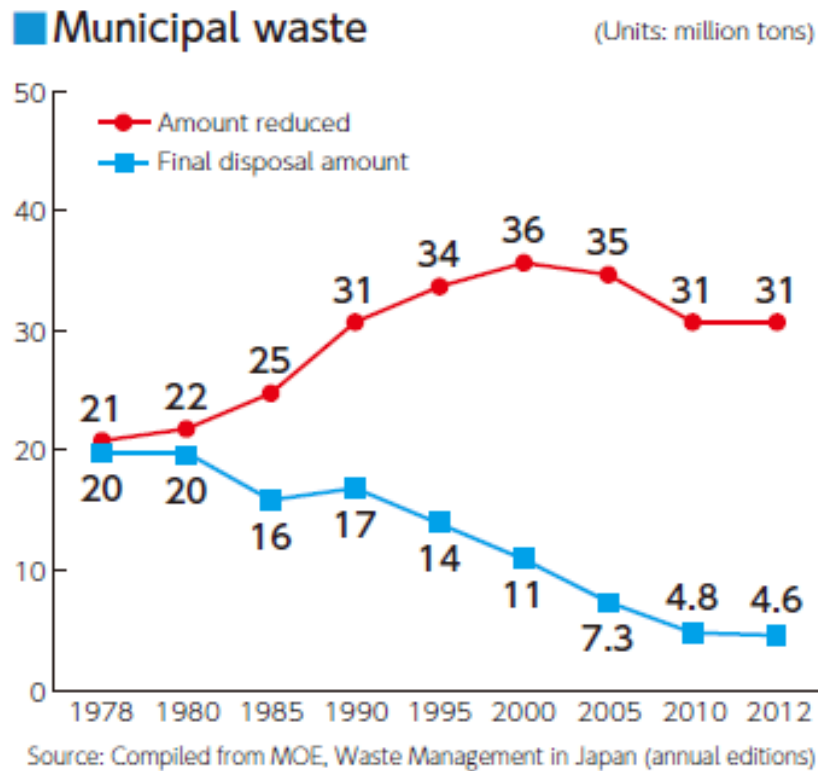
Regulation on monitoring

Monitoring report (open to public via internet)



## Waste Management : Solution (2)

### Amounts of final waste disposal and waste reduction



# **Cooperation for sustainable urban development in overseas countries**





# Mitigation in Overseas countries: JCM

## JCM Partner Countries



Mongolia  
Jan. 8, 2013  
(Ulaanbaatar)



Bangladesh  
Mar. 19, 2013  
(Dhaka)



Ethiopia  
May 27, 2013  
(Addis Ababa)



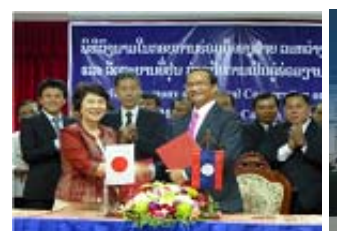
Kenya  
Jun. 12, 2013  
(Nairobi)



Maldives  
Jun. 29, 2013  
(Okinawa)



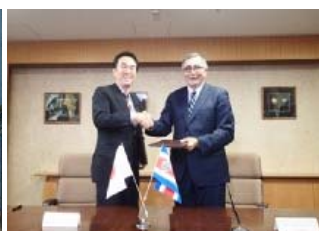
Viet Nam  
Jul. 2, 2013  
(Hanoi)



Lao PDR  
Aug. 7, 2013  
(Vientiane)



Indonesia  
Aug. 26, 2013  
(Jakarta)



Costa Rica  
Dec. 9, 2013  
(Tokyo)



Palau  
Jan. 13, 2014  
(Ngerulmud)



Cambodia  
Apr. 11, 2014  
(Phnom Penh)



Mexico  
Jul. 25, 2014  
(Mexico City)



Saudi Arabia  
May 13, 2015



Chile  
May 26, 2015  
(Santiago)



Myanmar  
Sep. 16, 2015  
(Nay Pyi Taw)



Thailand  
Nov. 19, 2015  
(Tokyo)



the Philippines  
Jan. 12, 2017  
(Manila)



