

Activating Industrial Clusters

What are industrial clusters?

Historical background

- With such technical innovations as IT and biotechnology, we have entered the age when regional SMEs work on the development of new technologies and products targeting the global market in cooperation with other companies, universities, large companies, etc.
- Regional SMEs must challenge new businesses to survive in this time of intensifying international competition and collapsing business affiliation.

Industrial clusters

- In order to enhance such innovations and strengthen industrial competitiveness, it is very effective for SMEs accumulating in the region and university researchers, etc. to have active exchanges, establish a horizontal cooperative relationship as an alternative to business affiliations in the past, and create new industrial accumulations (industrial clusters*) that aim at cooperative technological development and new business development.

Policy activities

- MET I has been promoting the Industrial Cluster Plan since FY 2001.
 - Many foreign countries, including the United States, Germany and Finland, have been promoting the creation of industrial clusters.
- Industrial cluster is a concept proposed by Professor Michael Porter of the Harvard Business School.

The Industrial Cluster Plan

- Promoting projects to create industrial clusters for 19 extensive areas/industrial fields nationwide in consideration of the research and development ability of the region and the characteristics of industrial accumulation in the region.
- The Officials of the Bureau of Economy, Trade and Industry (about 500) established close cooperative relationships with about 5,000 managers of SMEs that intend to challenge new businesses and the researchers, etc. of more than 200 universities.
- Providing comprehensive support for the development of new businesses by the following measures, and promoting the creation of industrial clusters

(i) Support for industry-university-government/inter-company exchanges and cooperation in the region

- Holding of workshops, exchange meetings, seminars, etc.
- Provision and exchange of information by e-mail/via Web site
- Promotion of industry-university-government/inter-company exchange and cooperation by using coordinators
- Support for the cultivation of market, such as introducing specialized trading companies.
- Support for the activities of promotion organizations that play a central role in the creation of industrial clusters by the private sector

(ii) Support for the development of practical application technologies by taking advantage of regional characteristics

- Subsidy for the development of practical application technologies: About ¥30 million per year (148 cases (FY 2002))
- Regional industry-university joint research commission expenses: Around ¥100 million per year (49 cases (FY 2002))

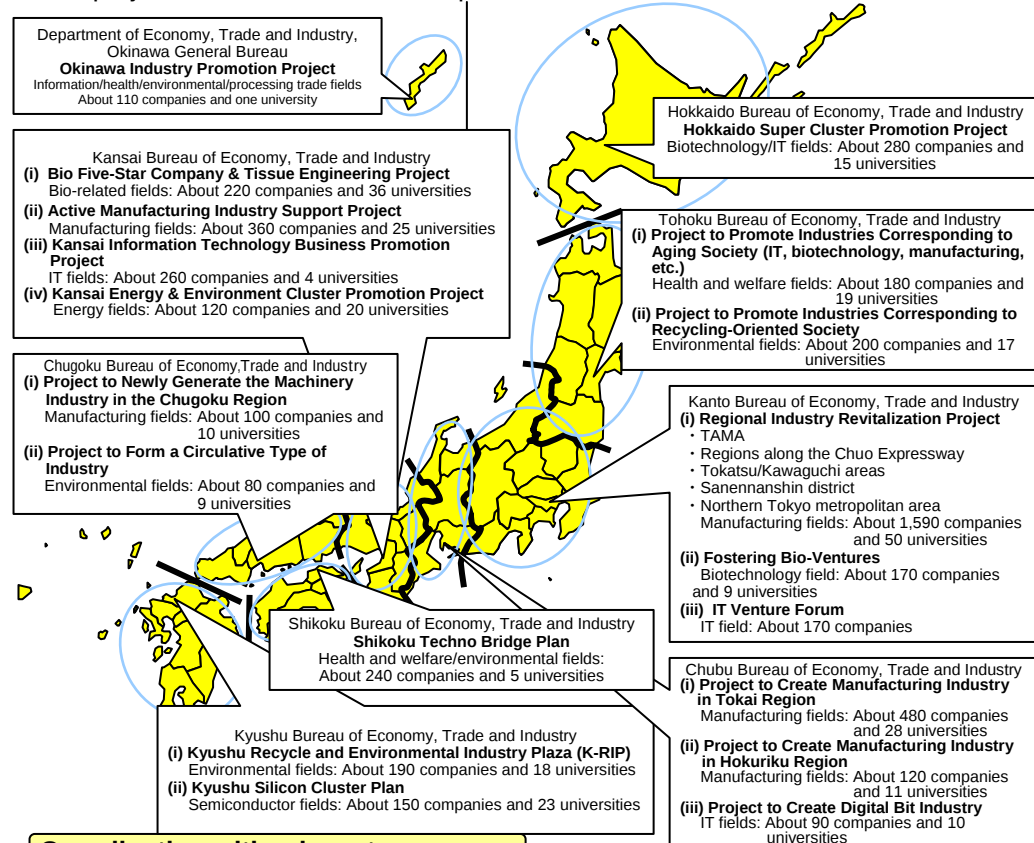
(iii) Establishment of business incubators

