New Policy on Knowledge Cluster Initiative

(Provisional Translation)

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Regional Cluster Seminar

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MEXT

Outline

- Development of Program for Knowledge based Clusters
- Outline of 1st Stage
- Review of 1st Stage
- Policy Background for 2nd Stage
- Principle of 2nd Stage Program
- Selection of the Clusters

Regional R&D Policy 1st S&T Basic Plan

- Promotion of understanding on S&T, basic & cutting edge R&D, support for S&T related facilities
- Establishment & expansion of collaborative research program among academia, private & government entities, strengthening of coordination activities
- Support for public research institutions in the region

Regional R&D Policy 2nd S&T Basic Plan

- Formulation of regional knowledge based clusters
- Enriching sources of regional innovation
  - Securing of professional coordinators to judge/apply technologies and the promotion of technological transfers
  - Promotion of industry-academia-government collaboration by the local government

Regional R&D Policy 3rd S&T Basic Plan

Goal

"*Building regional innovation systems and creating vital regions*" (3rd Science and Technology Basic Plan)

Approaches

(1) ***Formulation of regional clusters***

"The government will continue to provide competitive support for cluster forming activities carried out under local initiatives. In doing so, *the government will provide selective support to regions that have the potential to develop as world-class clusters*…and *develop clusters across Japan with strength that utilize regional characteristics, however small in scale*"

(2) ***Enriching sources of regional innovation***

Providing support to individual R&D activities of the regional universities etc

Structure of the Knowledge Cluster Initiative

MEXT
Ministry of Education, Culture, Sports, Science and Technology

MEXT selects areas and assists core organizations

Reforms of science and technology systems

Technology innovation creation programs in which Universities take core part

Cooperation

Cluster Creation Plans of Local Governments

◆Local governments make their own action plans
◆Intensive promotion of various projects for creating Knowledge Clusters

◆Cooperative systems by industry, academia and government in which universities etc. take core part
- •Setting up the Knowledge Cluster Headquarters (Control Tower)
- •Promotion of supporting systems by S&T coordinators etc.

Area with a high concentration of knowledge and industry

Cooperative systems in which universities or other public research institutions take core part.

Setting up

Knowledge Cluster Headquarters

Planning /Implementation

Core Organizations
Foundations or other corporations designated by local governments

Cooperation

Sponsor research

Universities, etc.

Cooperation

Firms and other related entities

Cooperation

*Various projects

Cooperation

TLO, JST

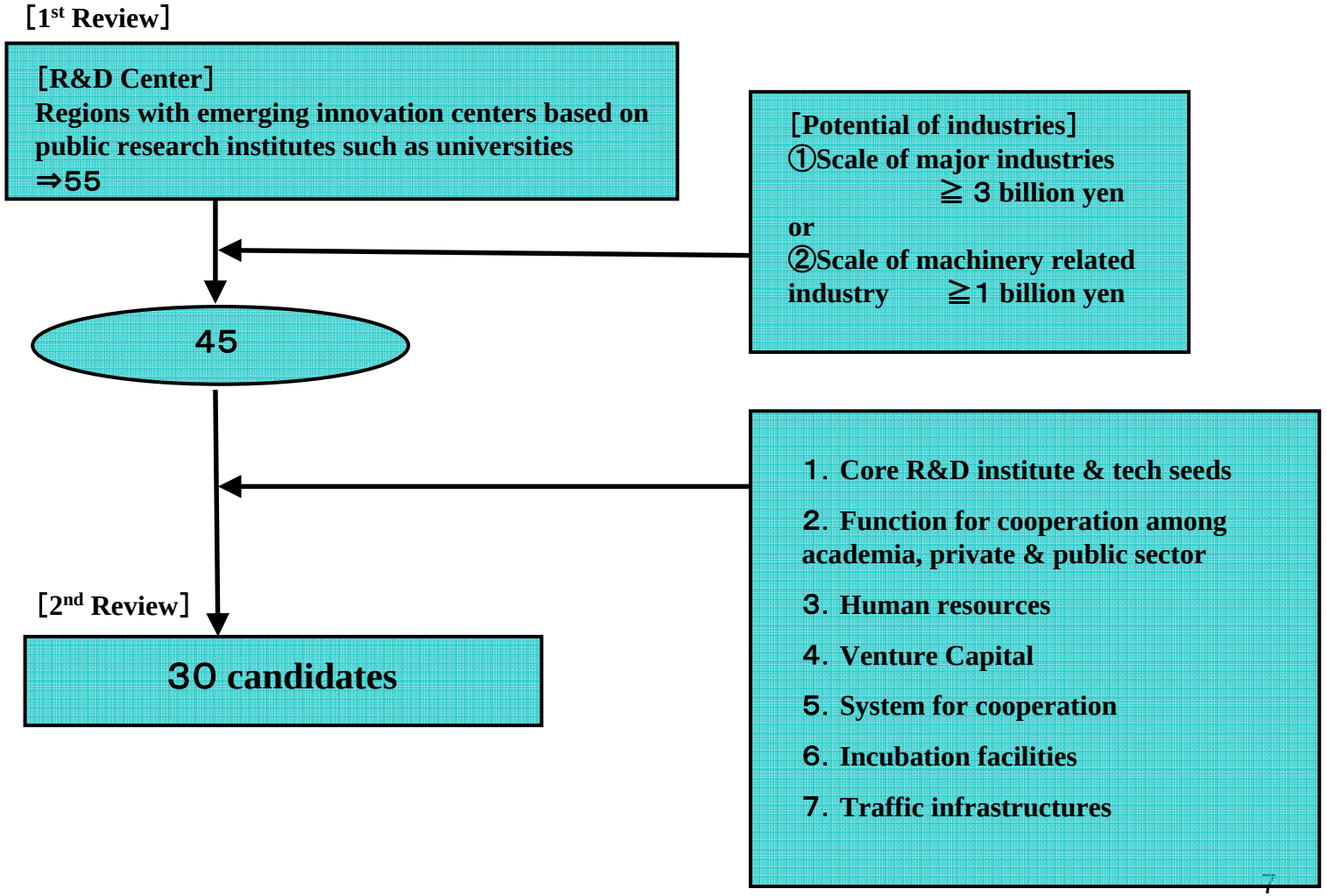
* • Conducting industry-academia-government successive joint research in which universities or other public institutions take core part
• Staffing with specialist Science and Technology Coordinators

