

Industrial Cluster Study Group Report (Outline)

I. Basic philosophy of industrial cluster policy

1. Background of industrial cluster policy

(1) Background

- The necessity for strengthening competitiveness of our domestic industry in the international competition
- The necessity for independence of local economy by endogenous development

(2) Recognition of situation

- Local economy is still in a severe recession with serious exhaustion progressing in some regions due to the shift overseas of industry, intensification of international competition and the reduction of public works. However, there are visible signs of the creation of new industries and new businesses in many regions.
- Local small and medium-sized enterprises (SMEs) take a major role in much of the “agglomeration of advanced component industry” of which our country has an edge. Local industry has high potential capabilities including adjustment to resolve issues at on-site level.
- In the wake of the development of industry-academia collaboration system and the incorporation of national universities, universities focus on technology transfer, joint research, and fostering entrepreneurs and specialists to forge closer ties with local communities.

2. Concept of industrial cluster

(1) Basic structure of an industrial cluster

- An industrial cluster is a gathering of action entities in a certain interconnected industrial groups such as geographically-close companies, universities and research institutes, industry support organizations, network organizations, technology licensing organizations, industry-academia collaboration intermediary organizations, and specialist groups, all of which are attracted by the charm of the region.
- When an industrial cluster is formed, intellectual values such as accumulated technology, know-how and knowledge circulate quickly through the horizontal web of networks, and active innovations are caused by competition and collaboration mechanism, which enable flexible response to changes in business environment.
- Political involvements are distilled to two categories: (1) complementing components of industrial cluster (establishment of network organizations and industry-academia collaboration intermediary organizations, support for core companies of the region, fostering human resources, etc.) and (2) promoting interaction between components (formation of networks between industry, academia and government, promotion of R&D projects through industry-academia-government collaboration, support for cross-industrial business, etc.).

(2) Significance of industrial cluster

- 1) External economy effect: Enhancing the external economy effect of business environment through strengthening mutually complementary relations between industries, related organizations and systems in certain geographically-close areas.
- 2) Innovation chain: Promoting the creation of new industries and new businesses through various innovation chains which are caused by synergy effects of cross-industrial chain as well as the formation of closely-related horizontal networks between industry, academic and government.
- 3) Acceleration or quality enhancement of agglomeration: Industrial cluster formed in this way strengthens the centripetal force of human resources, companies and investment, which will further accelerate or enhance the quality of industrial agglomeration.

(3) Typical process of industrial cluster formation



[Step 1] Analyzing regional characteristics, industrial resources (company, technology, human resources, core person, local community, etc.) and market needs to share the vision and the scenario of the region

[Step 2] Forming a “network where each face is visible” composed of companies, related industries, universities, research institutes, industry support organizations, and administrative bodies

[Step 3] Making “new fusion” by industry-academia and industry-industry collaboration to expand the outer edge of the industrial cluster as well as to promote the creation of new businesses, ventures and the second establishment of business

[Step 4] Networked industrial agglomeration promotes further innovation, which creates a virtuous cycle where both endogenous development and attraction accumulate human resources and companies.

3. Background of industrial cluster policy

(1) Policy intent

An industrial cluster is defined as “innovative business environment where new businesses sharing management assets with each other are created one after another through horizontal networks such as industry-government-academia collaboration and collaboration between companies, and the resulting state in which industry with comparative advantage plays a central part in promoting industrial agglomeration.” The intent of the industrial cluster policy can be defined as “to form industry-academia-government networks and industry-industry networks throughout our country for the purpose of forming industrial clusters, and to create new industries and new businesses by promoting regional innovations”

(2) Policy objectives

- 1) Developing business environment where innovations are created by “new fusion”
- 2) Developing new business important for the national strategy in local areas (finding germinations of new business and having them take root)
- 3) Producing synergistic effects in collaborations with regional industry promotion activities implemented mainly by the region.

(3) Policy schemes

- 1) Network formation: Forming an industrial cluster core, i.e. “network where each face is visible” (development of broad-based private promotion organizations) and expanding the outer edge of the industrial cluster (collaboration with local industry support organizations, etc.)
- 2) Business support: Supporting R&D, market cultivation, launching of business, development of incubation organizations, cross-industrial collaboration, management innovation, and fostering of human resources
- 3) Promotion of collaboration with related organizations: Promoting collaboration with financial institutions, trading firms, and educational institutions, etc.