- Establishing business incubators that serve as a core of the industrial cluster (vicinity of the Honjo Campus of Waseda University, the Kashiwa Campus of the University of Tokyo, the Katsura Campus of Kyoto University, etc.)

[Relevant budgets]

- Initial budget for FY 2002: ¥35.3 billion
Competitive rate for the offering of supporting measures for the development of practical application technologies: 5.1
- Supplementary budget for FY 2002: ¥9.1 billion
Expected competitive rate for the offering of supporting measures for the development of practical application technologies: 5.9
- Initial budget for FY 2003: ¥41.3 billion
Expected competitive rate for the offering of supporting measures for the development of practical application technologies: 8.3

- 19 projects nationwide, 5,000 companies and 200 universities -



Coordination with relevant measures

Cooperation with the Ministry of Education, Culture, Sports, Science and Technology (Project for Creation of Knowledge Clusters)

Putting the results of basic research conducted at the accumulations of research institutes in 15 districts nationwide into practical application/business.

- Establishing the "Regional Cluster Promotion Council" in each region with the participation of relevant local government, METI and MEXT.
- Holding a "joint research results presentation meeting" about once a year for each region to promote an information exchange between participants in the relevant business.

Cooperation with Financial Services Agency (Local Financial Institution)

Holding of the Conference of Financial Institutions Supporting Industrial Cluster Plan

Cooperation with Local Government (Plan for Special Zones for Economic Structural Reform)

Industrial cluster in the relevant region supports companies that develop new businesses by utilizing the effects of regulatory reform in the special zones.

- e.g. **Plan for Special Zones for Industry-University-Government Cooperation Centering on Hokkaido University (Sapporo, Hokkaido)** ← Hokkaido Super Cluster Promotion Project
- Plan for Special Zones for Advanced Medical Industry (Kobe City)** ← Bio Five-Star Company & Tissue Engineering Project
- Fukuoka Plan for Special Zones for Asian Business (Fukuoka City, Fukuoka)** ← Kyushu Recycle and Environmental Industry Plaza (K-RIP)

Prior Examples of the Industrial Cluster Plan

Hokkaido IT/Biotechnology Industrial Clusters (Hokkaido Super Cluster Promotion Project)

Participating companies

IT: About 230 companies
Biotechnology: About 50 companies

Otaru University of Commerce

Asahikawa Medical College

Obihiro University of Agriculture and Veterinary Medicine

Sapporo Valley
Hokkaido University
Sapporo Medical University
Hokkaido Tokai University
AIST Hokkaido Center

Accumulation of industries/technologies

- Information-related industries (around the north exit of Sapporo Station, etc.)
- Bio-related industries such as food-manufacturing industry
- World-class researchers in sugar chain engineering, etc.

Private promoting organizations and leaders

"Hokkaido IT Cluster Forum"

- Chairman of the Working Council: Akinori Takahashi, (President CEO, Data craft Co., Ltd.)

"Hokkaido Bio-Cluster Forum"

- Chairman: Ken-ichi Kosuna (President, Amino Up Chemical Co., Ltd.)

The cooperation of the whole community (participating organizations, etc.)

Local governments : Hokkaido Prefecture, and Sapporo City
Universities, etc. : 15 (Hokkaido University, Otaru University of Commerce, etc.)

Public research institutes: 5 (Hokkaido Industrial Research Institute, AIST Hokkaido, etc.)

Business incubators: 5 (Collabo Hokkaido, Innovation Plaza Hokkaido, etc.)

Fund supply, etc. : 44 (Hokkaido Venture Capital Inc., Hokkaido Technology Licensing Office, Co., Ltd., Hokkaido Economic Federation, etc.)