• Promotion of Patenting, incubating and developing of research results
• Forums or other type of meeting on research results will be held

Knowledge Cluster Initiative will positively cooperate with other relevant projects like the Industrial Cluster Project of the Ministry of Economy, Trade and Industry (METI).

Selection process①

30 Regions selected as candidate (May 2001)



Selection Process②
12 **Clusters + Feasibility Study in 6 Region**（April 2002）

Selection Criteria

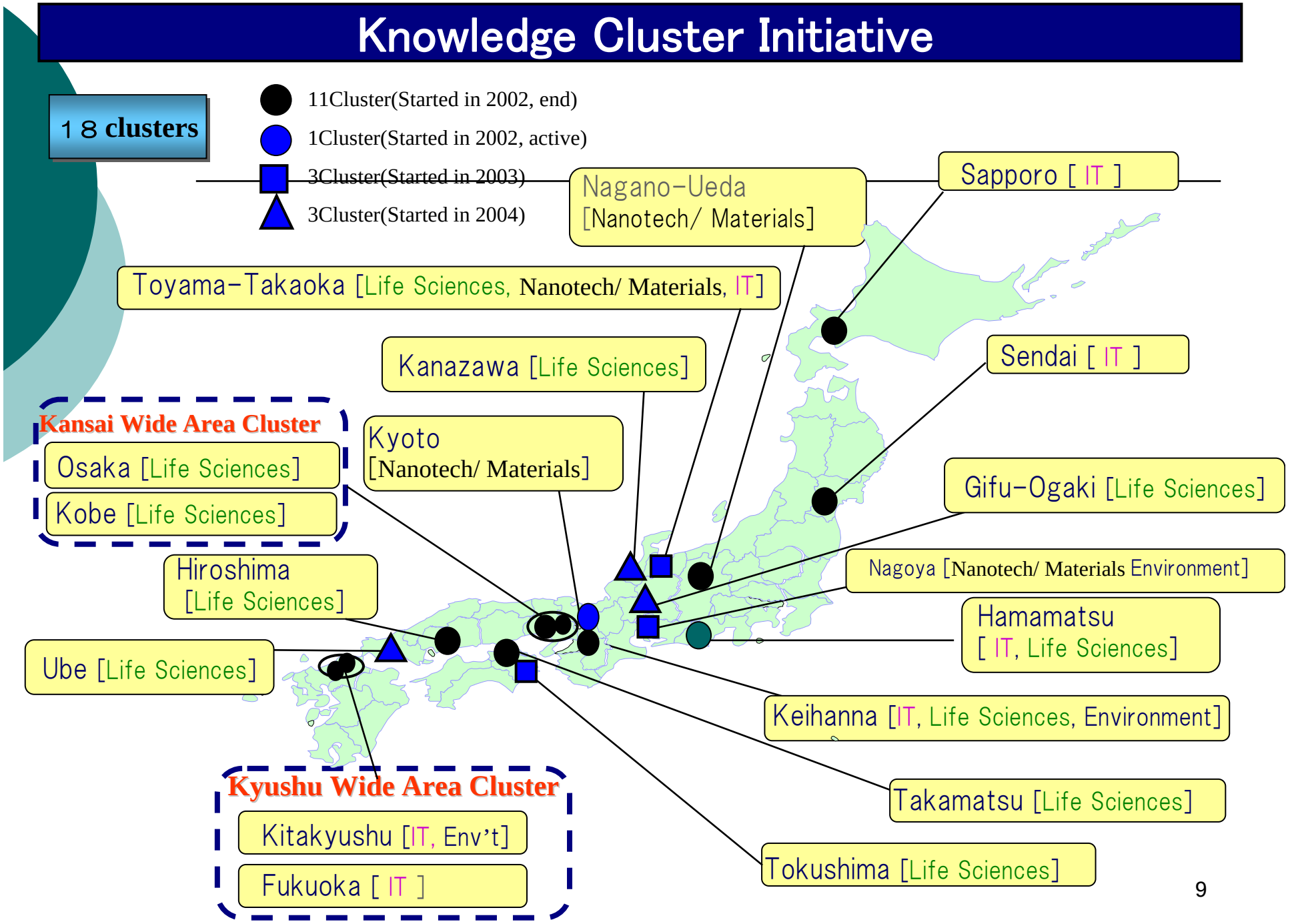
1. Basic criteria
- **Focus on specified research area**
- **Designation of core organization**
- **Infrastructures**

