

ADB's 2nd Japan National Workshop on Economics of Climate Change and Low Carbon Growth Strategies in Northeast Asia

Local Climate Change Policies and Actions in Japan

1. Policy Frameworks
2. Tokyo Cap & Trade Program
3. Eco-Model City Project



Nagisa Ishinabe
Climate Change Group, IGES

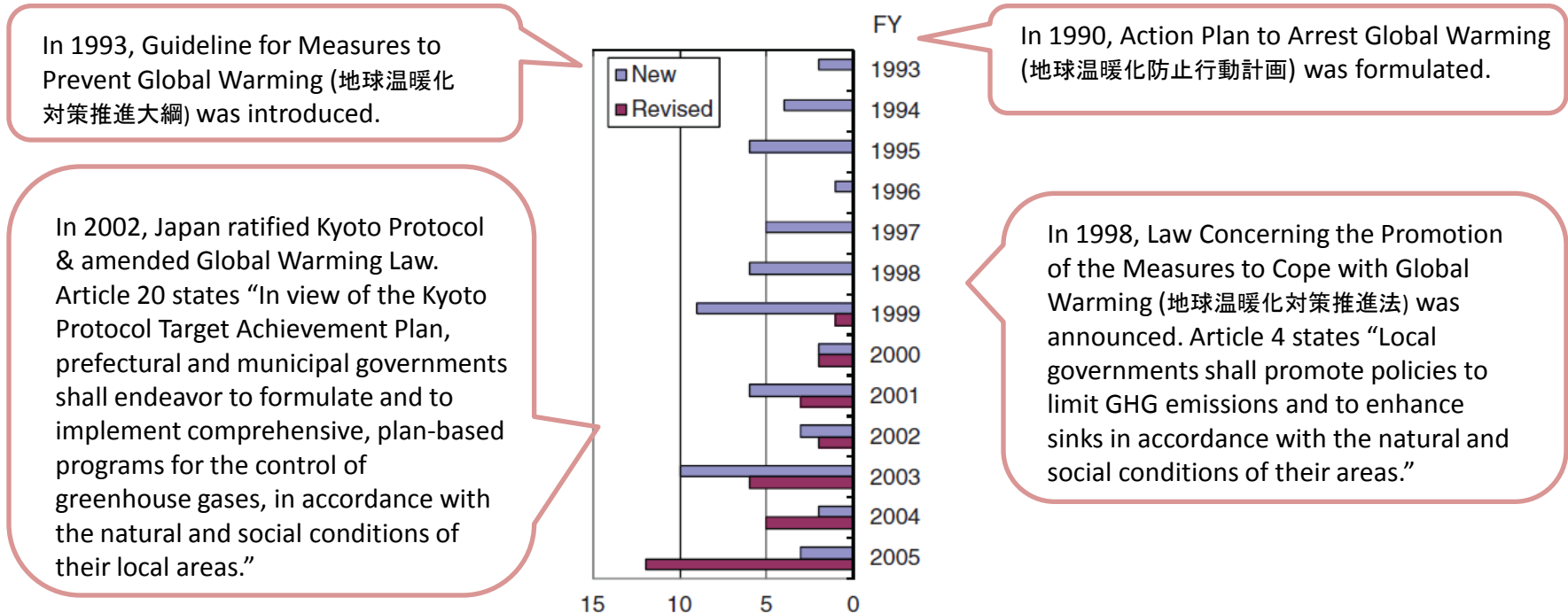
November 4, 2010

Policy Frameworks in Japan

- Global Warming Law and Kyoto Protocol Target

Global warming law and Kyoto protocol target request Japanese local governments (47 prefectural & approx. 1,800 municipal governments) to reduce their GHG emissions locally...

Number of Local Climate Change Action Plans



In 1993, Guideline for Measures to Prevent Global Warming (地球温暖化対策推進大綱) was introduced.

In 1990, Action Plan to Arrest Global Warming (地球温暖化防止行動計画) was formulated.

In 2002, Japan ratified Kyoto Protocol & amended Global Warming Law. Article 20 states "In view of the Kyoto Protocol Target Achievement Plan, prefectural and municipal governments shall endeavor to formulate and to implement comprehensive, plan-based programs for the control of greenhouse gases, in accordance with the natural and social conditions of their local areas."

In 1998, Law Concerning the Promotion of the Measures to Cope with Global Warming (地球温暖化対策推進法) was announced. Article 4 states "Local governments shall promote policies to limit GHG emissions and to enhance sinks in accordance with the natural and social conditions of their areas."

...and by 2005, all prefectures and many cities have formulated local climate change action plans and set their own GHG reduction targets.

