"Knowledge Cluster Initiative"

-present state & issues-

Yasushi Taguchi
Director
Office for the promotion of Regional R&D Activities
Science and Technology Policy Bureau
MEXT
Ministry of Education, Culture, Sports, Science and Technology

Framework of the S&T Policy in Japan

1995 The Science and Technology Basic Law was established

- Obligation for the government to establish the basic science and technology plan on every 5 years is stated

1996 The First Science and Technology Basic Plan was enacted

- Encouraging fundamental research activities
  → additional ¥ 17 trillion ($ 154.5 billion) government investment was planed over 5 years (which means the amount of the budget became twice as much as what it used to be)
- Promoting cooperation within industry, academia and government

2001 The Second Science and Technology Basic Plan was enacted

- the Four Key Fields is established: Life Sciences, IT, Environment and Nanotech/Materials
- Government Investment for R&D activities
  → more additional ¥ 24 trillion ($218.2 billion) government investment has been planed over 5 years (which means the 1 % of the GTP of Japan constantly invested each year)
- Reformation of the S&T system of Japan

* Calculated as US$1=110yen

The Second Science and Technology Basic Plan

(established by the Cabinet in March 2001)

Regional S&T Promotion Policy of the Government of Japan

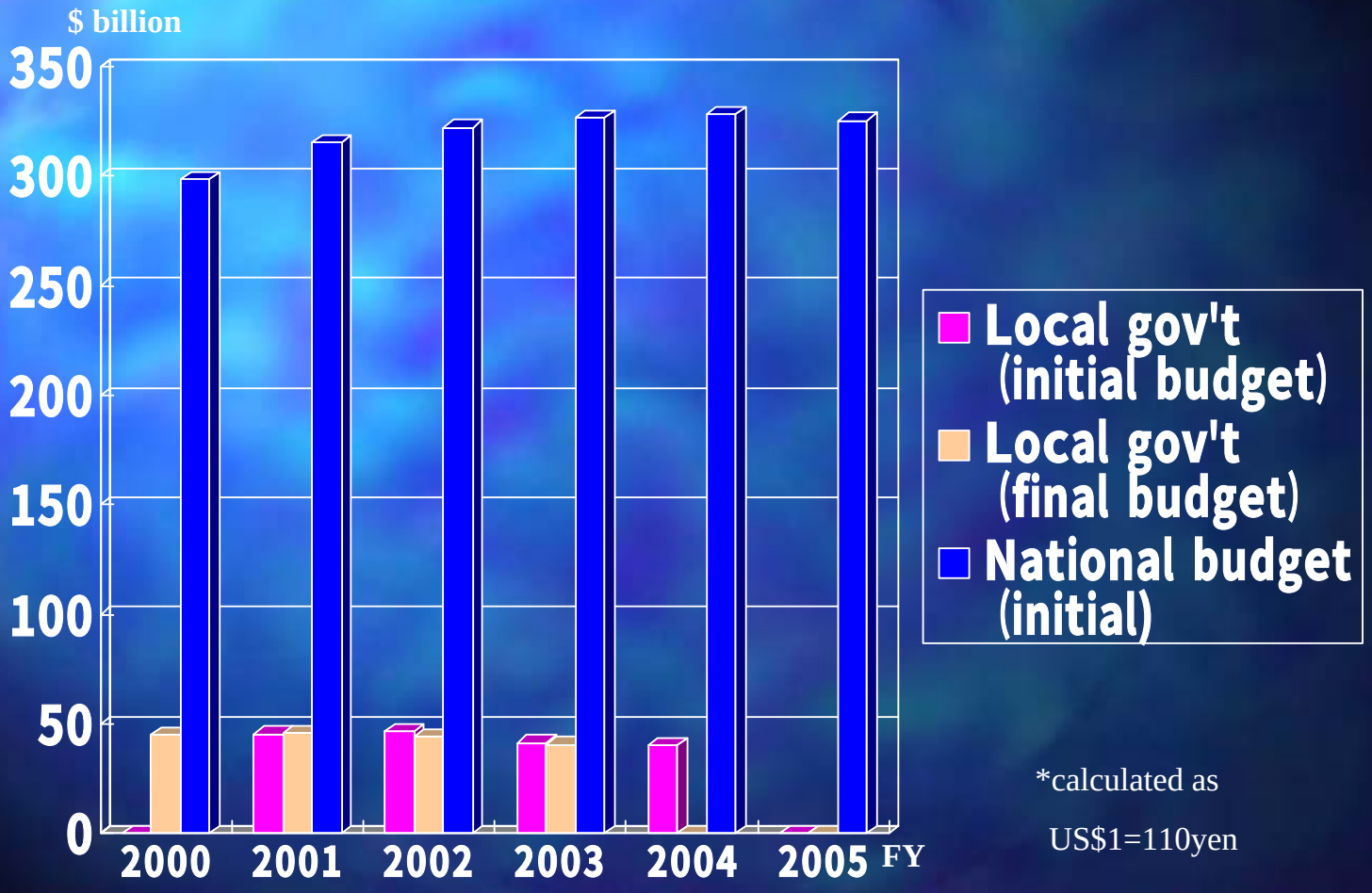
■ **Formation of the Knowledge Clusters**