2. Technological review
- **R&D potential**
- **Prospects for commercialization**

3. Implementation system
- **Potential of core organization**
- **Structure of Cluster headquarter**

4. Initiatives of the region
- **Science & technology policy system**
- **Future vision of the local government**
- **Initiatives by the local governemnt**

Knowledge Cluster Initiative



Midterm Review and Reflection on Resources

- Evaluation of the impact of the projects from long-term perspective
- Emphasis on independence and initiatives of the actors in the region

  ⇒ Revision of the plan based on self evaluation
- Competitive environment

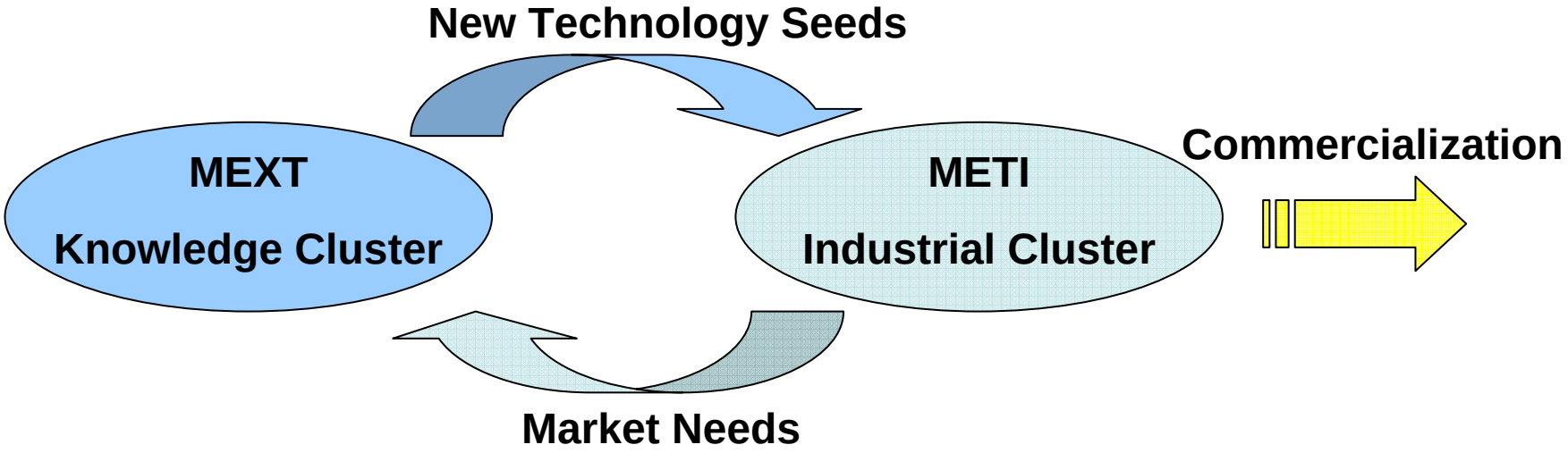
  ⇒ Distribution of the budget based on review results

