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**FUTURE CITY MODEL PROJECTS**

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Introduction

Japan currently faces many issues including declining birthrates and a growing elderly population, a stagnant employment market, and the increasing burden imposed by social security, all of which have left the Japanese people feeling as though the country is stuck in a rut. In order to overcome this difficult juncture there is a need for Japanese companies to recover their vigor and pull the nation towards economic growth.

Japan has hitherto managed to achieve high growth by establishing a position as a preeminent nation founded on technology. However, while the emerging nations are now launching themselves on the world market, armed with cheap and ample labor, Japan is starting to fall behind the global economic growth rate.

In order for Japan to win through against fierce global competition on a medium and long-term basis, we will have to achieve an ‘innovation-driven country’ in which we polish up our own twin strengths of ‘technical power’ and ‘personnel power,’ and create a variety of innovations before anyone else in the world.

In an attempt to embody this vision, Keidanren has decided to implement its Future City Models Projects.

*Please note that this material was prepared prior to the Great East Japan Earthquake, and it is possible that we will alter certain projects in accordance with the impacts of the disaster.*
What the projects seek to achieve

- **Solve social issues**
  Create an issue-solution-type innovation model that will sustain Japan’s future economic growth by bringing together cutting-edge technologies, products and services.

- **Create urban spaces in which anybody would be happy to live**
  Attempt to create adequate collaboration with communities and residents, and in a manner reflecting their intention, solve the issues they face, improve people’s quality of life, and thereby ensure the sustainable progress of regions.

- **Boost industrial competitiveness by exercising comprehensive power**
  Bring together the technologies, products and services that companies have in a manner that transcends sectors, and package them so they can fight ahead using comprehensive power.

- **Grow through domestic and overseas expansion**
  Aim to apply the results achieved to wide expansion across domestic regions and the overseas market.
What are the Future City Model Projects?

- **Locations**
  - Implemented in 11 cities and regions throughout Japan

- **Contents**
  - Will be implemented combining several functions from the following fields:
    1. Low carbon/ environmental symbiosis
    2. Advanced medicine/ nursing care
    3. Next-generation transportation/ product distribution systems
    4. Cutting-edge R&D
    5. Next-generation electronic government/ electronic society
    6. International tourism hubs
    7. Advanced agriculture
    8. Child-rearing support/ advanced education

- **Main players**
  - Companies will be encouraged to enthusiastically implement projects by themselves in areas where it is possible for them to do so
  - There will be collaboration and cooperation with local authorities, medical institutions, educational institutions, research institutions, agricultural cooperatives and so on
  - There will be collaboration with government, local authority and private sector projects currently underway or being planned

- **Use of government and local authority mechanisms**
  - In the event that initiative cannot be implemented without the relaxing of regulations or seed money, the government’s Comprehensive Special Zones System, Future Cities Concept, and other mechanisms will be used

- **Period**
  - Scheduled to be between two to five years
  - Participating companies will decide for themselves about commercialization and business development after verification testing
1. Southern Iwate Recycling Biomass City

- **Location**: Southern part of Iwate Prefecture
- **Main Players**: Kamaishi City, Nippon Steel Corporation, Toshiba Corporation, etc.

- Use woody biomass derived from recycled materials such as forest thinnings for power and gas production
- Produce nanocarbon by using gas extracted from wooden chips
- Construct an application mechanism for waste edible oil, night soil and fishery waste

**Creation of a recycling-oriented society**

- **BDF production facilities**: Energy (Bio diesel Fuel (BDF))
- **Heat network**: Energy management system
- **Gasification plant**: Unused wood biomass
- **Thermal power plant**: Heat degradation process

- **Facilities turning night soil sludge into fertilizer**: Fertilizer
- **BDF production facilities**: Waste cooking oil
- **Heat network**: Energy management system
- **Gasification plant**: Unused wood biomass

- **Forestry**: Forest improvements
- **Fisheries products**: Fisheries related waste
- **Sea**: Fishing

- **Public facilities**: Places of business Manufacturing points etc
- **Factories**: Energy (gas/ electricity)
- **Supermarkets etc**: Ordinary homes
- **Factories**: Energy (gas/ electricity)
- **Energy (gas/ electricity)**: Fisheries products
- **Non-dilution methane fermentation plants**: Energy (gas/ electricity)
- **Food waste**: Energy (gas/ electricity)
- **Fishing**: Energy (gas/ electricity)

- **Heat network**: Energy management system
- **Carbides**: Heat degradation process
- **Nano-carbon**: Hi-tech materials made from wood resources and used in industry
- **Waste cooking oil**: Facilities turning night soil sludge into fertilizer
- **Heat network**: Energy management system
2. Fukushima Medical Care Service City

Location: Fukushima Prefecture
Main Players: Hinoemata Village, Nippon Telegraph and Telephone East Corporation, etc.