- Universities and other public research institutions which have unique R&D themes and potentialities are put on the center core
- Business companies inside and outside the regions are expected to come into the clusters
- Human networks and joint research organizations are expected to be established in this process of forming the clusters
- Technical innovation is expected to occur successively through mutual stimulation between technological seeds in research institutions and practical needs in the real business world

■ **Carrying out the regional S&T promotion policy smoothly**

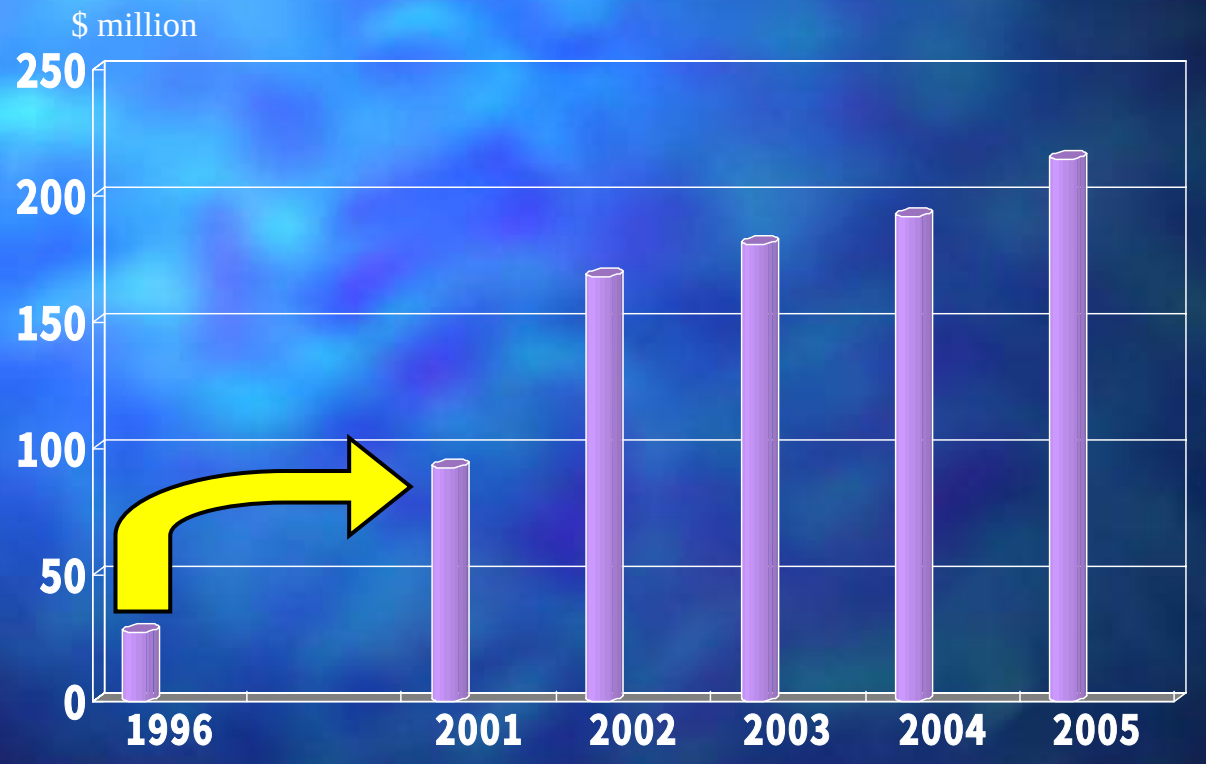
- Fostering and obtaining professional experts such as “connoisseurs”
- Building up coordinating ability between needs and seeds
- Promoting technology transfers in view of interregional cooperation
- Paying proper attention to local initiative, or cooperation under local leadership

