

Measures against Global Warming in Sapporo

Fumio UEDA

Mayor of Sapporo



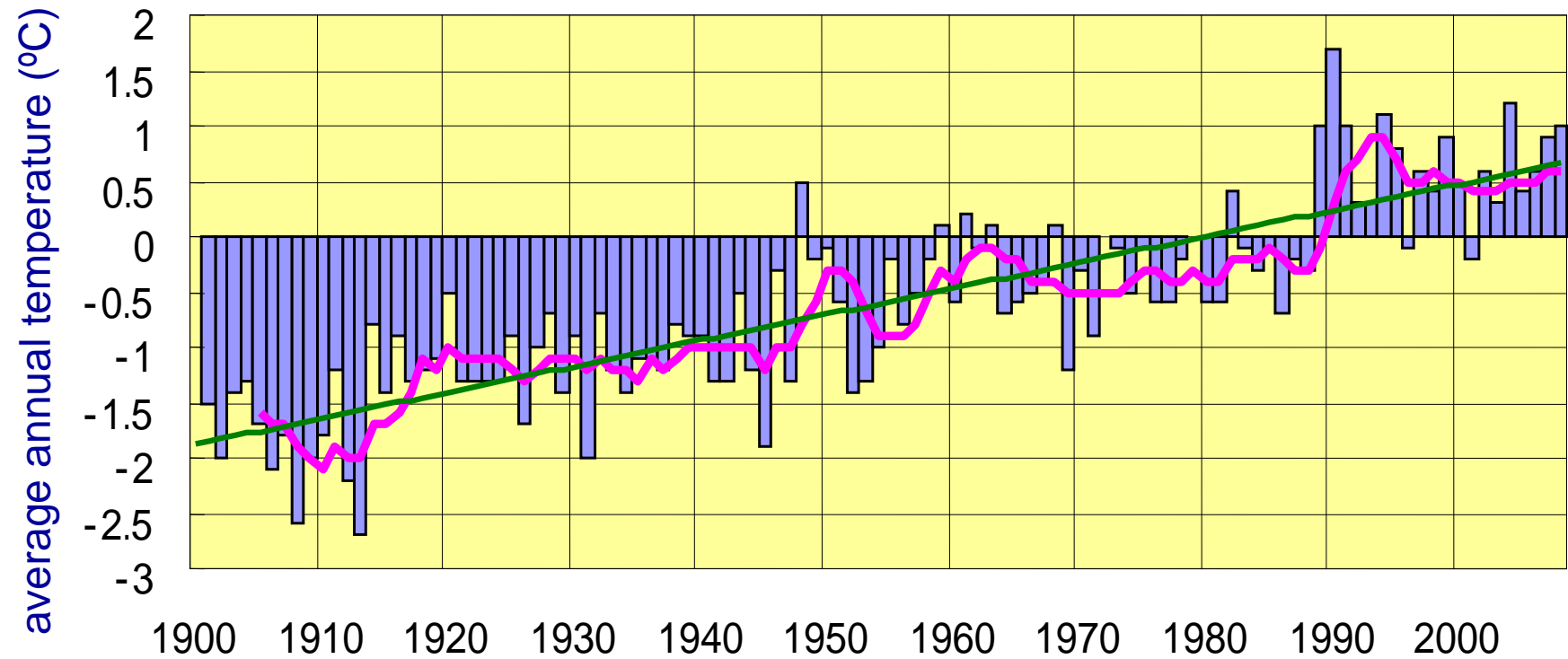
Brief Overview of Sapporo

- **Location: Sapporo City Hall**
North latitude 43 ° 03 ' 35" East longitude 141 ° 21 ' 39"
- **Area: 1,121 km²**
Forests 642 km² City planning areas 568 km²
Densely inhabited districts 227 km²
- **Population: 1,904,824 (as of November 1st, 2009)**
- **Climate: Average temperature 9.5**
- **Highest temperature 31.4 Lowest temperature -13.2**
Snowfall 491 cm Deepest snow accumulation 76 cm (FY2008)
- **There is no other city in the world with a population of over 1 million that accumulates such a significant amount of snow per year. The city and residential structures are designed to resist snow and cold temperatures.**