Midterm review－② Criteria－

大項目	中項目	小項目
1. Project implementation	（1）Technological Review（R&D progress）	
	（2）Initiative of the region	①Regional strategy & project
		②Related activities & interactions
	（3）Implementing organization	
2. Self evaluation		
3. Project plan etc.	（1）Technological review（R&D plan etc.）	
	（2） Initiative of the region	
	（3） Implementing organization	
4. Prospect for the realization of planned cluster		

Progress & plan of each R&D	

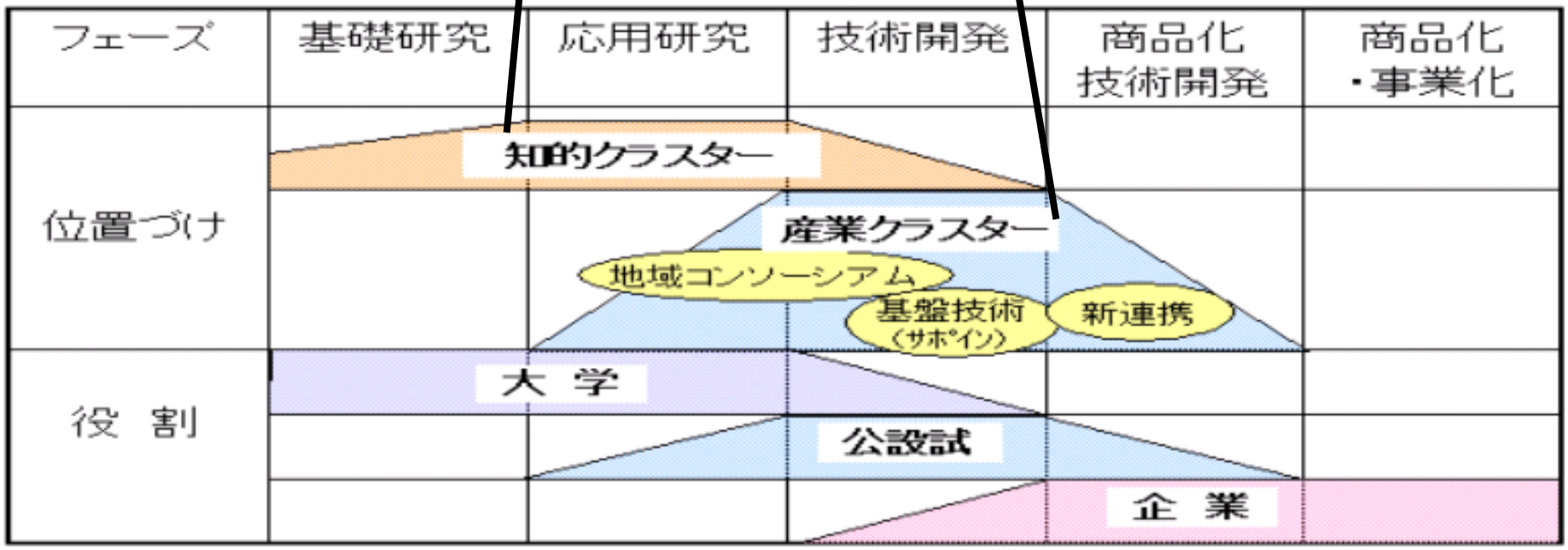
(3) Cooperation with Industrial Cluster Project of METI



- Setting up committees for regional cluster promotion
- Encouraging cooperation between local implementing organizations
- Holding joint conferences to announce project results

Knowledge Cluster and Regional Cluster Strategy (Nagano)

知的クラスター創成事業	産業クラスター計画	企　業
「ナノ材料研究開発」と「ナノ材料の製造・修飾・複合」の基礎研究・応用研究、ナノテクノロジーによるスマートデバイスの可能性創出	技術開発、商品化技術開発によりスマートデバイスを商品化・事業化の実証レベルまで高める	デバイスの商品化・事業化及び様々な商品への活用



（長野テクノ財団資料）

Post-project Evaluation (Preliminary)

- Objective
  - To understand the results of projects in 11 regions and to demonstrate the effect of Knowledge Cluster Initiative
  - Basic reference for the deliberation of next program