Policy Frameworks in Japan

- Expectation vs. Reality under Global Warming Law

Japanese local governments have limited legal competence to independently formulate climate change, energy, or traffic policies...

Expectations:

- ✓ Global Warming Law request local governments to develop comprehensive policies and to take climate change countermeasures.

But the Law provides neither the legal competence nor mandates the necessary financial support for local governments to take action.

Reality:

- ✓ Local governments do not have legal competencies in GHG related-issue areas, such as:

1. Energy policy
e.g. Implementation of the Energy Conservation Law
2. Traffic policy

... These legal competencies belong to the national government.

...As a result, they are more or less limited to the formulation of action plans and convincing citizens to change their behavior.

Policy Frameworks in Japan

- National vs. Local Governments under Kyoto Protocol

Japan's National GHG emission reduction target under the Kyoto Protocol is not divided among prefectures or cities...

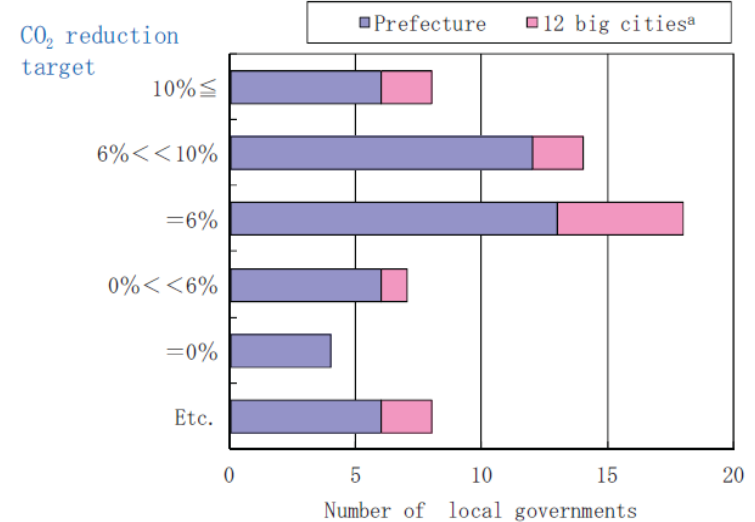
✓ Considerable variety in reduction targets

- Some local action plans focus on all six GHGs like the national government, some just on CO₂, and some others on CO₂ and one or more additional GHGs.
- Some plans also address forests as carbon sinks, establishing measures for the reduction of CO₂ through forest policies.

✓ Significant difference in reduction scenarios and underlying assumptions

... Consequently, the targets of local action plans are not connected directly to the national targets.

Local-Level CO₂ Reduction Targets in Japan (March 2006)



Source: Sugiyama (2008)

(Ref.) GHG Reduction Targets of 13 Eco-Model Cities

Cities	Population	Area	Reduction (Mid-term)	Reduction (Long-term=2050)	Base year
Kitakyushu	0.99 million	488 km ²	30% (2030)	50% to 60%	2005
Kyoto	1.47 million	828 km ²	40% (2030)	60%	1990
Sakai	840 thousand	150 km ²	15% (2030)	60%	2005
Yokohama	3.67 million	434km ²	Over 30%/head (2025)	Over 60%/head	2004
Iida	110 thousand	659km ²	Household sector 40% to 50% (2030)	70%	2005
Obihiro	170 thousand	619 km ²	30% (2030)	50%	2000
Toyama	420 thousand	1,242 km ²	30% (2030)	50%	2005
Toyota	420 thousand	918 km ²	30% (2030) Challenge:50% (2030)	50% Challenge:70%	1990
Shimokawa	3,900	644 km ²	32% (2030)	66%	1990
Minamata	29 thousand	163km ²	33% (2020)	50%	2005
Miyakojima	55 thousand	205km ²	30~40% (2030)	70% to 80%	2003
Yusuhara	4,000	237km ²	50% (2030) *energy conversion sector excluded. 3.5 times GHG sink (2030)	70% *energy conversion sector excluded. 4.3 times GHG sink (2030)	1990
Chiyoda	45 thousands	12km ²	25% (2020)	50%	1990

Innovative Local Policies and Actions

Japanese local governments have the authority to take legislative action when the national government does not have specific policies & measures. Using this opening, some governors & mayors have introduced innovative local policies and action plans.

Examples:

- ✓ **Tokyo's Emissions Trading System (Tokyo ETS)**

Tokyo Metropolitan Government amended its environment ordinance and introduced Japan's first ETS. It aims to reduce its GHG emissions by 25% of 2000 levels by 2020.