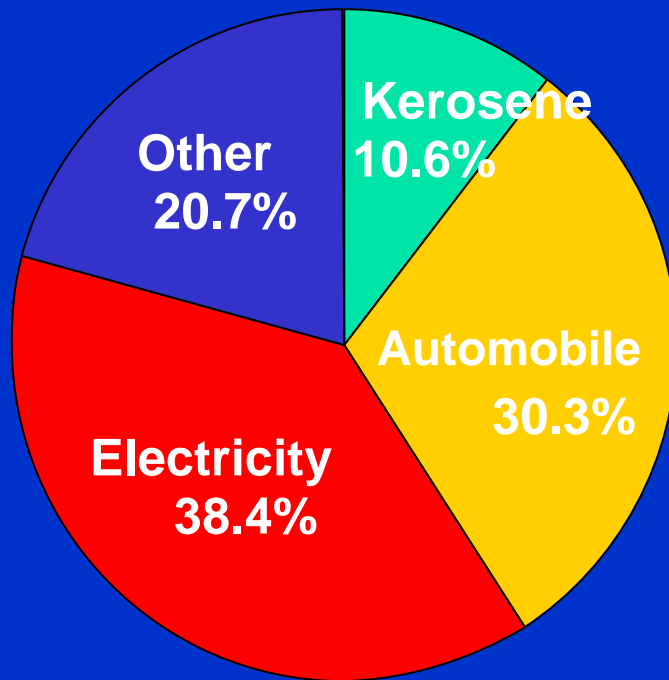
Global Warming in Sapporo

Change in annual temperature of Sapporo



CO2 Emissions from Fuel Use per Household

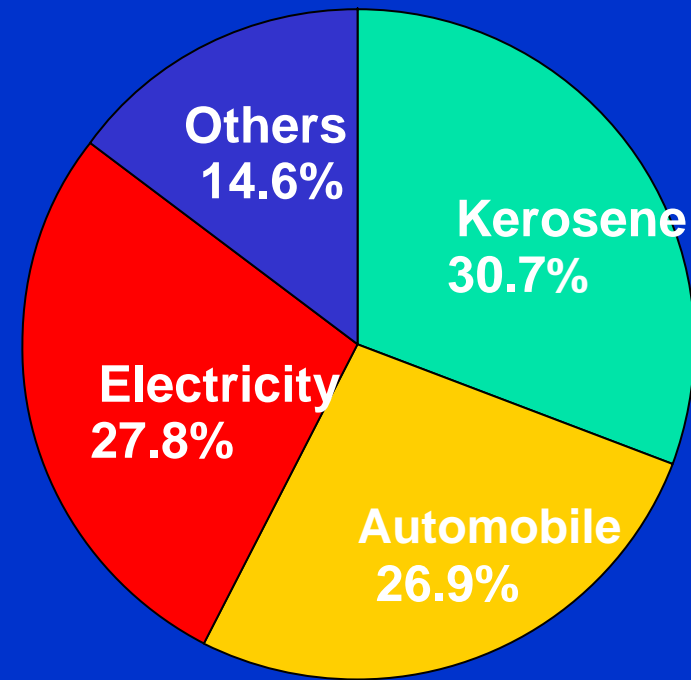
Japan



approx. 5,200 kg CO₂
per household

1.3
times
larger

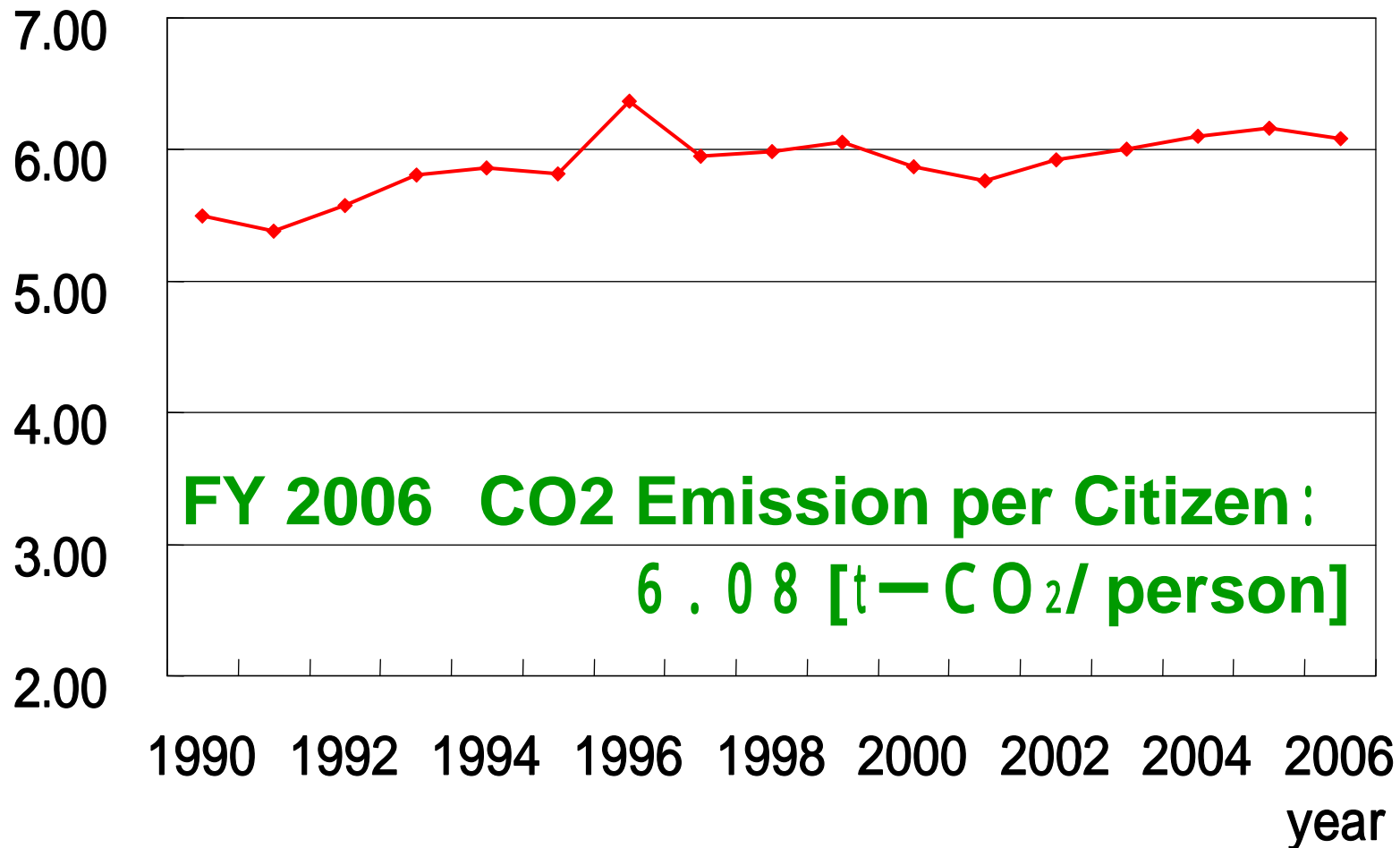
Sapporo



approx. 7,000 kg CO₂
per household

CO₂ Emission per Citizen

(t - CO₂/person)



Measures against Global Warming in Japan

The medium-term goal by 2020:

Reducing emissions to 25% below
1990 levels

Initiatives to Address Global Warming

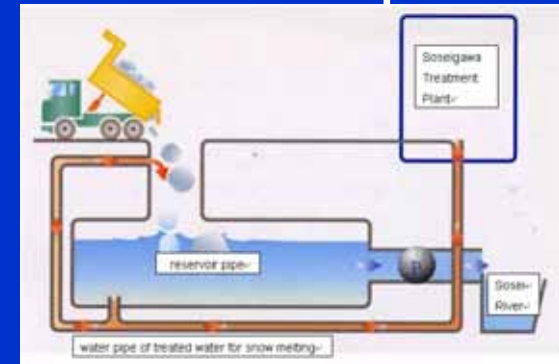
- Actively introducing renewable energy
- Promoting waste reduction and recycling