    （Basic reference for the selection of 2nd stage regions）

Post-project Evaluation (Preliminary)

- Data accumulation & analysis on the regions (including questionnaire for participants)
- Self-evaluation reports by the regions
- Hearing（by review-panel members & secretariat）
- Evaluation by the panel

Review Perspective

- Appropriateness of the project plan
- Effect of the Knowledge Cluster (R&D, Tech transfer, Commercialization etc.)
- Effectiveness of measures and organization for formulation of Knowledge Cluster
- Prospects for future development
- Over-all evaluation

Outline of Review Results (Plan)

- Regions with clear objectives and plan

  Hamamatsu, Kobe, Fukuoka, Nagano

- Several regions lack clear image of planned “cluster” or strategy to accomplish the objective

Outline of Review Results (R&D)

- Tangible output from science & technology aspects
- Formulation of basis for the development of cluster (multi-layered R&D results, advanced R&D facilities & equipments, enhancement of researchers' pool)
- Highly evaluated R&D results

Outline of Review Results (Commercialization)

- Many regions produce prototype, but few regions achieve product sales and profit by commercialization
- Differences in achievements in application according to S&T fields
- Need for flexible evaluation system based on development phase of clusters to review commercialization aspect

Outline of Review Results (Human Development)

- Regions with enhanced researchers' pool
- Expansion of human resources for cluster management through implementation of projects
- Human resources need to be harnessed by the region to develop cluster there

Outline of Review Results (Cooperation)

- Development in cooperation among various sectors (academia, industry, government) and networking in many regions
- Cooperation through collaborative R&D is important in the development (not only provision of simple forum)
- Awareness raising, cooperation, networking activities are not adequate in some regions

Overall Review

- Personnel/organization that will take initiative in cluster formulation is indispensable in cluster development
- Regions with tangible buildup in line with project objectives

  Hamamatsu, Nagano, Osaka, Fukuoka

  Clusters with global perspective

  Osaka + Kobe, Fukuoka + Kita-Kyushu
- Many regions remain in the early developmental stage (exchanges among researchers and companies, collaborative R&D, indication of commercialization)

Out-put of the Initiative

【FY 2002-2006】

- Patent applications　— 2230
- Commercialization, prototype production etc. — 803
- Continued development under other programs (such as Regional Consortium R&D by METI) — 232

Achievements of the Program (Cooperative Framework)

- Impact on the management of universities
- Promotion of collaborative R&D in universities based on company management method
- Expansion of participating research institutes, companies and formulation of network among various sectors.

＜Number of Participants in collaborative R&D ＞

	Univ.・Public Institute		Private company	
	personnel	institute	personnel	institute
FY2001	—	105	—	166
FY2002	1004	179	407	263
FY2003	1516	376	629	501
FY2004	1633	400	806	538
FY2005	1727	407	927	567

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Achievements of the Program (Regional Initiative)

Various regional initiatives have been started in relation to the initiative.

【Example】

<Kansai Wide-area Cluster>

・Support to Bio-tech company start-up thorough “Lifesciences IP Fund”(2004)

<Kyushu Wide-area Cluster>

・Support to technology/product development by companies in system LSI

・Training of engineers through regional training programs

・Preferential treatment to LSI related companies in firm location subsidy

Resulst of Questionnaire Survey in 2007

Benefits for individual participants

- Unexpected learning about technology from expanded network– 74%
- New ideas for research subject and commercialization from expanded network -67%
- Easier access to information in specialized field from expanded network – 67%
- Easier access to information for research from other participants in the project – 61%
- Easier access to information on business partners from coordinators and support organization – 39%
- New contract and joint research with other participants – 38%

Knowledge Cluster Initiative 2nd Stage

Background

- Development of 1st Phase Program
- Report by “Regional R&D Policy Panel”
- The 3rd S&T Basic Plan
- Survey on Clusters’ Potential

Report by the Regional R&D Policy Panel

<Objective and role of Regional R&D>

- To improve and diversify national S&T
- To activate regional economy and to materialize high quality living standard
- Policy tool as “Science for Society”

Report by the Regional R&D Policy Panel

＜Strategic Implementation of Regional R&D Program＞

“Selection and Concentration” and Implementation under Strategic Viewpoint

- National Innovation System and Allocation of R&D System
- Support Program according to the R&D Phase in Particular Region
- Consistency with National R&D Strategy

Report by the Regional R&D Policy Panel

＜Formulation of Regional Cluster＞

- Strategic and prioritized support for the regions with good potential to achieve clusters with strong international competitiveness
- Nurture smaller clusters to make full use of regional characteristics to revitalize economy in the regions