- Share patient information among hospitals and clinics, and build a medical care system covering the entire region
- Provide remote health consultation and medical care through information terminals such as videotelephony
- Share patient information between ambulances and hospitals, provide demand responsive transport service, support families raising children, by using ICT

Town development covering the entire region for the aging society

Local medical care cooperation network

- Create a seamless medical care cooperation (Stroke, Diabetes)
- Ensure security, gather treatment information of cooperation hospitals
- Build a medical care system covering the entire region by sharing treatment information including process

Remote health consultation and medical care

- Reduce burden on both patients and doctors through remote medical care
- Reduce patients’ burden such as long-distance hospital visit

Providing additional value using ICT

- Protection etc
- Collaboration when transporting by ambulances
- Demand-responsive transportation
- Child-rearing and shopping support

- Provide peace of mind and safety to locals through disaster prevention and emergency warnings. Two-way communication through info terminals
- Sharing data on patients being transported to assess the seriousness of illness or injury, and provide swift and appropriate treatment before hospitalization
- Support for creation of a suitable acceptance system
- Provide a reliable, safe and inexpensive transport system for local people to help them visit hospital or shop
- Enrich everyday life services with TV phones and info terminals
3. Hitachi Smart Industrial City

Location: Hitachi City, Ibaraki Prefecture
Main Players: Hitachi City, Hitachi, Ltd., etc.

- Achieve energy savings through energy optimization in factories
- Provide skill education for non-Japanese workers as well as local SMEs

Carbon reductions led by factories

- Achieve energy savings by optimizing energy use at factories
- Creation of environmentally considerate businesses in industrial cities including process

Increase numbers of people interacting through skills training etc

- Establish a reputation as a center for skills training aimed at foreigners and local small-to-medium-sized businesses, and increase numbers of people interacting

*FEMS: Factory Energy Management System
4. Kashiwanoha Campus City

- Create a safe and healthy residential environment through visualization of health control, collaboration between home medical and nursing care, etc.
- Develop a low-carbon town by introducing low-carbon technologies to houses, buildings, transportation, etc.
- Create new business and employment by promoting urban agriculture, fostering regional ventures, etc.
- Establish locally-owned town management by setting up an organization to support regional partnership

**Location**
Kashiwa City, Chiba Prefecture

**Main Players**
Kashiwa City, Mitsui Fudosan Co., Ltd., Hitachi, Ltd., Sumitomo Chemical Co., Ltd., Urban Design Center Kashiwa-no-ha (UDCK), TX Entrepreneur Partners (TEP), etc.

**Creation of a safe and healthy residential system**
- Improving visualization of health care
- Seamless collaboration between home medical and nursing care
- Social businesses provided by healthy elderly people

**Giving high-added value to agriculture resources**
- Encouraging urban agriculture and plant factories
- Use of fallow farmland
- Creation of a new agriculture and food culture

**Organization to support regional partnership**
- UDCK
  - Urban Design Center Kashiwa-no-ha

**Locally-owned town management**

**Creation of a low-carbon community**
- Accelerate and concentrate introduction of low-carbon technologies
- Experimental introduction of low-carbon infrastructure/transport system
- Management of flexible infrastructure development

**Creation of new business and employment**
- Preparation of an environment fostering regional ventures
- Accumulating R&D functions
- Attracting researchers and highly skilled personnel from within and outside Japan
5. Fujisawa Sustainable Smart Town

Location: Fujisawa City, Kanagawa Prefecture
Main Players: Panasonic Corporation, Fujisawa City, etc.

- Reduce CO2 emissions for the entire city by introducing energy saving, energy creation, and energy storage solutions
- Introduce community services such as advanced security, mobility, and healthcare

FUJISAWA Sustainable Smart Town concept (image)

- Introduce energy saving, creation, and storage solutions
- For the entire town
  - CO2/waste reductions
  - Energy Local production for local consumption
  - Relief/safety
  - Efficient social infrastructure

- For the entire house
  - Detached houses
  - Condominiums
- For the entire store
  - Commercial facilities
  - Roads
- For the entire medical and welfare facility
  - Facilities for the elderly
  - Parks
- For the entire public facility
  - Community Grid
  - Health care
  - Security

Mobility
6. Toyota Next-generation Energy Mobility City

**Location**
Toyota City, Aichi Prefecture

**Main Players**
Toyota City, Toyota Motor Corporation, Sumitomo Chemical Co., Ltd., Nagoya University, etc.

- Introduce advanced energy management system which creates, saves, and stores energy for houses and communities
- Introduce next-generation transportation systems such as ITS and next generation vehicles
- Demonstrate health monitoring system which acquires, saves and utilizes human health information by using on-board equipment

