

日本に、  
京都があつて  
よかつた。

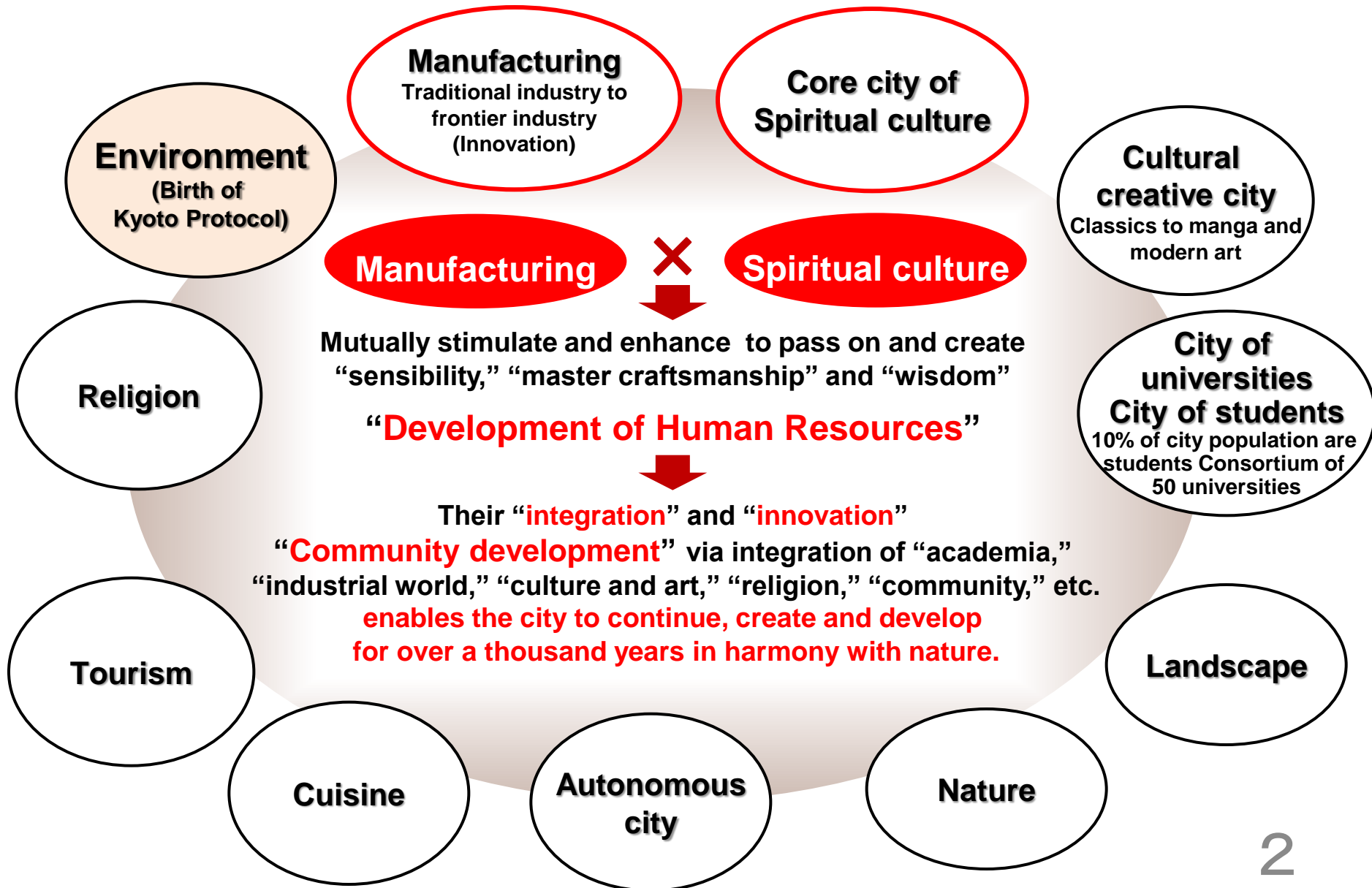
そうだ  
京都、  
行こう。

京都御所 紫宸殿

撮影：三好和義

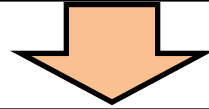
“ DO YOU KYOTO?”  
(Doing something good  
for the environment?)

# Kyoto, a Rare City That Passes on Tradition and Develops for over a Thousand Years without Interruption of Urban Function and Culture



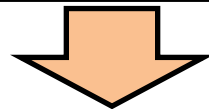
## **Concept of Capital Foundation (794 CE)**

1. *Heian*: peace, safety, tranquility
2. City open to the world: capital without castle walls



## **Declaration of Kyoto as a City Open to the Free Exchange of World Cultures (1978)**

Kyoto where people from all over the world overcome differences of race, religion and social systems to meet together and freely engage in creating new culture.