Related Policies

Comprehensive Strategy for Innovation

(decided by CSTP)

Strengthening system to create innovation, “from seeds to fruits”

（1）Promotion of collaboration among private, academia and government sectors

（2）Strengthening of regional innovation system

（3）Continual funding, knowledge collaboration

（4）Implementation of measures focused on Strategic prioritized S&T

Related Policies

Innovation 25 (Cabinet decision June 2007)

＜Strategy for social system reform＞

⑧Measures to realize active regional society

- Re-vitalizing regional industry
- Support for the development and commercialization of new products and services utilizing regional resources
- Support for industry build-up & cluster formulation based on initiatives of the local government
- Realization of compact city system

Survey on Cluster Development Prospect

- Clarify features common in world-class clusters
- Review technology/industry build-up etc. in regions under Knowledge Cluster Initiatives and other region
- Method: Bibliographic survey, data collection, questionnaire, interview, deliberation by a panel

Survey on Cluster Development Prospect

Important features for Knowledge based Clusters

1. Resources in the region
   - Brilliant researchers/tech seeds, human resources
   - Demand
   - Company strategy, competitive environment
2. Collaborative environment
   - Network within the region
   - Network beyond the region
3. Management
4. Motivation and initiatives of the center player

Main Features of the Knowledge Cluster Initiative (2nd Stage)

- **Selection and Concentration**
  - 18 regions (1st Stage)

    → **Approximately 10 regions** (2nd Stage)
  - Expansion in scale: ¥0.5 billion /year/ each region

    → ¥0.5 ～ ¥1 billion /year/ each region
- **Promotion of Regional Independence**

  MEXT sets the minimum amount of expenditure by local actors to develop cluster（more than 1/2 of the national expenditure, including 1/2 of the total management expenditure (including personnel cost)）
- **Pursuit of forming world-class innovative clusters**

Structure of the Knowledge Cluster Initiative (2nd Stage)

Main Part of the Project（¥0.5～¥1 billion / year)

¥0.1 billon is ear-marked for promoting collaboration with other relevant ministries (METI's Industrial Cluster etc)

Expansion Program＊1(optional program)

- **Over ￥0.5 billion / project / year）**
- **Maximum : 1/2 of the Main Part**

＊1：MEXT sets aside certain part of the budget for the "Expansion Program" to encourage collaboration with other clusters and/or institutions in different regions (both in Japan and overseas) to enhance competitiveness.
MEXT competitively finance the Expansion Programs on condition that the proposals of the "Main Part" are adopted.