Introduction of Renewable Energy (1)

- Cooling system utilizing cold energy from snow
- Snow-melting and air heating system effectively utilize waste energy, such as residual heat from processed sewerage or from an incineration plant



Snow-melting system
utilizing residual heat
from processed
sewerage



- Utilization of solar energy generation
- Utilization of woody biomass fuel
- Utilization of refuse-derived fuel (RDF) made from waste and the heat produced by waste disposal for the generation of electricity

Introduction of Renewable Energy (2)

- Production of Bio Diesel Fuel (BDF) by recycling used cooking oil
- Introduction of clean energy vehicles for official cars
- Utilization of LED for street lights and the lights in the City Hall
- Introduction of earth thermal heat pumps, etc.

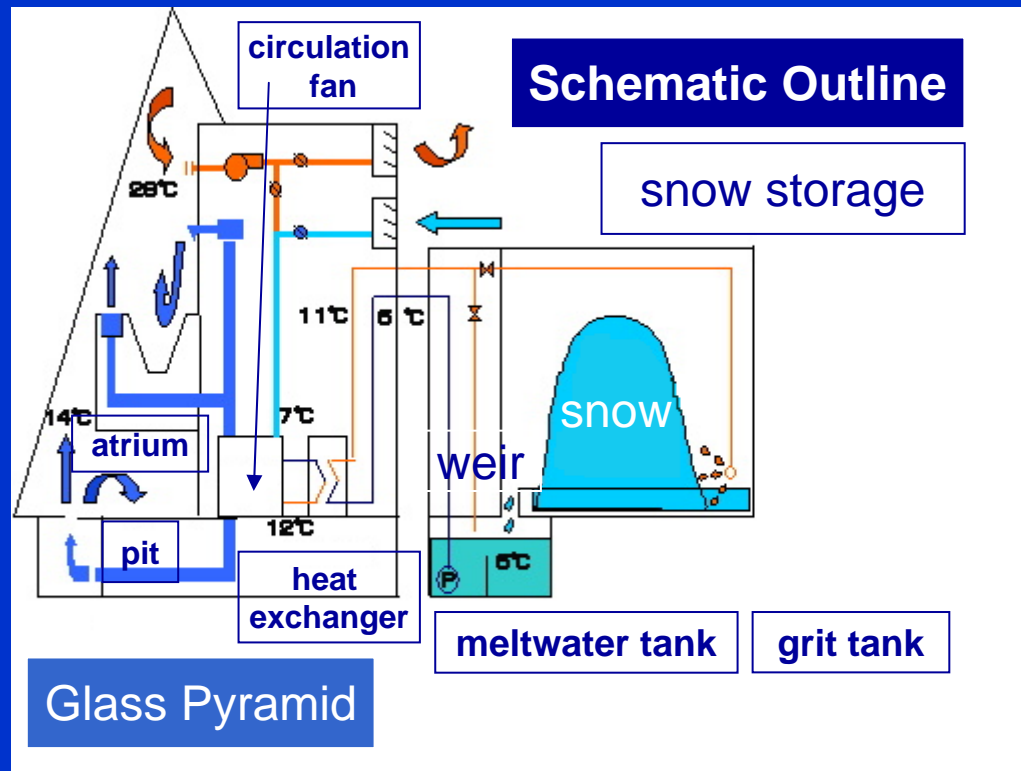


Two electric vehicles have started to be used as official cars of the Nishi Ward Office. During holidays, a system of car-sharing with citizens is conducted.

Introduction of Clean Energy Cars

45 natural gas fueled cars were introduced at the end of 2008.
In total, 134 officially-used cars will be replaced by natural gas fueled ones (about 8% of the total)

Introducing Cold Energy from Snow *(Cooling system utilizing snow* *at the Glass Pyramid of Moerenuma Park)*



Snow is stored in the park, then used as a cooling system during the summer
CO₂ reduction effect; approx. 50t per year

Introduction of Solar Power Generation (Setting solar panels up at elementary schools)

For the purpose of promoting the introduction of new energy, disseminating new energy, and educating about the environment.