The S&T Budget (National / Local governments)



*calculated as US$1=110yen

The Regional S&T Promotion Budget of MEXT



* initial budget

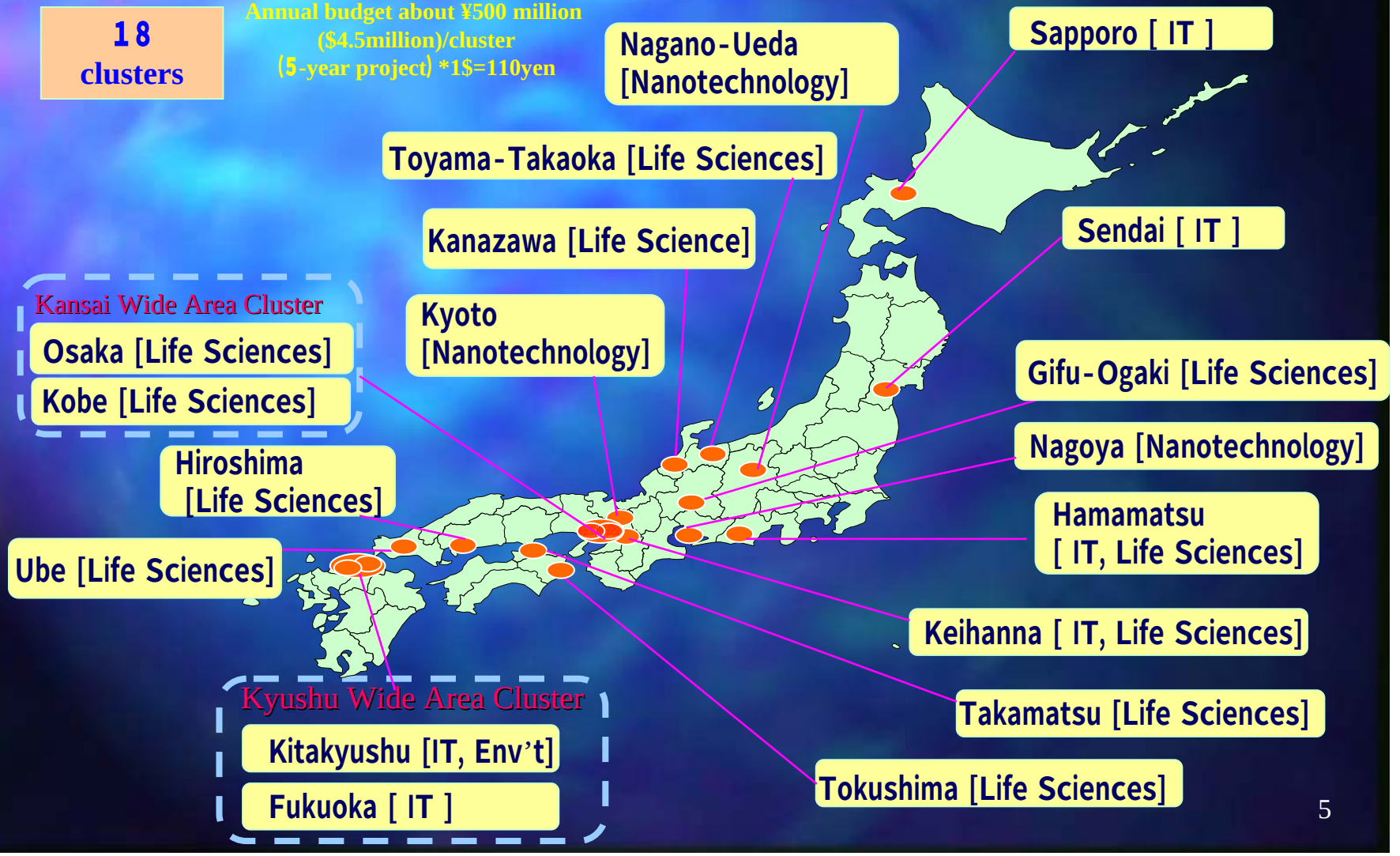
** calculated as US$1=110yen

Knowledge Cluster Initiative

To create an innovative and internationally competitive regional base which integrates research institutions, R&D industries or universities