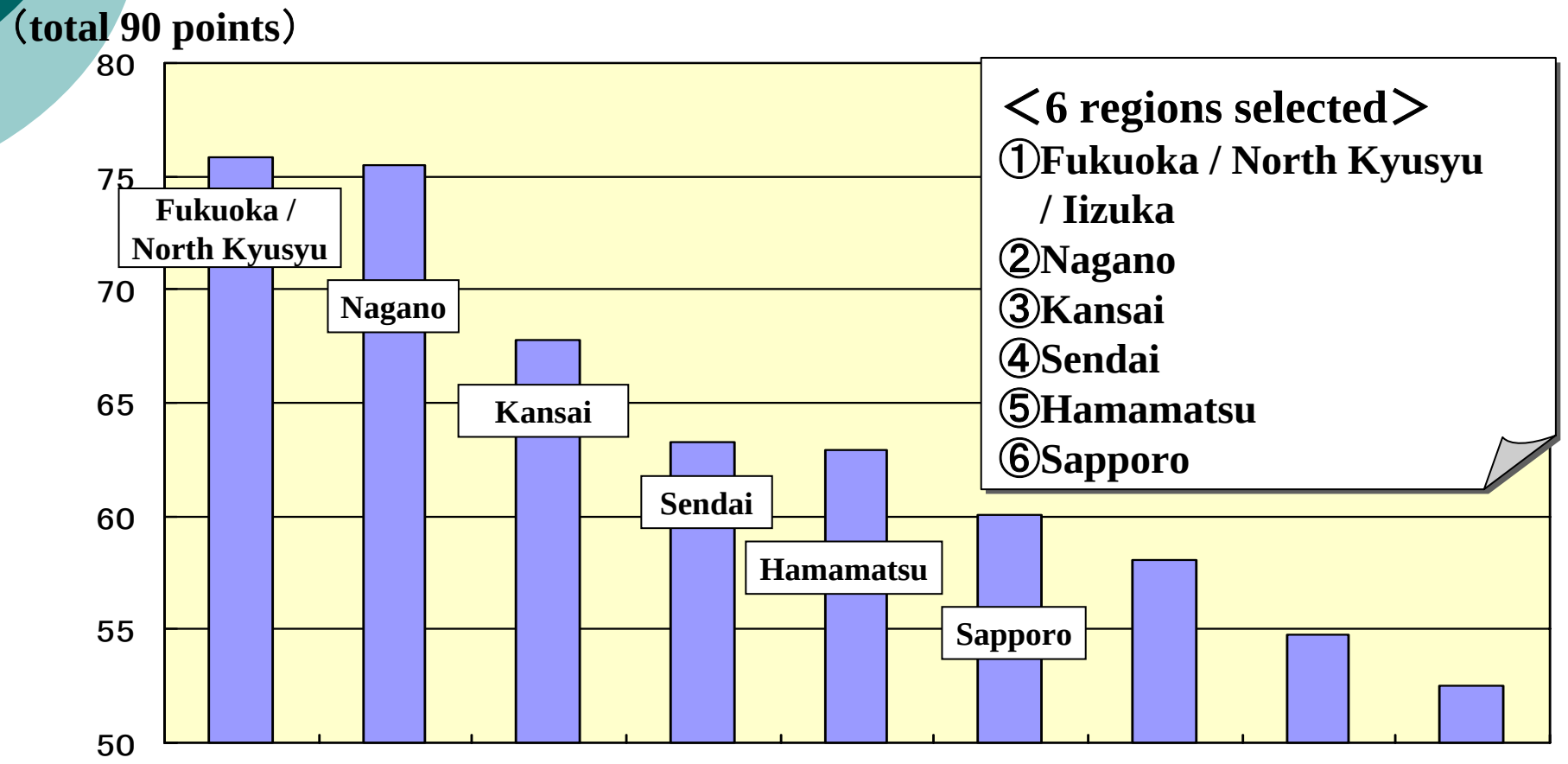
Evaluation Criteria in Selection (2nd Stage)

1	**Past efforts and project results**	1-a	Past efforts by local actors
		1-b	Results from the past efforts and projects
2	**Effort by local actors to form internationally competitive cluster**	2-a	Clarity and strategy of local vision to form cluster
		2-b	Independence and Initiative of local government
		2-c	Leadership in implementing local initiative
		2-d	Implementation of relevant policies and projects
		2-e	Promotion of regional independence
3	**Plan of Action**	3-a	Plan to utilize projects by other ministries (such as METI's Industrial Cluster)
		3-b	Cooperation with other regions/ interdisciplinary collaboration
		3-c	Strategy for commercialization
		3-d	Strategy for IPR management
		3-e	Strategy for fostering human resource
		3-f	Management structure and system
4	**R&D (Evaluation by technology experts)**	4-a	R&D Potential
		4-b	R&D Strategy
		4-c	R&D Planning
		4-d	Excellence and Novelty of Technology
		4-e	Possibility of commercialization

Selection Result in 2007

47 outside experts evaluated the project proposals by 9 regions.

- **Selection Committee consisted of 12 outside experts (The chairperson was Dr.Yasuharu Suematsu, counselor of National Institute of Informatics. The vice-chairperson was Tadao Kiyonari, counselor / former-president of Hosei University.)**
- **35 outside experts in various technology fields formed the teams of reviewers to provide scientific and technological evaluation.**



The Regional S&T Promotion Programs of MEXT

Back ground

◇Intensifying international competition by globalization
◇Rapidly aging population and declining birth rate
→Advancing and diversifying S&T
Creating persistent innovation

◇Depressed local economy by hollowing out of industry
◇Progress of decentralization and region revitalization
→Revitalizing local economy based on developing S&T

◇Emerging concept of "S&T for Society"
◇High public expectation for social contribution by universities
→Forming safe and appealing regions through returning R&D results to society

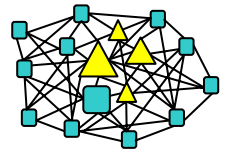
Goal and approach

Creating sustainable innovation in each region

【3rd S&T Basic Plan】
「Building regional innovation systems and creating vital regions」

Forming regional clusters

Aiming at creating persistent innovation through close networking of industry-government-academia around universities etc. whose R&D focus has excellent potential



Network image of innovative cluster
(△niversity、□company)