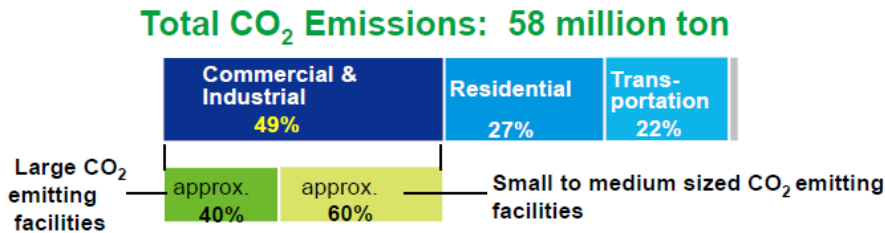
- ✓ **Kyoto's ordinances on global warming**

Kyoto is the first city in Japan which introduced an ordinance concerning global warming. It mandated businesses to formulate their own GHG reduction plans and periodically report them to the city. It also amended the national Energy Conservation Law, and required to put labels on products that are most energy saving. The city targets to reduce its GHG emissions by 40% of 1990 level by 2030 and 60% by 2050.

Tokyo's Cap & Trade Program (Tokyo-ETS)

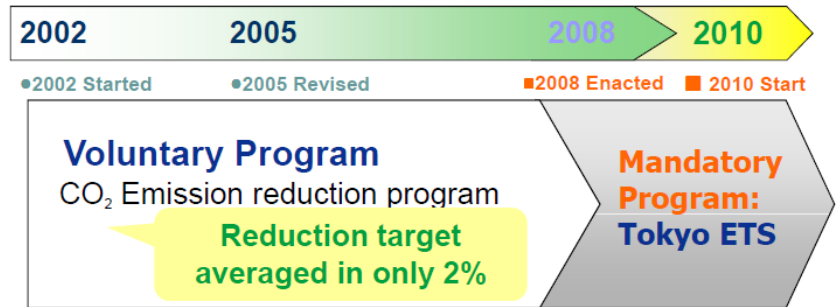
Tokyo Metropolitan Government introduced an emissions trading system, prior to the national government. Tokyo-ETS is the world's first "urban" cap & trade program to cover office buildings.

Tokyo CO₂ Footprint (2007)



Source: Tokyo Metropolitan Government's website

Tokyo-ETS: Program Development



Tokyo-ETS: Cap Coverage

The world's first urban cap and trade program to cover office buildings

1,300 facilities

1,000 Commercial buildings

300 Industrial facilities



40% of commercial and industrial sectors' emissions

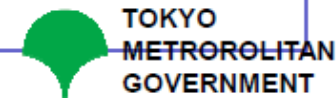
Coverage: Consumption of fuels, heat and electricity is 1,500 kiloliters or larger per year (crude oil equivalent)

Saitama Prefecture announced that it will follow this Tokyo's cap & trade program starting from next April.

(Ref.) Tokyo ETS

- Summary of the Scheme

Gas covered	Energy-related CO ₂
Compliance factor	<p>1st Compliance Period: 6% or 8%</p> <ul style="list-style-type: none"> * 6% for factories (and buildings receiving energy from district heating and cooling plants) * 8% for rest of the buildings <p>2nd Compliance Period: 17% (planned)</p> <ul style="list-style-type: none"> - Facilities that have made outstanding progress with regard to measures against global warming are recognized as top-level facilities whose compliance factor is reduced to 1/2 or 2/3
Allowance allocation	<p>Grandfathering</p> <p>Allowances: Base year emission × Compliance factor × Compliance period (5years)</p> <p>*Base year emission: Average emission of past 3 years</p>
Compliance assessment	Compliance assessment will take place after completion of each phase (i.e. after 5 years)



(Ref.) Tokyo ETS

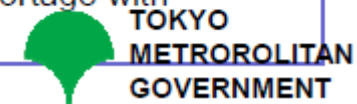
- Summary of the Scheme

<p>Offsets</p>	<ol style="list-style-type: none"> 1. Emission reductions from small and midsize facilities within the Tokyo area <ul style="list-style-type: none"> * Emission reduction by energy-saving measures * Buyer can buy necessary amount without limit 2. Renewable Energy Certificates <ul style="list-style-type: none"> * Solar (heat and light) energy, wind energy, geothermal energy, hydropower energy (under 1000kW), biomass energy (biomass rate 95% or above) 3. Emission reductions outside the Tokyo area <ul style="list-style-type: none"> * Coverage: large facilities with less than 150 thousand ton base year emission * Large facilities will be assumed to be covered under the Tokyo Cap-and-Trade Program, and reduction exceeding the reduction obligation would be counted as offset credit * Buyer can only buy up to 1/3 of base year emission
-----------------------	--