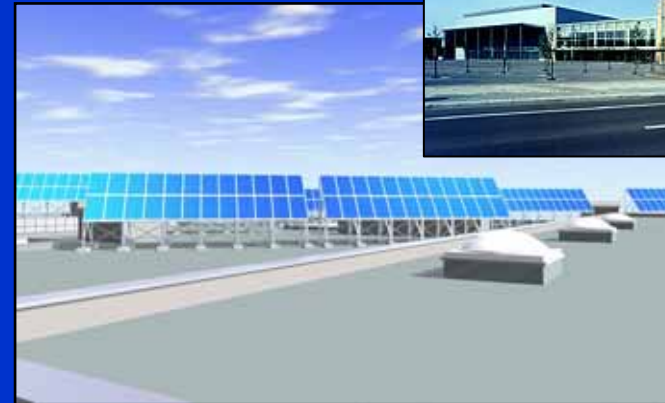
Introduction of Solar Power Generation



**Sapporo City Hall
(projected image)
to be completed in March
2010 – 10kW**



**Sapporo Dome (projected image)
To be completed in 2010 – 90kW**



**Sapporo Convention Center
(projected image)
To be completed in 2011 – 90kW**



Introduction of Woody Biomass Fuel

(Purposes and Efforts to Increase Its Use)

【Purposes】

- Promotion of countermeasures against global warming
(Reduction of CO2 emission through fossil fuel independence)
- Upgrading the self-sufficiency of the energy supply by local production for local consumption system
- Revitalization for the region
(Creation of new industries and employment)
- Promotion of forest improvement and preservation of the forest in the region



wood pellets

【Efforts】

- Disseminate information and educate widely about increasing the use of woody biomass fuel
- Introduce heaters and boilers utilizing woody biomass fuel to city-owned facilities



Utilization of Woody Biomass Fuel

(Introduction to City-owned Facilities)

pellets boiler



Planned to be introduced to Zoological Science Museum (Maruyama Zoo) and school facilities