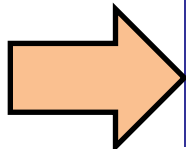


## **The Master Concept of Kyoto City (2001-2025)**

Grand vision of Kyoto City in the 21st century

### **Chapter 1 is “Citizens’ Way of Life”**

**Adopted in the 27 policies of “the Master Plan of Kyoto City”!**



# Way of Life Means

## Kyoto citizens' six "special skills" (from the Master Concept of Kyoto City)

**Good judge**

Sharp eyes for accurate evaluation

**Master  
craftsmanship**

Mastery of craft

**Excellence**

Sharpening everything to the utmost limit

**Endeavor**

Endeavoring, progressive spirit

**Hospitality**

Warm heart welcoming visitors

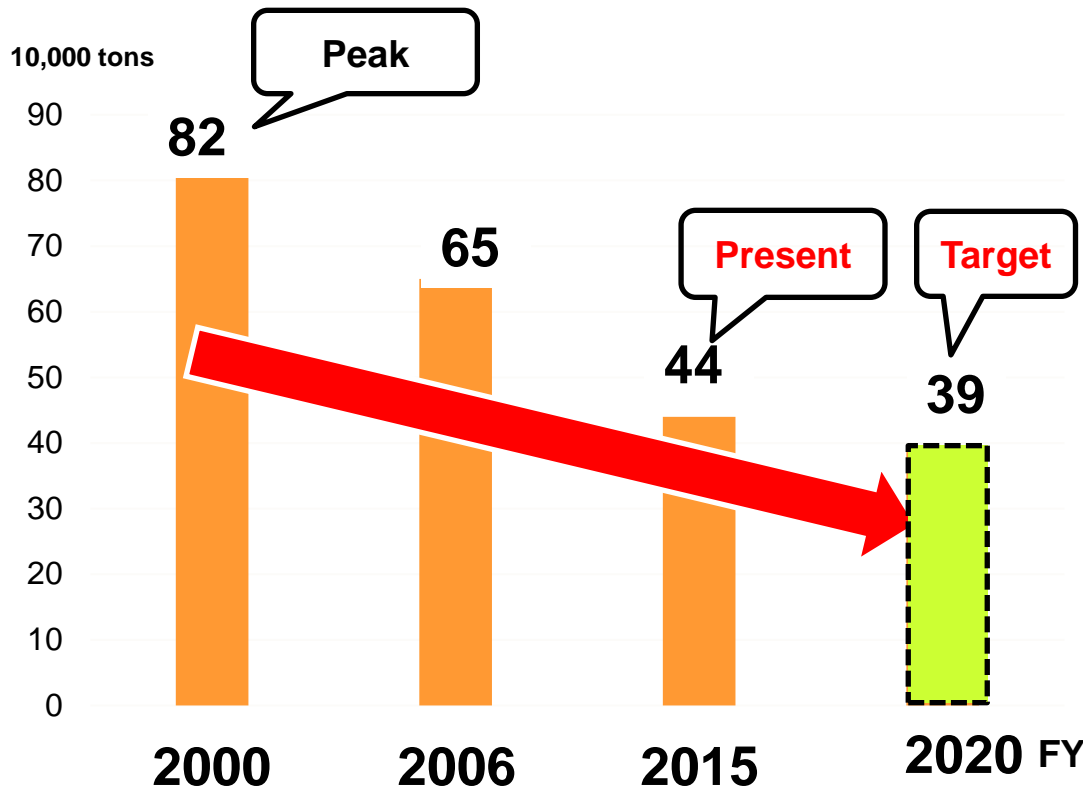
**Frugality**

Prevention of waste (*mottainai*)

# Building an Environmentally Friendly Resource-circulating Society in Cooperation with All Citizens

“*Shimatsu-no-Kokoro*” Regulation, aiming to reduce waste by half

Reduction of total amount of city waste by 46% of its peak  
(2000 ⇒ 2015)



Household waste (per person per day in 2014)

Kyoto City: **429 g**

(The least among the big cities)



Average of other designated cities: **573 g**

Waste treatment cost

**-10.6 billion yen**

36.7 billion yen (2002)

⇒ 26.1 billion yen (2014)