(Ref.) Tokyo ETS

- Summary of the Scheme

Duty of tenants	<ul style="list-style-type: none"> ● All tenants have the obligation to check their CO₂ emission and to implement emission deterrent measures ● All tenants have the obligation to cooperate with the emission reduction measures taken by building owners ● Specified tenants* are required to submit their own emissions reduction plan to TMG via building owners <p><u>*Specified tenants</u>: Tenants with over 5000m² floor area usage, or over 6 million kWh electricity usage per year</p>
Monitoring, Reporting, Verification	Participants are required to report their verified emissions to TMG annually based on “TMG Monitoring / Reporting Guideline” and “TMG Verification Guideline”
Banking/borrowing	Banking is allowed. Borrowing is not allowed
Penalty for non-compliance	<p>Required to reduce 1.3 times the shortage</p> <p>Violation to the order: Monetary fine will be imposed (About 500 thousand yen), fact of violation will be released to the public, and the Governor will buy the allowance credit for shortage with payment cost charged to the violating facility.</p>



Local to National Government

- Tokyo's Proposal on Nation-Wide Cap & Trade System

Based on its experience running Tokyo ETS, Tokyo Metropolitan Government proposes the national government in designing the nation-wide ETS.

Three Key Proposals:

- ✓ **Mandatory cap & trade program with an absolute cap**

The program must be mandatory, not voluntary, and should have an absolute cap, instead of an intensity-base target.

- ✓ **International linkage**

The program should correspond to the global standards for linking with other national carbon markets in the future.

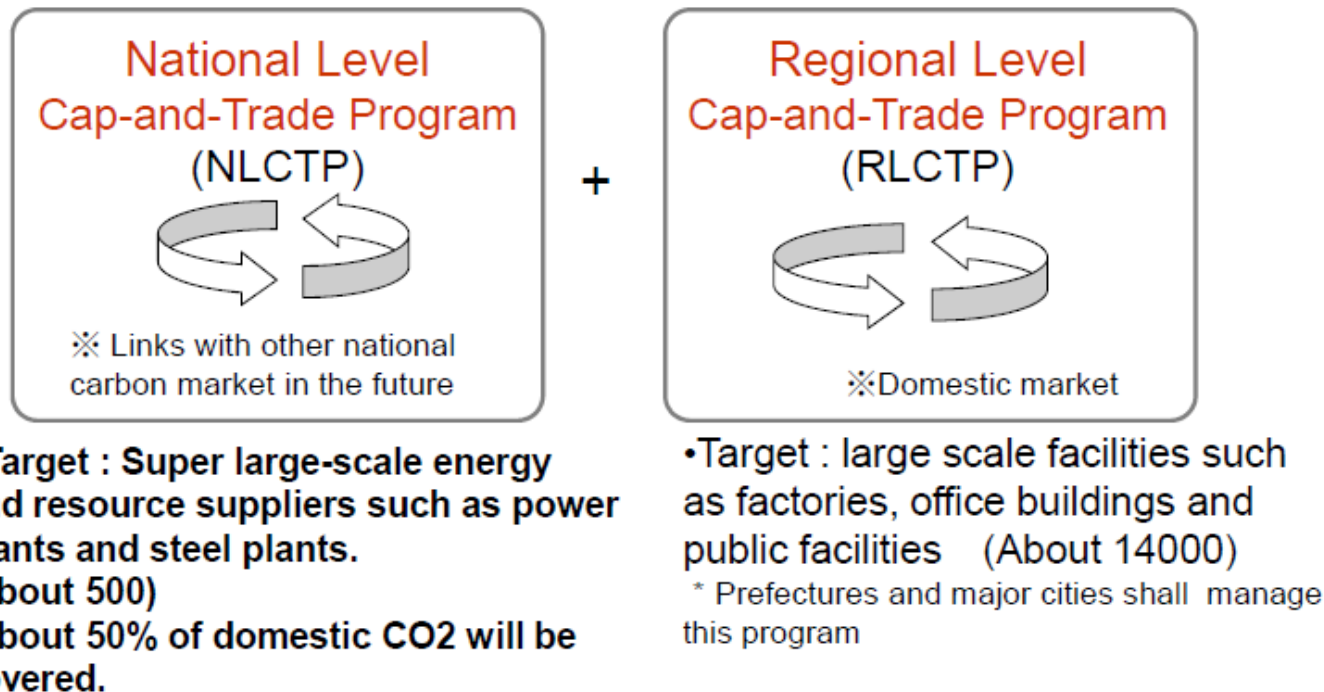
- ✓ **Domestic linkage**

The national and sub-national ETS should correspond to each other.