Activities

(FY 2002)

- Creation of technological database, etc. for publishing the technical capabilities of IT/biotechnology companies (for 458 companies)
- Holding of business exchange meetings and technology exchange meetings (About 700 participants)
- Formation of diversified business support networks such as the Partners Outside Hokkaido of Hokkaido Biotechnology Industrial Clusters(*) (683 organizations in total)
*With the participation of 40 venture capital companies outside Hokkaido

Technological development utilizing public assistance

(FY 2001-2002)

¥2.18 billion was invested in 56 cases (73 companies and 26 universities).

Cooperative Projects for Creation of Intelligent Clusters

- Creation of Sapporo IT Carrozzzeria (Hokkaido)

Manufacturing Clusters in the TAMA (Project to Revitalize Industry in the TAMA)

Participating companies

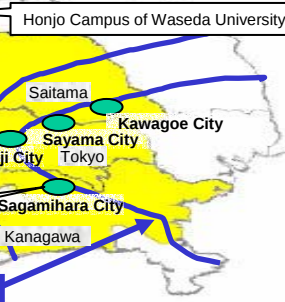
About 260 companies

Secretariat of Greater Tokyo Initiative
TAMA-TLO Ltd.

Sagamihara Incubation Center

Metropolitan Inter-City
Expressway

Route 16



Accumulation of industries/technologies

- Cutting-edge product development-based companies, and basic technology-based companies
- About 40 universities of science and technology and major companies' research institutes

Private promoting organizations and leaders

"Greater Tokyo Initiative"

- Chairman: Yuji Furukawa (Academic Dean, Graduate School of Engineering, Tokyo University of Agriculture & Technology)

The cooperation of the whole community (participating organizations, etc.)

Local governments : 17 (Sayama City, Hachioji City, Sagami City, etc.)
Universities, etc. : 27 (Tokyo University of Agriculture and Technology, University of Electro-Communications, etc.)

Public research institutes: 3 (Tokyo Metropolitan Industrial Technology Research Institute, Kanagawa Industrial Technology Research Institute, etc.)

Business incubators: 3 (Entrepreneurs Office of Fuji Electric Co., Ltd., Sagami Incubation Center, etc.)

Fund supply, etc. : 84 (Seibu Shinkin Bank, TAMA-TLO Ltd., Sayama Chamber of Commerce and Industry, etc.)

Activities

(FY 2002)

- Managerial/technical assistance by coordinators responding to problems
(A total of 289 coordinators were dispatched to 55 companies.)
- Holding of ordering-exchange meetings and technological presentation meetings (About 900 participants)
- Activities of regional exchange meetings (Mini-TAMA Councils)
- Provision of information via Web site
(Number of hits: 2,000-3,000 per day, and 100,000 per month)

Technological development utilizing public assistance

(FY 2001-2002)

¥1.73 billion was invested in 37 cases (56 companies and 17 universities).

Kinki Bio Clusters (Bio Five-Star Company & Tissue Engineering Project)

Participating companies

About 220 companies

Harima Science
Garden City
Spring-8

Kobe Medical Industry
Development Project
Advanced Medical Center
RIKEN Center for
Developmental Biology
Kobe University

Tissue Engineering Research Center, AIST

Saito Project
Osaka University

Kyoto Bio-city Plan
Kyoto University

Kansai Science City
Nara Institute of Science and
Technology

Accumulation of industries/technologies

- Four major pharmaceutical companies, and relevant industries such as chemistry, food and textile
- 34 bio-related universities: About 2,000 researchers
- Global research institutes in tissue engineering/medical fields

Private promoting organizations and leaders

"Kinki Bio Industrial Cluster Council,
Kinki Bio-Industry Development Organization"

- Chairman: Masanao Shimizu (Counselor of Daiippon Pharmaceutical Co., Ltd.)

The cooperation of the whole community (participating organizations, etc.)

Local governments : 9 (Osaka Prefecture, Kobe City, etc.)
Universities, etc. : 36 (Kyoto University, Osaka University, etc.)
Public research institutes: 14 (AIST Kansai, RIKEN Center for Developmental Biology, etc.)

Business incubators : 20 (Kyoto Research Park Co., Ltd., Senri Life Science Center, etc.)

Fund supply, etc. : 24 (Daiwa Business Investment Co., Ltd., Angel Securities Co., Ltd., Osaka Science and Technology Center, Kansai Technology Licensing Organization Co., Ltd., etc.)