pellets heater

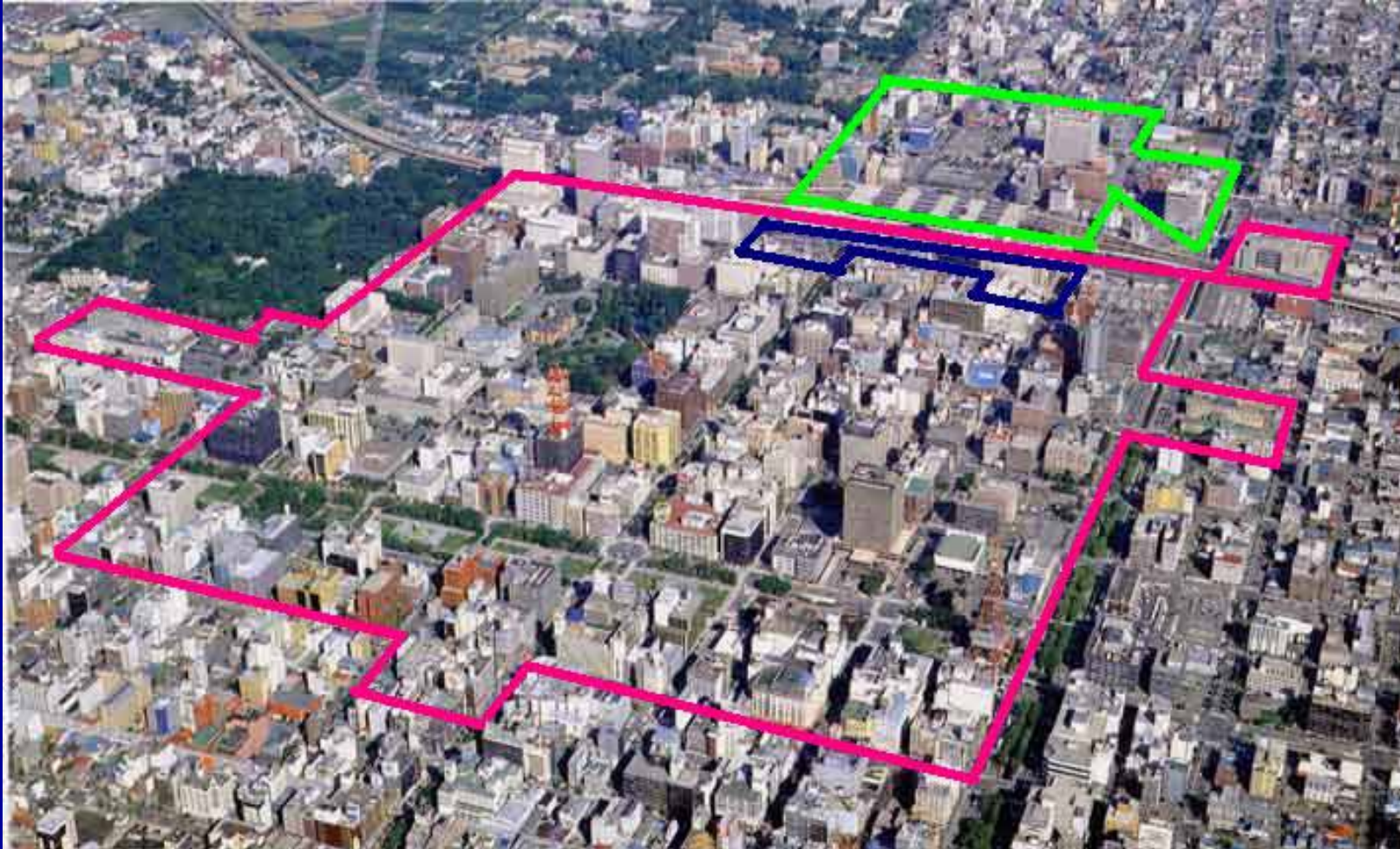


1F Lobby, Sapporo City Hall



Sato Churyo Children's Atelier, Sapporo Art Park

Utilization of Woody Biomass Fuel (for heat supply services in the city center)



Heat-supplied districts in downtown Sapporo

Utilization of LED



~ Let's Eco Design ~



Let's ECO Design: This logo and project were created with the intention of redesigning eco-friendly lifestyles in order to harmonize 'lightness' with 'environment' by introducing 'new light,' such as LED.

Waste Reduction and Recycling (Incineration Plant)

Aims to reduce 240,000t volume of waste disposed of in the following four plants and to close operations of one incineration plant



Hassamu
Incineration
Plant



Shinoro
Incineration
Plant

Over 29 years
in operation,
and planned to
be shut down



Komaoka
Incineration
Plant



Shiroishi
Incineration
Plant

Waste Reduction and Recycling

(Waste reduction by differentiating categories and charging a fee for collection)

Divide waste collection categories into nine, and charge a collection fee for some in order to facilitate reduction of waste