Local to National Government

- Tokyo's Proposal on Nation-Wide Cap & Trade System

Outline of the proposed nationwide cap-and-trade program



- ◆ **The nationwide cap-and-trade program shall consist of two sub-programs based on the national law.**
- ◆ **These programs will cover at least 60% of total domestic CO2 emissions.**

(Ref.) Summary of the Proposal

CAP AND TRADE PROGRAMS IN JAPAN: TOKYO'S PROPOSAL

		National Level Cap & Trade Program	Regional Level Cap & Trade Program
Basic Concept		C&T program for super large-scale energy and resource supply facilities such as power plants and steel plants. Managed by the national government.	C&T program for large-scale installations such as office buildings, factories and public facilities. Managed by prefectures and major cities.
		Two types of CO2 trading market will be formed. Emission allowances can be traded nationwide within the respective market while trading between the two markets is not allowed.	
Details (common)	1	Launch	FY2013
	2	Compliance period	5 years
	3	Cap Setting	The cap will be set based on the GHG reduction target: 25% emission reduction below 1990 levels in Japan by 2020
	4	Target GHG	Energy-related CO ₂ * Other GHG will be added consecutively
	5	Banking and Borrowing	Banking : allowed Borrowing : not allowed
	6	Penalties	Surcharges and penalties shall be fined against the offender
	7	Monitoring, Reporting and Verification	Monitoring, reporting and verification rules and systems shall be established by the national government as a common structure for both national and regional level cap-and-trade programs.
	8	Registry	National government shall establish and manage the registry, which will be used by the participants in both programs.

(Ref.) Summary of the Proposal

			National Level Cap & Trade Program	Regional Level Cap & Trade Program
Details (individual)	9	Installations subject to the program	Super large-scale installations emitting at least 100,000t of CO ₂ per year (energy and resource suppliers such as power plants and steel plants)	Large-scale installations that consume energy at least 1,500kl per year (crude oil equivalent) (office buildings, factories and public facilities)
		Coverage	About 500 installations (About 50% of total domestic CO ₂ emissions covered)	About 14,000 installations (More than 60% of total domestic CO ₂ emissions covered)
	10	Allowance allocation	Auctioning is considered *Exceptions could be made to certain energy-intensive industries	Grandfathering *Progressive transition to auctioning is proposed
	11	Offset Credits	<ul style="list-style-type: none"> • Kyoto credit is fungible under certain conditions • Renewable energy certificates are also fungible 	<ul style="list-style-type: none"> • Small and Medium-sized Installation Credits and Renewable Energy Certificates are fungible
	12	Program Administrators	National Government	Prefectures and major cities

