

Sustainable Region Restoration of the Environment in Hyogo

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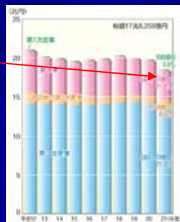
The Outline of Hyogo Prefecture (1)

- ◆ Located almost in the center of the Japanese archipelago, Hyogo has a mixture of modernized society and natural beauty. As such, it earned the nickname "Japan in miniature."
- ◆ Centering around Kobe, the industrial clusters are located along coastal areas of the Seto Inland Sea.
- ◆ Taking a proactive stance to conserve nature such as restoration of oriental white storks, since Toyooka City was the last place they lived wild in Japan.

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Outline of Hyogo Prefecture (2)

- **Area:** Approx. 8,400 square kilometers (12th in the nation)
--- as large as that of Austria
- **Population:** Approx. 5.6 million (7th in the nation)
--- as large as the country of Denmark
The prefectural capital: Kobe City (population: 1.54 million)
- **GDP (nominal GDP):** 18 trillion 300 billion yen
 - Primary industry: 0.6%
 - Secondary industry: 26.4%
(**manufacturing industry: 22.1%**)
 - Tertiary industry: 72.7%
- **Composition by industry in goods delivered**
 - **Steel: 13.0%**
 - Chemical: 11.5%
 - Electronics & machinery: 9.3%
 - Foods: 9.3%



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Restoring the Environment after Industrial Pollution

1960s: The emergence of industrial pollution

Hyogo moved to deal with the issues before the national government

- The enactment of the Pollution Control Ordinance (FY1965)
- The enactment of the Hyogo Prefectural Ordinance for Nature Conservation (FY1971)



Amagasaki City during the rapid economic growth period.

1990s: Significant pollution caused by urbanization and modernized lifestyles

Air pollution and gas emissions as a result of urbanization and sewage contamination

- The enactment of the Hyogo Prefectural Ordinance for Environmental Restoration and Creation (FY1995)



Congestion on the national route 43.

After 2000: Coping with global environmental issues

Taking actions to cope with global warming as a local government, restoration of biodiversity and coexistence of humans with wildlife

- New Hyogo Action Plan to Prevent Global Warming (Revised in FY2006)
- Hyogo Strategic Plan for Biodiversity (FY2009)

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Restoration of the Environment in Hyogo

Reforestation of Mt. Rokko

- In ancient times, Mt Rokko was full of greenery.
- In the Edo Era, fuel and material needs caused aggressive felling.
- In the Meiji Era, forest was cleared and the mountain was bare, showing its earth surface.



Mt. Rokko around 1890

Frequent mudslides

- Hyogo Prefecture started greenery action project from 1902.
- 2 major peaks of Mt Rokko, Nunobiki and Mt. Futatabi, were registered as the Top 100 Forest Bath Sites in Japan in 1986.



Mt. Rokko now

Restoration required more than 100 years.



Building Phoenix Forests in Mt Rokko foothills

- Local residents taking part in improving forests.
- Maintaining forests involving citizens, specialists and volunteers.

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Restoration of the Environment in Hyogo

The 21st Century Forest Project in Amagasaki

- Amagasaki was a leading area of Japanese industrialization for the heavy chemical industry after WW2.
- On the other hand, environmental concerns such as destruction of nature and serious pollution occurred.

The 21st Century Forest in Amagasaki Project Concept (March, 2002)

- Revitalize the coastal area (Approx. 1,000 ha of the southern part of route 43 in Amagasaki City).
- Urban development co-existing with the environment where people can enjoy the comfort that comes with living in a natural environment among water and greenery.

Creating forests for 100 years from scratch

- The Association formed by citizens, enterprises, organizations and government bodies plays a major role.
- Started planting trees in Amagasaki Forest Central Green Space from 2006.
- Seedlings raised from local seeds have been planted by citizens.
- Planting trees in small spaces such as factory parking lots, wall surfaces and so on.



Forest concept area



Amagasaki Forest Central Green Space (finished image)



Citizen-led Forest Building

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Wildlife Management and Conservation

- The issue of forest degradation due to the decline of villages in hilly and mountainous areas.
- Increasing population of deer, wild boar and other wildlife.



Degraded forest

Occurrence of damage in agriculture and forestry, psychological harm

Wildlife Management

- Protection and management plan for deer, bears, monkeys and boars was set by Hyogo Prefecture.
- Population management, damage management, and habitat management are promoted comprehensively under the research by the Wildlife Management Research Center.