Reduction of waste treatment facilities

**5 facilities ⇒ 3 facilities**

# “Walking City, Kyoto” Approaches to Prioritize Walkers and Public Transport

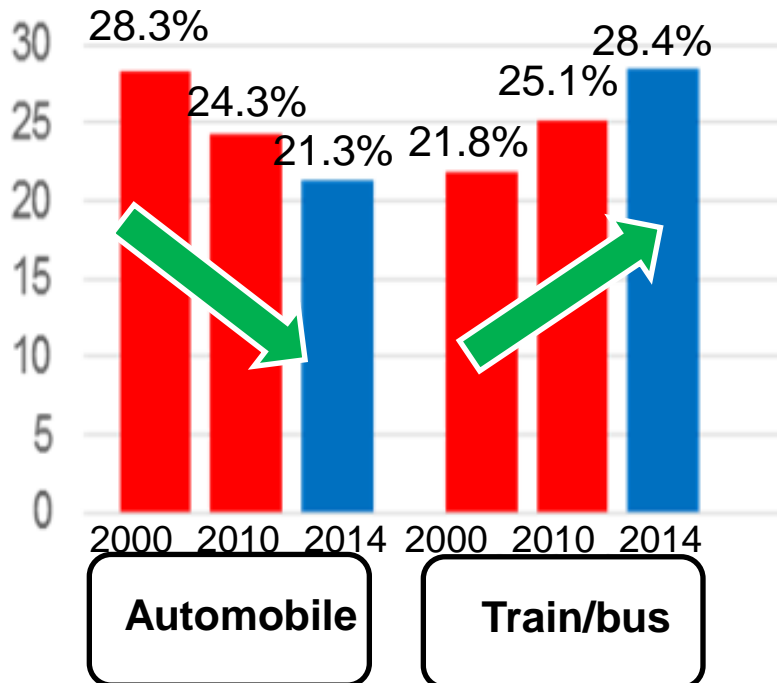
More convenient public transport  
More pedestrian-centric space



“Pedestrian friendly city”

Reducing automobile share ratio

Percentage of visitors to Kyoto  
by private cars



42% 1994

15% 2013

6.3% 2015

# Designated City Council on Renewable Energy

Established in July 2011

Established in the aim to accelerate the development and expansion of renewables in big cities (designated cities) that are great consumers of energy.

Proposals for building a sustainable society using renewable energy  
(July 2016)

Proposal 1: Setting target value for adoption of renewable energy to the extent possible

⇒ Target value of roughly 30% in 2030

Proposal 2: Measures for adopting renewable energy to the extent possible

⇒ Further promotion of decentralized energy system of local production for local consumption, and others

Proposal 3: Realization of a hydrogen-based society

⇒ Improving infrastructure, and support for usage as decentralized power source

# Strategy to Promote the Energy Policy of Kyoto City

Formulated in December 2013

## <Basic policy>

Aim to become a “**sustainable society based on energy without reliance on nuclear power.**”

## <Targets (FY2010 → FY2020)>

- Reducing annual energy consumption by **more than 15%**

⇒ Promotion of thorough energy saving

Achievement of -11.2% in 4 years

- Increasing the amount of renewable energy adoption to **more than three times**

⇒ Further promotion of **renewable energy**

Achievement of 1.5 times in 4 years



# Promotion of Energy Creation and Energy Saving

Execution of pinpoint support that can be offered only by municipalities confronting directly with citizens and business operators

## <Support for citizens>

**Solar system**

**Storage battery system**

**Solar heating system**

**ENE-FARM**  
(Home-use fuel cell)

**HEMS**  
(Home Energy Management System)

## <Support for business operators>

**BEMS for Welfare and medical facilities, schools, etc.**  
(Building Energy Management System)

**FEMS**  
(Factory Energy Management System)

# Megasolar PV

**Start of operation of the nation's first megasolar PV in Kyoto since the enforcement of the FIT law (July 2012)**



Use of city's waste disposal land!

Site area: 9 ha

Power output: 4.2 MW



Operators

SB Energy Corporation

Kyocera Solar Corporation

Kyocera Communications Systems

Co., Ltd.

# Solar PV at Public Facilities

Adoption of renewable energy by citizens, business operators and the city

## Citizens

### **Citizen's Cooperative Power-generation Project**

Citizens jointly fund to install panels in city facilities free of cost (installed in 9 sites)

## Business operators

### **Rent-a-roof Project for Solar PV**

Operators are paid to install solar panels at city facilities (installed at 26 sites)

## Public facilities

141 sites



Toba Treatment Plant



Miyako Ecology Center  
(COP3 Memorial Hall)

# Promotion of Hydrogen Energy

To enhance understanding of hydrogen energy

- Introduce fuel cell vehicles (FCVs)
- Install smart hydrogen stations (SHSs)

- Execution of car sharing (3 cars) for citizens and tourists
- Displays and explanations at various events

**The nation's first**

FCVs can be used as emergency power source in the event of a disaster!