Eco-Model City Project

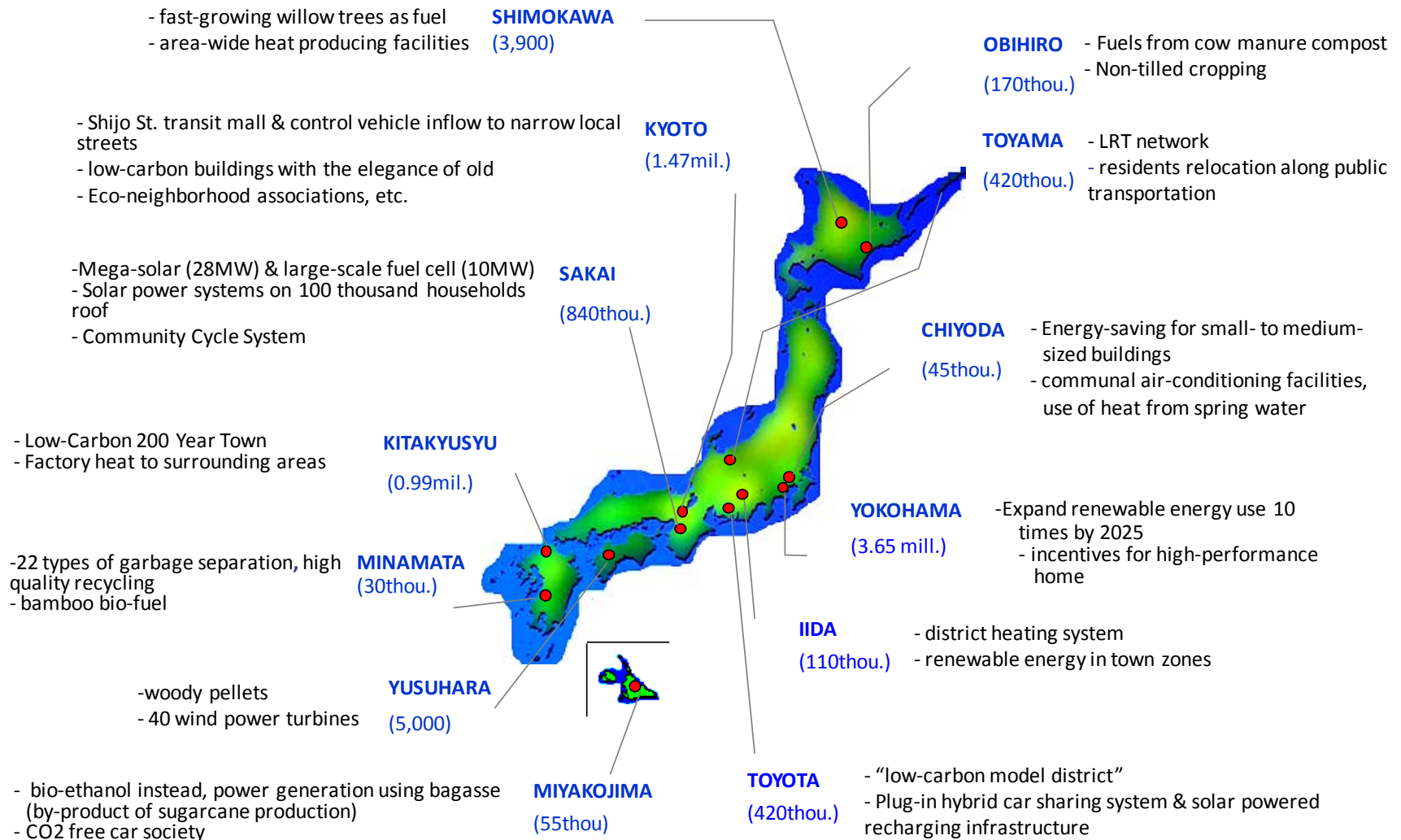
Japanese government selected 13 eco-model cities in 2008. They are supposed to lead local-level developments on the creation of a low-carbon society and sustainable economy.

13 cities were selected out of 82 applications

Major cities	Kitakyushu, Kyoto, Sakai, Yokohama
Regional core cities	Iida, Obihiro, Toyama, Toyota
Small cities & towns	Shimokawa, Minamata, Miyakojima, Yusuhara
Special Tokyo Ward	Chiyoda



Examples of Initiatives by Eco-Model Cities



Eco-Model City Project

- Periodic Evaluation

The progress of eco-model cities are monitored and evaluated periodically.

City or Town	2010 Evaluation
Kitakyushu	A
Kyoto	A
Sakai	B
Yokohama	C
Iida	B
Obihiro	B
Toyama	A
Toyota	B
Shimokawa	A
Minamata	C
Miyakojima	B
Yusuhara	B
Chiyoda	B

S	The progress is extremely distinguished, for instance, leading the national policy
A	The progress is distinguished, for instance, moving up the project
B	The progress is good, for instance, projects have been processed on schedule
C	The projects should be propped up, for instance, because of the delay

Further information on this evaluation can be obtained from:

<http://ecomodelproject.go.jp/en/doc/D28>

(Ref.) Eco-Model City Initiatives - Kitakyushu

- Overview : Population of approx. 990,000; total area of approx. 488 km²
- As an industrial city, Kitakyushu has a history of overcoming serious pollution levels
- The city plans to cut greenhouse gases by 30% by 2030 and 50% by 2050 (compared with 2005), and to achieve a 150% reduction for all of Asia
- Kitakyushu is striving to forge an environmental model for Asia and the world.

Adopting new energy sources

Untapped energy sourcing systems

Waste heat from plants is supplied to area plants, business buildings, farms, etc.

Kitakyushu hydrogen town

Utilizing hydrogen produced at plants, we are building “hydrogen towns” where the hydrogen is supplied to fuel cell cars and to stores

Solar factories

Using untapped rooftops of plants, public spaces, etc. we are implementing a large-scale solar energy generation project



Hydrogen fuel cell vehicle (first introduction of the technology in Kyushu)