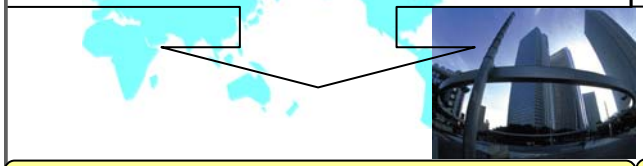
Sufficient resource of regional innovation

Aiming at the creation of efficient and effective innovation by transferring technological seeds to practical application

Policy of MEXT

Support to forming regional clusters under local initiatives

Developing into world-class innovative cluster attracting human, goods and money from around the world



Knowledge Cluster Initiative (The second stage)

MEXT strongly supports the formation of world-class clusters while encouraging regional independence, in cooperation with relevant ministries such as METI

Developing small to medium-size clusters across Japan with strengths that utilize unique regional resources.

City Area Program

MEXT supports the creation of new business and R&D business that utilize unique regional resources through industry-academia-government

Individual support for regional R&D

Regional research institutes create outstanding research results that transfer to practical application

～ Leading to Innovation ～

Comprehensive Support Program for Creation of Regional Innovation

Japan Science and Technology Agency (JST) implements seamless support for discovering and transferring technological seeds through community-based coordinate

KNOWLEDGE CLUSTER INITIATIVE（2nd stage）

Budget in FY 2007：¥5.5 billion

Outline

- In order to realize sustainable economic development, there is urgent need to strengthen regional innovation system.
- Following the results obtained during the 1st stage of the Knowledge Cluster Initiative, MEXT strongly supports the formation of world-class clusters while encouraging regional independence, cooperation among relevant ministries – particularly METI's Industrial Cluster－ and focusing on a "Selection and Concentration" approach.

KNOWLEDGE CLUSTER INITIATIVE

Background

MEXT started the "Knowledge Cluster Initiative" in April 2002, following the 2nd S&T Basic Plan, cabinet-decision in March 2001, (the initiative currently concerns 18 regions—see map).

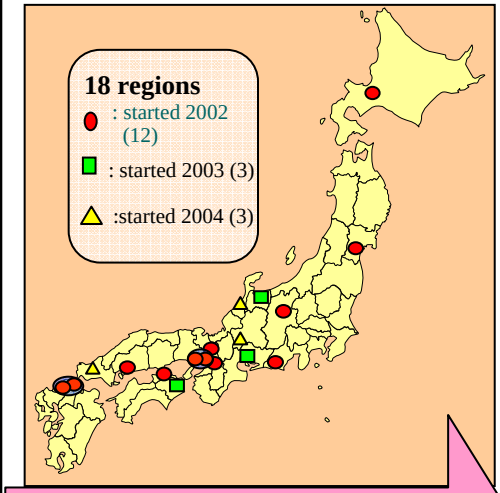
Results

The formation of clusters has steadily progressed in each region.

➢Developed industry-government -academia collaboration networks

➢Practical Application of technology seeds produced by joint R&D for commercialization

➢Progress of regional initiatives



Progress is steady, but additional Investments are needed to ensure The sustainable creation of innovation. (In general, cluster formation takes over 10 to 30 years)

3rd S&T Basic Plan

○Formation of regional clusters

・Long-term promotion of efforts based on strategic regional initiatives and collaboration among relevant organizations.

・Selective support to regions with the potential to develop world-class clusters by assessing their competitiveness and the progress of cluster formation, and development of clusters reflecting regional characteristics (however small in scale).

KNOWLEDGE CLUSTER INITIATIVE (stage II)

➢Flexible Budget Allocations

・Strategic support for regions with the potential to develop world-class clusters

・Flexible budget allocations to the regions according to their R&D field and their degree of progress

Number of concerned regions: about 10 regions*

Expansion in scale: ￥0.5～1 billion /year/each region

*Regions that had not joined the 1st stage can apply for the 2nd stage

➢Promotion of Regional Independence

・Sets the minimum amount of expenditure by local actors to develop cluster（more than 1/2 of the national expenditure, including 1/2 of the total management expenditure (including personnel cost)）

➢Collaboration with other ministries

・Promotes utilization of projects of other ministries (such as METI's Industrial Cluster) to efficiently and effectively form regional cluster

➢Expansion and Internationalization

・The potential and global competitiveness of clusters can be improved through the interdisciplinary cooperation and the collaboration with different regions. In this perspective, MEXT sets aside certain part of the budget for the "Expansion Program" to encourage collaboration with other clusters and/or institutions in different regions (both in Japan and overseas) to enhance competitiveness.

City Area Program

＜52areas＞