- Additional plans to execute test drive of FCVs using SHSs

Manufacture of CO<sub>2</sub>-free hydrogen from sunlight using SHSs





# Challenges to Develop New Environmental Technologies — (1) Biodiesel Fuel Production Project —

Executed since the birth of Kyoto Protocol in 1997

With the cooperation of citizens and communities, used cooking oil is collected and converted into fuel for use in garbage trucks and city buses

Collecting points of used cooking oil  
(approx. 1,900 points)



Fuel production facility  
(Refining capacity of 5,000 liters/day)



Used in 136 garbage trucks,  
103 city buses  
CO<sub>2</sub> reduction of 2,700 tons/year

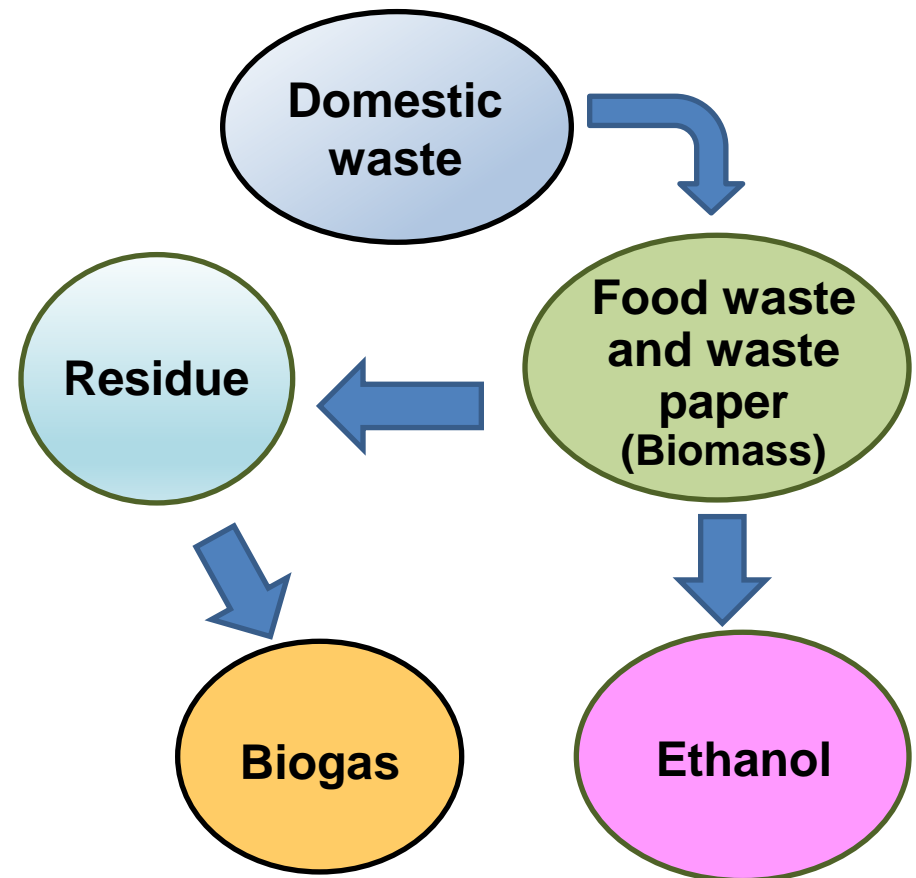
# Challenges to Develop New Environmental Technologies — (2) “Urban Oil Field Finding” Project —

Japan’s first approach to produce ethanol from food waste and waste paper! (from FY2011)

Experimental trials jointly conducted by private sector and academia

(1) Success in producing **ethanol** (60 liters) from **food waste and waste paper** (1 ton)!

(2) Additional success in producing **biogas** (90 m<sup>3</sup>) from residue of above!



# Industry-academia-government Partnership Challenges to Develop Innovative, Energy-saving Technologies

## I Silicon carbide (SiC) power semiconductors

Next-generation power semiconductors. May also achieve 30% energy savings when used in railway cars!

Utilizing research results of Kyoto University, a company in Kyoto succeeded in mass production

## II Cellulose nanofiber (CNF)

New material derived from plant fibers  
Sustainable resource having low impact on the environment  
Five times stronger than steel, but one fifth the weight of steel

Developing various applications.  
Reduction of vehicle body weight will lead to improved fuel efficiency  
= may also realize CO<sub>2</sub> reduction!

# Rich Cuisine Rooted in Community

*Washoku* is the traditional cuisine of Japanese people.

- Use of ingredients **locally produced for local consumption** such as *Kyoyasai* (vegetables grown in Kyoto)
- Mind of **“frugality”** to use ingredients carefully without waste

**Low-calorie cuisine that is rare in the world**



The Ordinance for Global Warming Provision specifies preferred consumption of agricultural, forest and fishery products of the region, and promotion of eating habits harmonious with the environment.



**Energy saving,  
measures against global warming**



December 2013  
Designated as UNESCO  
Intangible Cultural Heritage



Decision has been made to completely move the Agency for cultural Affairs to Kyoto, where the heart and soul of the Japanese have been passed on for over a thousand years.

With the power of culture,  
Kyoto challenges environmental and energy issues!  
Kyoto contributes to energizing Japan and revitalizing regions!

It's good that Japan is in the world.  
Yeah, let's go to Japan!