Environment museum



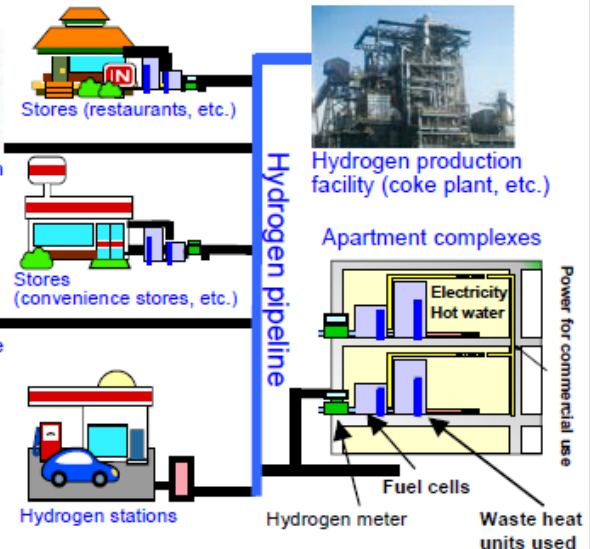
Higashida Eco House



Solar power at business locations



Pergola on the Murasaki River



(Ref.) Eco-Model City Initiatives - Kitakyushu

Creating low-emissions communities

Advanced-model low carbon emission "town"

Create a low carbon emission model district by: 1) adopting long-lasting energy-efficient housing (incorporating cutting-edge technology) and 2) fostering a public transport hub

Popularizing environment-friendly buildings

For private buildings exceeding a certain size, builders must submit environmental performance evaluation results (evaluation using the CASBEE system)

Advanced vehicle transport systems

Set up an effectiveness verification project for fuel cell cars and electric cars, and electric car charging facility networks

Environmental initiatives using community electric bicycle systems

Set up an electric bicycle rental system where the bikes can be rented and returned anywhere in the city

Creating a low carbon emissions/revitalization plan for city centers

Build solar roofs on top of city center bridges, arcades, etc.



Electric cars and rapid charging stands



City motorbike recharging station







Solar rooftops on the Murasaki River



Solar arcade

(Ref.) Eco-Model City Initiatives - Kitakyushu

Resident participation system	An Asian shift to low-carbon emissions
<p>Kitakyushu's carbon offsetting/eco point system Create a system where ecopoints earned for environmental activities are circulated. Working capital is then used to purchase carbon offsets.</p> <p>Integrated study system for a low emissions society (Super CAT)* Construction of an eco house involves adoption of solar power for all elementary schools, enabling a system where the concept of the low-carbon emission society can be integrated into general curriculum around the city.</p>   <p>Solar power generation at Sone Higashi Elementary School</p>  <p>CAT core (environmental museum) and Eco House</p> <p>※Center for Alternative Technology</p>	<p>Asia Low-Carbon Emissions Center (tentative name) Boost technology for low carbon emissions, transfer it to all Asian regions, and help Asian nations achieve lower carbon emissions as they grow</p>  <p>低炭素技術 アジアへ移転</p> <p>北九州市の環境技術</p> <ul style="list-style-type: none"> 石炭発電効率化 電気機器の効率化 環境モビリティ技術 グリーンIT <p> Foster a cooperative network of Asian cities on the environment (foreign diplomacy with a view to urban environmental improvement)</p>

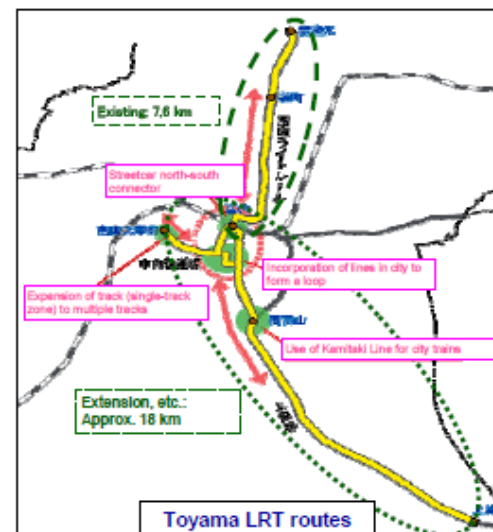
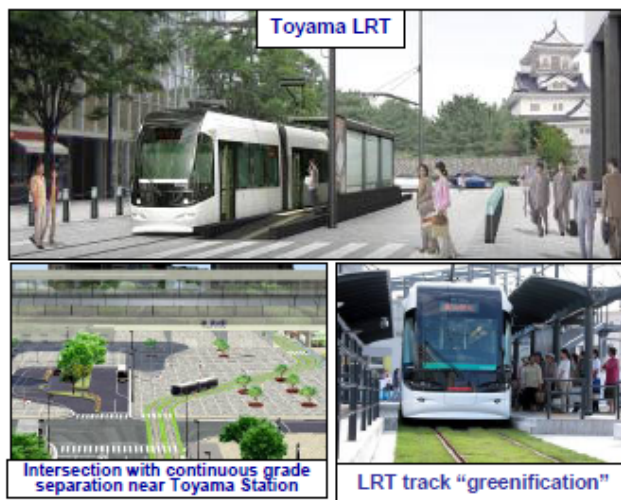
(Ref.) Eco-Model City Initiatives - Toyama

- Outline: Population of approx. 420,000; total area of 1,242 km²
- The area is significantly dependent on the automobile (per-household gasoline consumption is the second highest in Japan).
- Aiming for a 30% reduction in greenhouse gases by 2030, and 50% by 2050 (compared with 2005) through initiatives including expanding the city's public transportation network based on light rail transit and achieving a compact city built around public transportation.