# Examples of JCM Model Projects

Indonesia



Waste heat recovery in the Cement plant

Vietnam



Eco-driving with digital tachograph

Vietnam



High efficient transformers in power distribution

Mongolia



High efficient boiler for heating

Palau



Solar PV installation on the building roof top

Indonesia



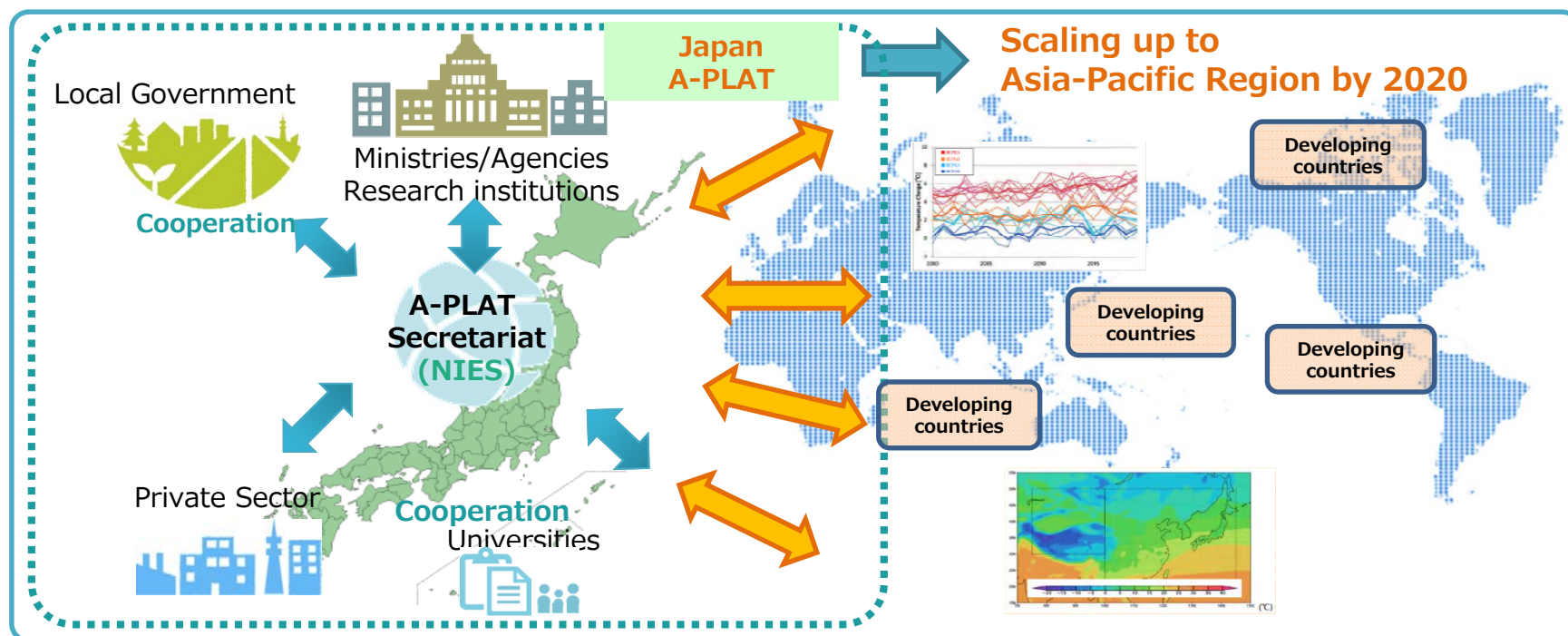
Gas Engine Co-generation system at the automobile assembly plant

# Adaptation in Overseas Countries: Asia-Pacific Adaptation Information Platform (AP-PLAT)



○ To support adaptation measures by providing advanced scientific climate risk information

- ① **Develop dataset** on **projection of climate change impacts** in the region through bilateral & intensive studies
- ② **Develop supporting toolkits** for officials and stakeholders engaged in adaptation planning
- ③ **Build capacity** on climate change **impact assessment/ adaptation planning**







# Cooperation between MOEJ and ADB

Extension of Letter of Intent on cooperation for environment (May 2017)





**Thank you for your attention !**