II. Previous results of industrial cluster policy

1. Previous results of industrial cluster policy

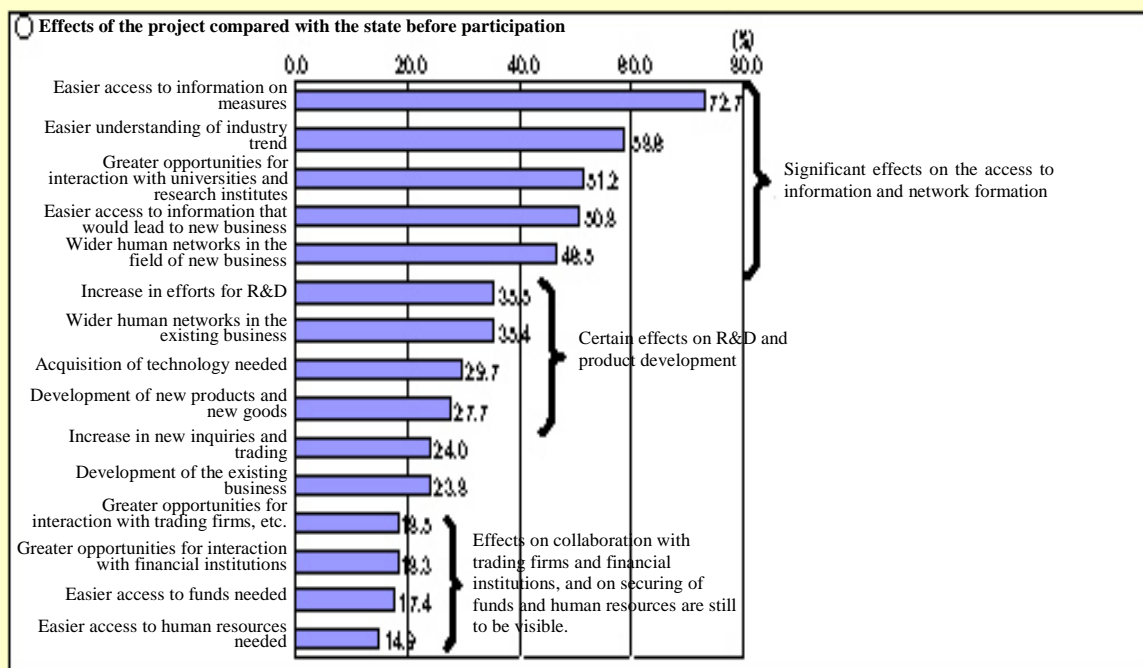
(1) Record of network formation

Participating companies: approx. 5,800

Participating universities: approx. 220

(2) Results of questionnaire targeted the participating companies (1) (collection ratio: about 40%)

Network formation has positive effects. The creation of specific business is the top priority issue in the future.

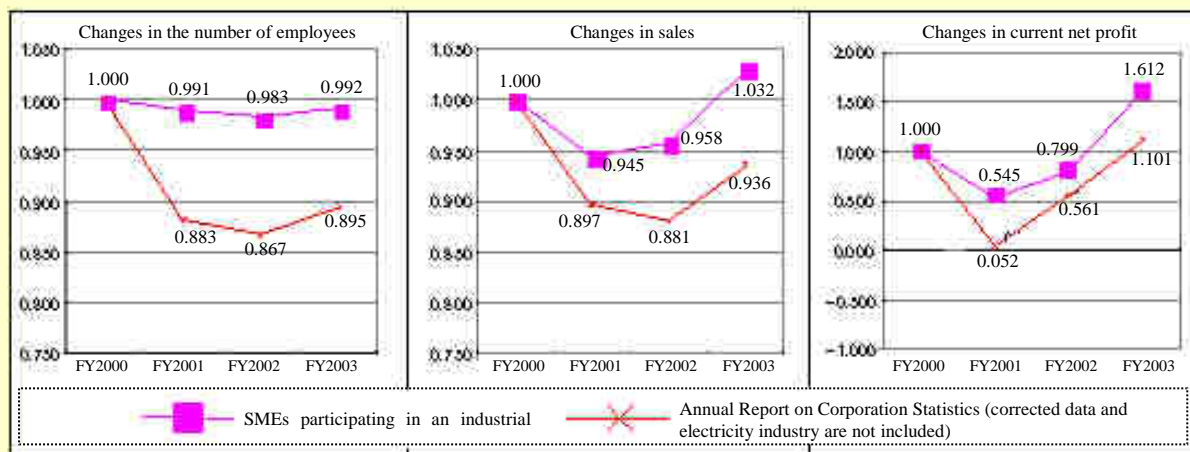


Source: Questionnaire targeted participating companies (conducted between December 2004 and January 2005)

- (3) Results of questionnaire targeted participating companies (2)
Innovation effects through network formation are believed to be visible.