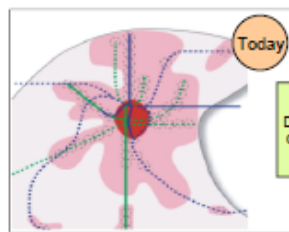
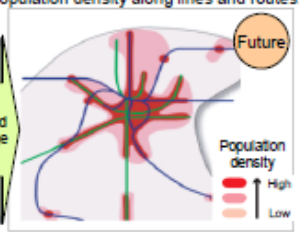
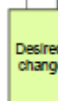
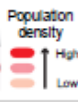
Transportation System Development

○Expanding the city's light rail transit network

Introduce people who normally travel by car to light rail and reduce dependence on automobiles by expanding a user-friendly light rail transit network through such measures as drastically increasing the number of trams in service and offering barrier-free service. Implement continuous grade separation in areas surrounding transportation nodes that serve to relieve transportation congestion and plant grass along light rail transit tracks.




(Ref.) Eco-Model City Initiatives - Toyama

Realization of a Compact City	Initiatives to Encourage Resident Participation
<p>OPromoting residential areas along public transportation corridors</p> <p>Realize a “compact city” where it is possible to get around comfortably without using automobiles by intensifying the urban functions along the public transportation corridors in which light rail transit serve as the hub and promoting private residences within the city.</p> <p>Reduce the distances residents must travel in their daily lives and significantly decrease dependence on the automobile.</p> <div data-bbox="579 506 1226 828"> <p style="text-align: center;">Toyama's target city structure</p> <div style="display: flex; justify-content: space-around;"> <div style="text-align: center;"> <p>Today: Suburban development has led to sprawl.</p>  <p>Today</p> </div> <div style="text-align: center;"> <p>Future: Revitalization of public transportation will lead to increased population density along lines and routes.</p>  <p>Future</p> </div> </div> <div style="text-align: center; margin: 10px 0;"> <p>Desired change</p>  </div> <div style="text-align: right; margin-top: 10px;"> <p>Population density</p>  <p>High Low</p> </div> </div>	<p>OTackling environmental activities with Team Toyama</p> <p>The team consists of government, residents, and local businesses engages in imaginative activities to aid in the prevention of global warming. Involve residents in activities to prevent global warming, for example building energy-saving houses, installing environmentally friendly appliances, and reducing garbage volume.</p>

Utilization of Renewable Energy and Similar Resources


ODEveloping Toyama Eco-Town

Utilize biomass, thermal, and other forms of energy by establishing a resource recycling facilities base.



(Recycling and energy facilities)

- A) Difficult-to-process fiber and mixed waste plastics
- B) Used cooking oil
- C) Wood waste matter
- D) Garbage and pruned branches
- E) Hybrid waste plastics
- F) Automobiles
- G) Waste energy center building site



OIntroducing micro-hydropower

Build micro-hydropower stations as a small-scale distribution model for renewable energy utilizing the area's abundant water resources.

“Future City Initiative” – Japan’s New Growth Strategy

To spread the “Future City” Initiative in Japan and abroad by realizing successful cases through focused investment based on a world-leading vision of eco-future

Targets to reach by 2020

- Create a world-leading “**FutureCity**” through future-oriented technologies, schemes and services.
- Spread the initiative throughout the **Asian market** through inter-governmental cooperation with **Asian countries**.

Principal measures

“FutureCity Promotion Act” (tentative name)

- Establish a **public-private partnership** for promoting projects efficiently and effectively.
- Create a scheme for selecting regions from the perspectives of “innovative ideas for the future, profitability, ripple effect on other cities,” etc.

Introduction of a comprehensive policy package

- Create demand, promote investment, and expand the use of eco-products and services by **strengthening regulations** (e.g. energy-saving standards) and introducing **special measures** (e.g. green tax system).
- Devote intensive efforts to promote **smart grids, renewable energies and next-generation vehicles, etc.** on a massive scale. Concentrate budgets in “Future Cities.”



Source: Prepared by the National Policy Unit based on the data of the Industrial Structure Vision, Industrial Structure Commission

Thank you!

Contact information:
cc-info@iges.or.jp