Deer proof net

Management of Forests for Raising Wildlife

- Segregation of humans and wildlife by buffer zone
- Raise and manage broadleaf forest with fruit in the innermost recesses of mountains.
- Maintaining forest with the participation of the citizens such as local residents and volunteer staff members.



Buffer zone

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Restoration of the Environment in Hyogo

Conservation of abundant seas

- The water quality in rivers and seas has been cleaned in order to mitigate water contamination and protect human health from significant damage.
- As a result, the water quality had been improved and rivers and seas became clearer, but issue such as decrease of fishery yield and loss of color in seaweed remained.

Rich, beautiful satoumi is essential

- Satoumi is a sea properly managed by humans.

- Conservation of the sea's biodiversity and bioproductivity by securing proper circulation of nutrient salt based on water quality management



Building Satoumi



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Promoting Hyogo's nature to the world

San'in Kaigan Geopark

- Global Geopark Network: UNESCO supports activities in local nature parks including geological assets that are especially important from a scientific viewpoint.

•In 2010, San'in Kaigan Geopark joined the Global Geoparks Network

- The park stretches approx. 110 km from east to west, and approx. 30 km from the south to north and is a vast geological asset.

- Named museum of geological and geographical features, the area is especially known for its geologic heritage.



Ramsar Convention

•In 2012, the lower reaches of the Maruyama River and the neighboring rice paddies were registered as a Ramsar Convention wetland

- Centering on the Homeland for Oriental White Storks, the civic activities to support the reintroduction of storks into the wild are very active.



(Stork rice farming and conservation of rare animals)

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Promoting Environmental Learning/Education

Provide Environmental Education Appropriate for People of All Ages

Environmental Education for Young Children

- Nourish sensitivity through experiencing nature and learning to respect the value of life (carried out in every kindergarten/nursery within Hyogo Prefecture)



Kindergarteners experience agriculture

Environmental Education for School-aged Children

- Experience natural activities in farmland, rural forest and waterfront with regional support (for 3rd graders in public schools)

- Attend lessons held in eco-learning institutions to nourish sensitivity and sociality in nature (for 5th graders in public schools)



Nature observation in Satoyama

Environmental Education for Adults

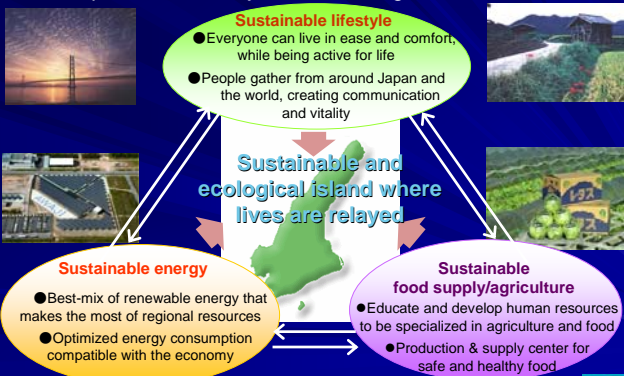
- Regional green supporters assist environmental learning in elementary schools, kindergartens and nurseries - approx. 1,000 registered members.)

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Awaji Green Future Island Project

Three pillars of the Project and future goal



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Awaji Green Future Island Project

Case examples in progress

Sustaining energy

- Large-scale PV power generation using idled land and wind power generation using strong westerly wind.
- Install PV power generation plants on idled land (former quarry sites).
- Examine the possibility of using strong westerly wind and shallow ocean for offshore wind power plant.



Sustaining agriculture and food

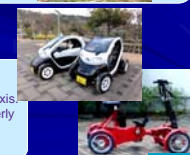
- Sustaining agriculture and food
- "Pasona Challenge Farm"- nurturing talent Support the "Pasona Challenge Farm" project. Also provides comprehensive support for program participants to find jobs and remain in the local area upon completion of the program, and to make use of uncultivated farmland.



Sustaining livelihoods

Sustainable transportation system friendly to elderly.

- Seek a sustainable method of transport in agricultural and fishing villages where aging is progressing by using community buses and on-demand taxis
- Develop and test bikes and four wheeled powered bikes that prevent elderly from falling down and maintain their health and to develop and conduct verification tests on newly developed small powered vehicles.



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