Companies which newly started collaboration	38.5%
Companies which launched new business	58.7%
Companies which conducted second establishment of business	18.9%
Total number of ventures from universities	133

- (4) Changes in business performance of participating companies (large companies are not included)
Employment, sales and profits of participating companies exceed the national average.



Note: The targeted SMEs participating in an industrial cluster are only those which have data for four consecutive terms. Figures in the annual report on corporation statistics are adjusted by setting the component ratio by industry the same as that of companies participating in the Industrial Cluster Plan.

Source: Teikoku Databank COSMOS 2 data, each year version of "Annual Report on Corporation Statistics" by MOF.

Future development of industrial cluster policy

1. Setting target range of cluster policy

1st term (2001-2005) Start-up period of an industrial cluster

Based on the current state of and policy needs for clusters, about 20 projects are started as the Industrial Cluster Projects mainly led by the central government to form the "network where each face is visible," a basis for industrial clusters, in cooperation with clusters which are developed independently by local governments.

2nd term (2006-2010) Growth period of an industrial cluster

Networking promotion is continued and specific businesses are developed. At the same time, management innovation of companies and the creation of ventures are promoted. If necessary, projects are revised and new projects are prepared flexibly.

3rd term (2011-2020) Self-sustaining developing period of an industrial cluster

Networking and development of specific businesses are further promoted. Financial independence of industrial cluster activities is encouraged for the self-sustaining development of the clusters.

2. Improvement of the Industrial Cluster Plan and the introduction of policy management (PDCA) system

- (1) Individual plan: Individual plan consisting of vision, scenario, target, etc. is made for each project of the second phase of the target range, and policy evaluation is conducted by PDCA (Plan-Do-Check-Action) system.
- (2) Comprehensive plan: Based on the individual plans, the comprehensive plan of five-year term is formulated (interim evaluation is conducted in the third year). It deals with comprehensive goal and policy tools which are common in each individual plan.
- (3) Monitoring of policy effects (Reference 1): It is important to perform more effective feedback by grasping various policy effects including a) the effect of policy collaboration as a monitoring tool, b) the effect of enhancement of local resources as a stock base, c) the effect of improvement of business environment as a flow base, d) the effect of innovation, and e) the economic results as the final effect.

3. Formulation of individual project plan

- (1) Vision concerning industrial cluster formation
Current status of local economy and industry (industrial resources, local characteristics, etc.) is analyzed, and then the vision for future development is prepared based on this analysis. “Nakagawa Report – Toward a Sustainable and Competitive Industrial Structure,” “Industrial technical strategy and technical strategy map,” “Science and Technology Basic Plan,” and other perspectives and strategies on the industrial policy and science and technology policy are also taken into consideration.
- (2) Scenario and goals of the project (Reference 2)
The scenario (commencing time and plan period are adjusted independently by each project) and goals concerning the second phase of the target range are established.
(Common goal) Number of new business started (total number among all the participating companies, the number per company)
(Optional matters) Industrial scale (sales of target industry in the region), number of ventures created, second establishment of business conducted by participating companies, success examples, employees and sales, etc.
- (3) Strategies to meet the goal (Reference 3): 1) network formation, 2) support for business collaboration (R&D, launching of business, market cultivation, and cross-industrial collaboration/fostering human resources, etc.) and 3) collaboration with related organizations
- (4) Fiscal year plan: It is prepared every fiscal year. Any progress in situation is given feedback to the scenario at any time.

4. Issues by support field

- (1) Network formation: Collaboration with local governments and industry support organizations (especially with core support organizations of regional platform), enhancement of promotion organization system
- (2) R&D: Enhancing collaboration with technology licensing organizations, public laboratories and public institutions; protecting intellectual property
- (3) Incubation organization: Enhancing software side of support for companies, forming mini clusters
- (4) Market cultivation: Utilizing distribution systems, trade firms, IT, etc., collaboration with specialists for marketing, etc.
- (5) Collaboration with financing institutions: Interlocking with enhancement of relationship banking function
- (6) Fostering human resources: Finding and developing core persons, developing manufacturing personnel and judging personnel