Activities

(FY 2002)

- Holding of workshops and seminars
(About 2,300 participants)
- Holding of technology presentation meetings and exchange meetings
(About 380 participants)
- Provision of information via Web site/e-mail magazines
(Number of e-mail magazines issued: 51 per year, 17,800 cases in total)

Technological development utilizing public assistance

(FY 2001-2002)

¥3.18 billion was invested in 96 cases (81 companies and 93 universities).

Cooperative Projects for Creation of Intelligent Clusters

- Kansai Broad Cluster (Northern Osaka Prefecture, and Kobe Medical City)
- Research Project for the Creation of Human L-cube Industry (Kansai Science City area)

Industrial Cluster Plan: Results of Prior Examples and Future Image

In prior examples, the creation of Industrial Clusters and the development of new businesses have started proceeding through activities with the cooperation of the whole community, showing the sprouting of Japan's future advantage in international competition.

Hokkaido IT/Biotechnology Industrial Clusters (Hokkaido Super Cluster Promotion Project)

Successful examples

- (i) **32 university-based venture companies came into existence.**
(Of which 12 were IT-related and 15 were bio-related)
- (ii) **5 IT-related companies went public.**
(20 companies are expected to go public within three years.)
- (iii) **Succeeded in commercializing "chondroitin sulfate" which vivifies skin.** (Four companies and Hokkaido University, etc. cooperatively developed a technology to extract it from salmon heads by utilizing the government's support measures for the development of practical application technologies.)

Sprouting of new technologies

Advanced software technology

(related to home information appliances, security, or Internet voice communication)

Next-generation post-genome

(sugar chain/fat)
Plants and animals-related bio

Future prospects

Creation of new businesses by forming a virtuous circle of innovation in the fields of fusion of IT and biotechnology (bioinformatics), etc.

Manufacturing Clusters in the TAMA (Project to Revitalize Industry in the TAMA)

Successful examples

- (i) **Rapid sales increase due to success in developing a next-generation DVD surface treatment device** (In cooperation with a university, a company developed a device for making fine irregularities at intervals of 80 nanometers or less for the purpose of manufacturing large-capacity DVDs.)
- (ii) **Succeeded in commercializing a device for activating sodium hypochlorite which has a strong sterilizing power** (Three companies and Toranomon Hospital cooperatively developed a washing and sterilizing device of which performance was improved more than ten times.)
- (iii) **Succeeded in developing a next-generation semiconductor investigation instrument** (An investigation instrument for highly-integrated/ultrafine LSI was developed by utilizing the government's support measures for the development of practical application technologies.)

Sprouting of new technologies

Fusion of cutting-edge technologies such as nano-technology, optics, mechatronics and biotechnology

Future prospects

Base for creating high-value added industries that make cutting-edge technologies into products

Kinki Bio Clusters (Bio Five-Star Company & Tissue Engineering Project)

Successful examples

- (i) **University-based bio-venture companies went public.** (Two companies and Osaka University, etc. succeeded in cooperative development of quick mass gene analysis technology by utilizing the government's support measures for the development of practical application technologies. One company went public in September 2002.)
- (ii) **Bio-venture companies, which commercialize technology for converting waste oil into fuel with high-efficiency and at a lower cost, came into existence.** (One company and Kobe University, etc. cooperatively developed the technology by utilizing the government's support measures for the development of practical application technologies.)
- (iii) **Commercialized an essential part for analysis device that detects such minor constituents as protein at high sensitivity** (Two companies, Kyoto University, Kobe University, Osaka University, etc. cooperatively developed the part by utilizing the government's support measure for the development of practical application technologies.)

Sprouting of new technologies

Genome medicine/regenerative medicine

Future image

Advanced bio analysis device industry, medicine development/regenerative medicine industry, and environmental industry utilizing microorganisms/plant bio

Future Development of the Industrial Cluster Plan

○ Expansion/increase in the density of industry-university-government/inter-company human networks

- (i) Fosterage and utilization of related personnel such as coordinators
- (ii) Facilitation of inter-company cooperation due to the spread of confidentiality agreements

○ Promotion of international inter-cluster exchanges

(Accelerating technology transfer, inter-company cooperation, and attraction of foreign-affiliated companies/inward investment)

○ Expansion of the scope of networks

(Diversifying and varying industrial clusters)

- (i) Creation of networks with basic technology-based SMEs that manufacture trial products, etc.
- (ii) Creation of networks with new business supporting service industries, such as regional financial institutions, venture capital companies, personnel services, management consulting and computerization assistance
- (iii) Support for the cultivation of the market in cooperation with specialized trading companies, growing industries/companies on the demand side