**Medical sector**
- Noncontact measurement of eyeball movements, head movements, pupil diameter
- Level of consciousness, stress, exhaustion, attention distribution

**Agricultural sector**
- Horizontal development through city
- Collaborations with the Toyota City Center for Agricultural Life Creation

**Environment and Energy, Transportation**
- Best energy use at home
- Best energy use in commercial and public facilities
- Establish low-carbon transportation system
- Total Life-style Assistance
- Car sharing, park and ride
- Hydrogen gas stations
- Conveniences stores
- Offices, factories, supermarkets
- BRT (Bus Rapid Transit)
- Personal mobility
- Convenience stores

**Medical sector**
- Integrated system for medical and health data
- Everyday health data
- Feedback
- Measuring heart rate, breathing, blood pressure, temperature and perspiration using an in-vehicle sensor
- Noncontact measurement of eyeball movements, head movements, pupil diameter

**Agricultural sector**
- Integration of agricultural life creation
- Live Camera
- Rainwater tank
- Water film cooling system
- Fertilizing/Irrigation system

**Environment and Energy, Transportation**
- Apartments
- HEMS
- Total Life-style Assistance
- The eco-points
- Hydrogen gas stations
- Personal mobility
- Convenience stores
- Offsites, factories, supermarkets
- Convenience stores
- BRT (Bus Rapid Transit)
- Car sharing, park and ride
7. Kyoto e-BUS Network City

- **Location**: Kyoto City, Kyoto Prefecture
- **Main Players**: Kyoto City, Mitsubishi Heavy Industries, Ltd., etc.
- Introduce e-BUS (electric bus), e-BRT (electric Bus Rapid Transit)
- Introduce ‘Park and Ride’, and ‘Transit mall’

**Low-carbon transportation system**

- **e-BUS/e-BRT**

**Switch to public transportation**

- **Park & Ride**

**Transport hub**

- **Transit mall**

**Image of the e-BUS Network City**

- Driving modal shift, Supporting vulnerable road users, Creating community’s vibrancy

**Image sources**:
- Low-carbon transportation system: [source](http://www.umwelt.jp/top/top_foto/010119_P&R_Remhingen.JPG)
- Park & Ride: [source](http://homepage1.nifty.com/wanpaku/lrt/Transit%20Mall/lrt_mall.htm)
- Transit mall: [source](http://homepage1.nifty.com/wanpaku/lrt/Transit%20Mall/lrt_mall.htm)
8. Yamaguchi Active Aging City

**Location**
Yamaguchi City, Yamaguchi Prefecture

**Main Players**
The Yamaguchi Chamber of Commerce and Industry, Hitachi, Ltd., Yamaguchi City, etc.

- Establish an advanced medical care center for early detection and effective cures for cancer and lifecycle diseases
- Promote ‘Slow Tourism’ at ‘Slow Food University’
- Establish a mechanism for sharing human resources, goods, funds and information through community networks

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**Creation of advanced medical treatment centers**

**Advanced medical treatment center**
- Advanced treatment to effectively cure cancer
- Detection of disease at very early stages
- Active senior town

**Modern day hot spring treatment center**
- Recreation of hot spring treatment and collaboration with traditional Chinese medicine
- Development of hot spring therapy
- Preparation of respite care system
- Collaboration with the gymnasium, etc.

**Experiencing the bounty of mountainous regions**
Achieving a slow life

- Chinese Medicine Village
  (putting to good use the local topography)
- Slow Food University
- Housing with a vegetable plot, lodging-type vegetable plots,
  **Slow tourism**

**Global communication city**

- Global education at Yamaguchi University
- Global responses to education at all school stages
- Citizen tourism concierges
- Japan’s Christmas starts in Yamaguchi

**Project for strong links and bonds with the region**

**Public guardianship system**
- Volunteer-townscape activities point system
- Links point system
- Peace of mind for businesses and the elderly

**Place for practice and education**
- Housing/vegetable plots
- Places for practice and education

**Knowledge/human resources**
- Work training for kids
- Human resources

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**Integrated card covering health, medical, drug, vaccination information**

**Regional medical information collaborative hub center**

**Reduction in physical and financial burden of citizens through effective treatment and prescriptions**

**IC insurance card, unified patient registration cards (lifelong health records)**

**YCAM Xavier Memorial Church**

**Environmental protection**

**Chinese Medicine Village**
(putting to good use the local topography)

**Provision of agricultural produce and Chinese medicine with high added value**

**Provision of places for health improvement**

**Slow life students coming to learn that ‘Japan’s cuisine is the world’s cuisine’**

**Provision of agricultural produce and Chinese medicine with high added value**

**Provision of places for health improvement**

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**Global tourism concierges**

**From round the world to learn**

- Elderly learn too

**Safety checks/Emergency warnings**
- Regional image sharing (y-tube)

**Human resources**

**Support/distribution**

**Collaboration**

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**Citizen tourism concierges**

**Work training for kids**

**Human resources**

**Tokuji forest therapy**

**Public guardianship system**
- Volunteer-townscape activities point system
- Links point system
- Peace of mind for businesses and the elderly
9. Saijo Agricultural Innovation City

**Location**
Saijo City, Ehime Prefecture

**Main Players**
Saijo City, Sumitomo Chemical Co. Ltd., Mitsubishi Heavy Industries, Ltd./ Mitsubishi Agricultural Machinery Co., Ltd., Panasonic Corporation, etc.