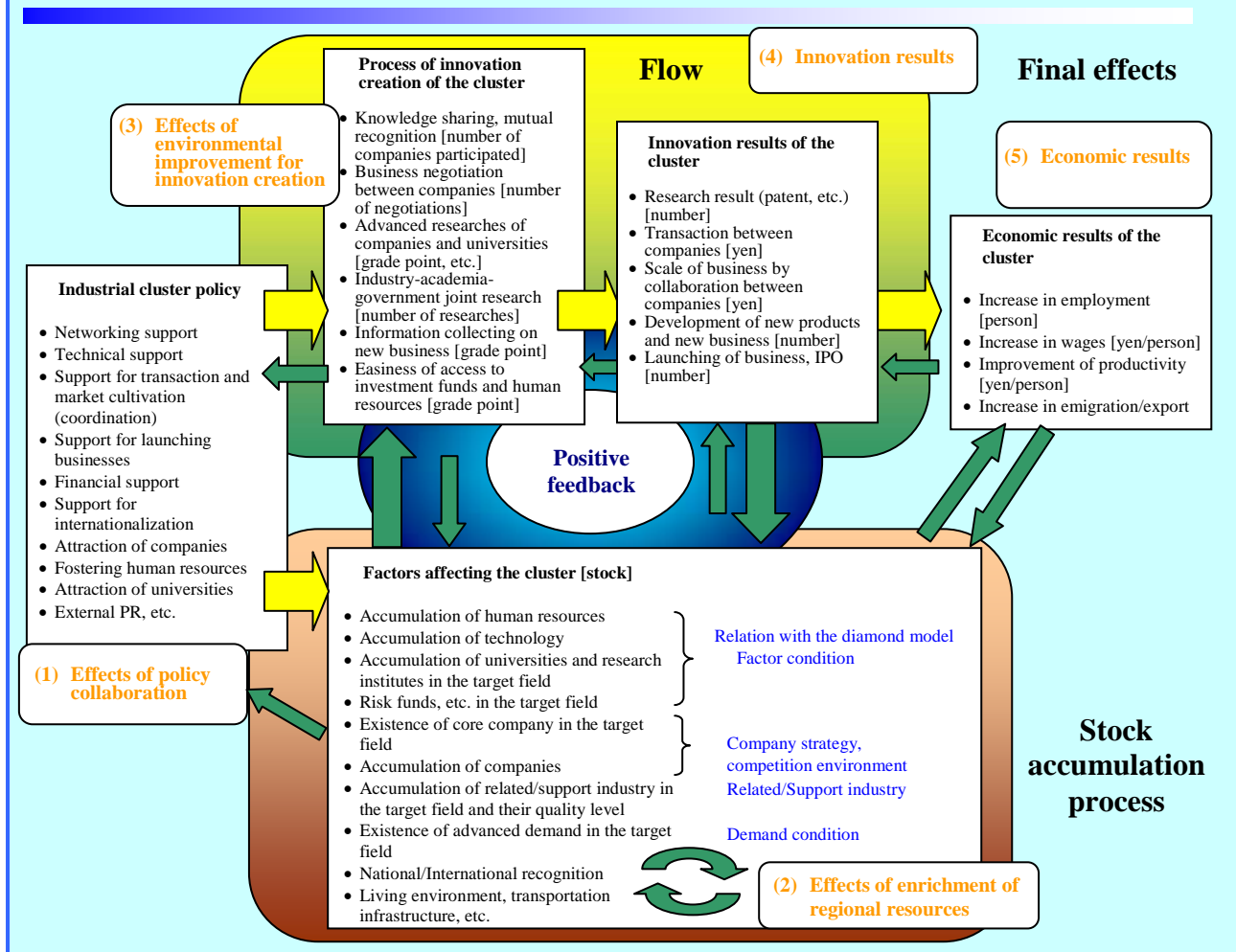
5. Expansion of the framework of industrial cluster policy

- (1) Establishment of collaboration system between ministries related to regional cluster policy
“Collaboration measure group for regional science and technology clusters” is formulated under the Council for Science and Technology Policy, and liaison conferences of related ministries are established both in the central government and in regional blocks. Collaboration with the intellectual cluster projects is enhanced.
- (2) Development of national networks on the support for creating new industry and new business
Strengthening collaboration with local core support organizations as well as developing national networks which involve wide range of participants: industrial cluster promotion organizations, industry support organizations, universities and industries of each region.
- (3) Collaboration activities with overseas clusters
Forming overseas networks to promote overseas market cultivation, direct inward investment and information transmission

Reference

(Reference 1) Examples of measuring effectiveness on industrial cluster

Source: Mitsubishi Research Institute, Inc.