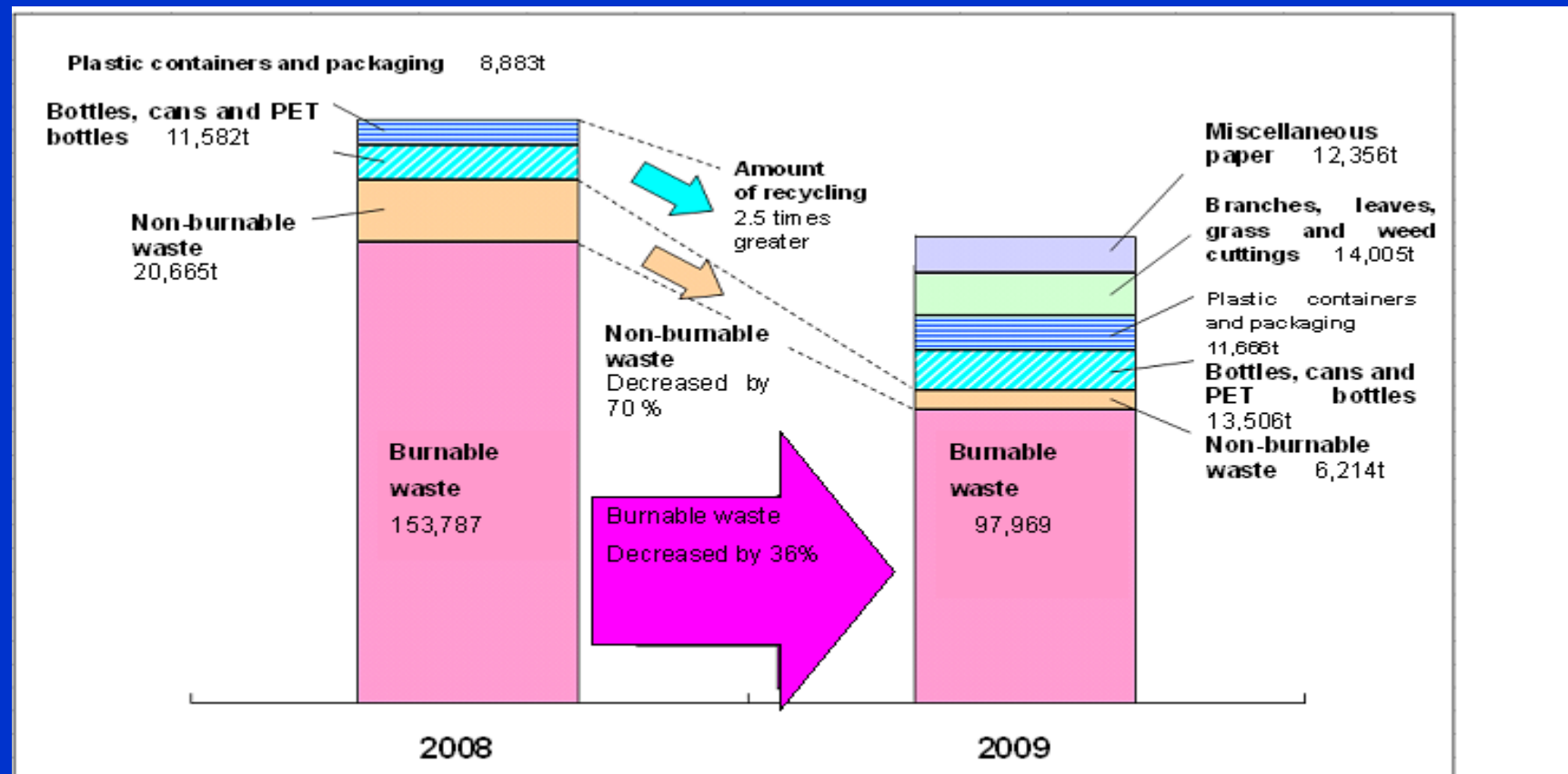
- ① **Burnable waste** 燃やせるごみ ●
- ② **Non-burnable waste** 燃やせないごみ ●
- ③ **Pressurized spray cans, gas cartridges** スプレー缶・カセットボンベ
- ④ **Plastic containers and packaging** 容器包装プラスチック
- ⑤ **Dry batteries** 筒型乾電池
- ⑥ **Bottles, cans, and PET bottles** びん・缶・ペットボトル
- ⑦ **Branches, leaves, grass and weed cuttings** 枝・葉・草
- ⑧ **Miscellaneous paper** 雑がみ
- ⑨ **Bulky refuse** 大型ごみ ●

● . . . fee is charged for collection

Waste Reduction and Recycling (Progress on the Project)

- Emission amount of burnable waste greatly decreased
- Recycling rate is rising with enforcement of garbage and waste sorting system

*Surveyed for four months (from July to November)



Sapporo's 'Eco-Capital' Declaration

(June, 2008)



Sapporo 'Eco-Capital' Declaration, the resolution that each and every citizen will make further effort toward environmental conservation, was drafted by the unified consensus of the citizens.

A Civic Ceremony, where the declaration was presented, was held at the Sapporo Concert Hall "Kitara."

Civic Ceremony of the Sapporo
'Eco-Capital' Declaration



Children's World Summit for the Environment in Sapporo

(June, 2008)



During the three days of the Summit, the participants discussed and considered the theme, “What can we, the young generation, do for the earth?” and issued the Declaration of the Children's World Summit for the Environment in Sapporo to the world.



Declaration Ceremony

Thank you for your time.