- Conduct unmanned farm work and targeted pesticide spray using GPS technology, and low environmental impact agricultural production
- Innovate the distribution of agricultural products by using ICT for enhancing traceability and introducing an automated process management system
- Extensively use ICT at school for increasing energy-efficiency of school facilities, improving educational materials, and enhancing student security on the way to and from school

### Innovation in agricultural operations

- **Seedlings cultivation**
  - Introduce materials for production efficiency
  - Reduce effects on the environment by using green house

- **Open culture**
  - Promote advanced agriculture
  - Reduce the effects on the environment through recycling agriculture

- **Package center**
  - Promotion of mechanization and automation
  - Systemize process management

### Innovation in agricultural produce distribution

- **Efficient delivery with ICT**
  - Freshness-keeping
  - Traceability

### Improvement of cutting-edge ICT and environmental technologies school

- **Enhancing student security on the way to and from school**
  - System for checking location using electronic tags

- **Use of electronic devices**
  - Distribution of info terminals and digitization of teaching materials. Enrichment of digital educational contents and more efficient school administration

- **Clean energy schools**
  - Energy-saving lighting(LED, organic EL lighting etc.), making energy consumed cleaner through the use of solar panels etc.
10. Kitakyushu Asia Strategic Environmental City

Location: Kitakyushu City, Fukuoka Prefecture
Main Players: Kitakyushu City, Kitakyushu Smart Community Creation Council, Global Water Recycling Solutions Technology Research Association, etc.

- Build a ‘Smart City’ by using next-generation technologies such as a Smart Grid
- Demonstrate water business such as seawater desalination and reclaimed sewage contemplating overseas markets
- Build environment-friendly responsive factories where CO2 emission is reduced drastically
- Build a research, development and production center of the next-generation environment-friendly cars in Asia

Smart community creation project

- Efficient energy use (smart meters, solar cells). Making housing more energy efficient
- Encouragement of public transport use, introduction of next-generation environmental cars
- Checking safety from state of electricity use
- Checking safety from state of electricity use
- Exporting technologies we have overseas
- Health management services
- Promotion of environmental learning, eco-tours, e-learning
- Smart houses
- On-demand transport
- Smart factories
- Smart Offices
- Research institutions

Overseas water business - Water Plaza Kitakyushu -

- Coasts
  - Sea water
  - Release
  - UF treatment
  - Non-chemical
- Low energy
  - Power recovery
- Medium pressure pump
- Low pressure RO
- Concentrated water
- Produced water (from industry)
- Valuable material recovery
- Enriched removal of viruses
- Ultrafiltration (UF)
- Enhanced removal of viruses
- Ultrafiltration (UF)

- Cities
  - Wastewater (sewage)
  - MBR
  - Low pressure pump
  - Produced water (from industry and agriculture)
  - Produced water (from industry)
  - Produced water (release)
  - Treated water (release)

Expansion to Asia

All sorts of options to suit users’ needs possible
NB: Dotted line is example of research theme using advanced technologies
11. Okinawa Logistics Hub City

Location
Okinawa Prefecture (Naha City, etc.)

Main Players
Okinawa Prefecture, All Nippon Airways Co., Ltd., Naha City, etc.

- Build an international logistics hub in East Asia by designating the airport and the port as a Free Trade Zone
- Construct a pioneering model such as collaboration between air and ocean shipments, and saving manpower and energy in logistics

Okinawa, in the middle of East Asia

Asian air cargo routes and Japanese air routes

Establishment of an international logistics economic zone

Okinawa STOCK Center

Realizing an international logistics hub: Japanese quality/ Asian costs/ Lower environmental burden

IN (From Asia & Japan)
Ship or Air
Automatic transport between airport, port and logistics warehouse

Okinawa STOCK Center
Service, parts (repairs/ replacement parts) Dispatch point for medicines and goods sold on-line
Various types of preferential treatment such as tax breaks

OUT (To Asia & Japan)
Late night departure Air Early morning arrival
Simplification of customs and quarantine clearance
Creation of new industries and employment

Cargo network between Naha Airport and rest of Asia
Enhanced domestic air route network

source: Naha Port Authority