(Reference 3) Examples of support menu by field

Support sector	Example of support menu
Network formation (formation of collaboration basis)	<ol style="list-style-type: none"> 1) Establishment of organizations promoting cluster formation, networking with related organizations (to be base organization) 2) Dispatch of coordinators to participating companies and universities 3) Information transmission through web sites and e-mail magazines 4) Holding industry-academia collaboration exchange meetings, joint meetings for announcing the results, symposiums, seminars and workshops 5) Development of database on companies, researchers and supporters
Support for R&D (development of collaboration activities)	<ol style="list-style-type: none"> 1) Promotion and collaboration of R&D by public funds (projects of Economic Affairs Bureau, NEDO, AIST, and other ministries) 2) Promotion of utilization of research results (meetings for announcing the results, technology matching, dispatch of specialists, etc.) 3) Support for protection and strategic use of intellectual property (establishment of local intellectual property strategy headquarters, etc.)
Enhancement of incubation function (support for launching business)	<ol style="list-style-type: none"> 1) Development of incubation facilities 2) Fostering incubation managers 3) Formation of network between incubation organizations and incubation managers
Support for market cultivation (enhancing marketability of products newly developed)	<ol style="list-style-type: none"> 1) Holding business matching and exhibition of products 2) Collaboration with specialized trading firms 3) Establishment of distribution system 4) Market cultivation through coordinators 5) Support for cross-industrial collaboration 6) Promotion of trade and interchange with overseas markets (local to local project, etc.)
Collaboration with financing institutions (management support)	<ol style="list-style-type: none"> 1) Collaboration with local financial institutions (holding the Industrial Cluster Support Finance Conference, establishment of venture funds such as bridge loan and reduced rate loan through business collaboration) 2) Establishment of local venture capital 3) Holding meetings for announcing business plans
Fostering human resources	Fostering highly specialized human resources (manufacturing personnel, technology management personnel and judging personnel, etc.)

(Reference 2) Examples of industrial cluster type and goal setting

Type	Characteristics of measures and goal setting
<p>Type A (industrial cluster of revitalization type in the three metropolitan areas)</p>	<p>Each of the three metropolitan areas – Kanto, Chubu-Tokai, and Kinki – form a virtual mega cluster including wide range of fields from automobile, digital appliances, mechatronics to bio and nano industries. In this mega cluster, there are many sub-clusters such as large company-centered clusters, clusters of SMEs, university-centered clusters, clusters by the local government level, etc. Based on policy needs, objects of measures are, as a rule, sub-clusters instead of the whole mega cluster, and support for the cluster formation is focused on revitalization of existing companies. [Examples of characteristics of goal setting]</p> <ul style="list-style-type: none"> • Revitalization of existing companies is focused on. Support is provided mainly for levels near commercialization. • Collaboration with large companies is prominent feature. Collaboration at municipality level is also common.
<p>Type B (Science and technology-centered industrial cluster)</p>	<p>Regardless of existing industrial agglomeration, clusters of this type are formed by industrialization of technology such as establishment of ventures and technology transfer of research results from science and technology fields including IT, bio, nano, and environment. High-level universities and public research institutes play a central role in carrying on those researches. As a policy, supports for R&D, technology transfer and ventures are given greater importance. Time cost and investment cost before the commercialization level are relatively high because the results of the most-advanced science and technology are treated as seeds. [Examples of characteristics of goal setting]</p> <ul style="list-style-type: none"> • Technology transfer, support for launching of business, and business incubation are focused on. • R&D absorbs a great percentage of support, and there is a big time lag between support and the increase in sales.
<p>Type C (industrial cluster by only one and niche)</p>	<p>Many regions with certain amount of industrial agglomeration not so large as the three metropolitan areas have already had the “network where each face is visible”. These regions, utilizing their regional cohesiveness and community strength, foster business targeting three metropolitan areas and global market by developing new products and new businesses in such industry fields as only one technology and niche field, etc. As a policy, industrial cluster formation is supported mainly by developing new businesses, industry-academia collaboration, and cross-industrial collaboration based on the network above mentioned, and by establishing wider network. [Examples of characteristics of goal setting]</p> <ul style="list-style-type: none"> • The revitalization of the existing companies is focused on. Support is provided mainly for levels near the commercialization. • Niche fields are often targeted. Market share is limited.
<p>Type D (network formation between mini clusters)</p>	<p>Industrial agglomeration is thin. Areas where agglomeration bases are distant from each other have only mini clusters; there is no broad-based cluster. In such areas, industrial cluster formation is promoted by broad-based collaboration between mini clusters as well as by supporting mini cluster formation at each base. Penetration into national market and collaboration with other regions are actively promoted because these regions alone cannot secure sufficient market nor business seeds. [Examples of characteristics of goal setting]</p> <ul style="list-style-type: none"> • Each cluster is small-scaled and needs time to develop. • Network formation between clusters also needs time. • Special consideration should be paid in making annual plan and setting goals.