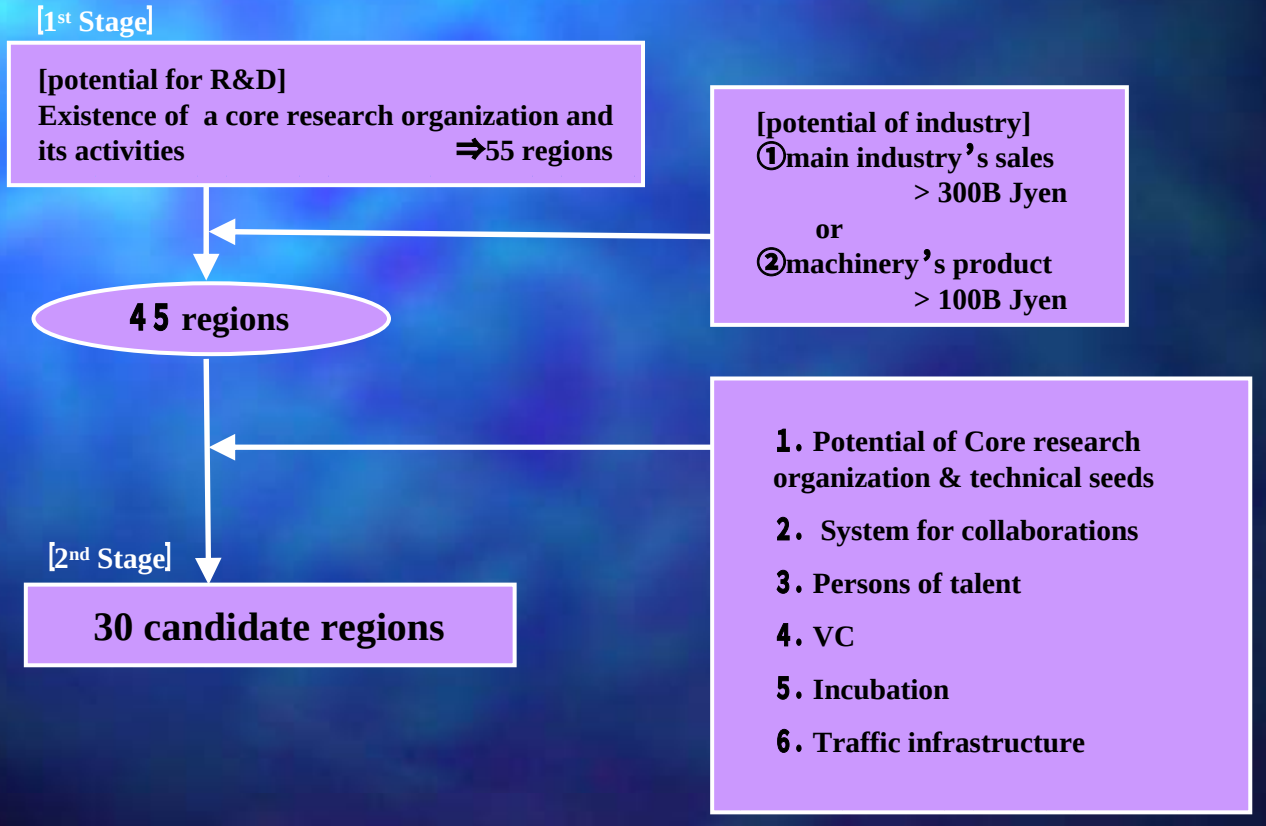
18 clusters

Annual budget about ¥500 million ($4.5million)/cluster (5-year project) *1$=110yen



Selection Process ①

Selecting 30 candidate regions（May 2001）



Selection Process ②

30 regions submitted proposals of their own cluster's plans.
MEXT selected 12 regions to be subsidized in 2002.
And 6 regions were selected in 2003 and 2004.

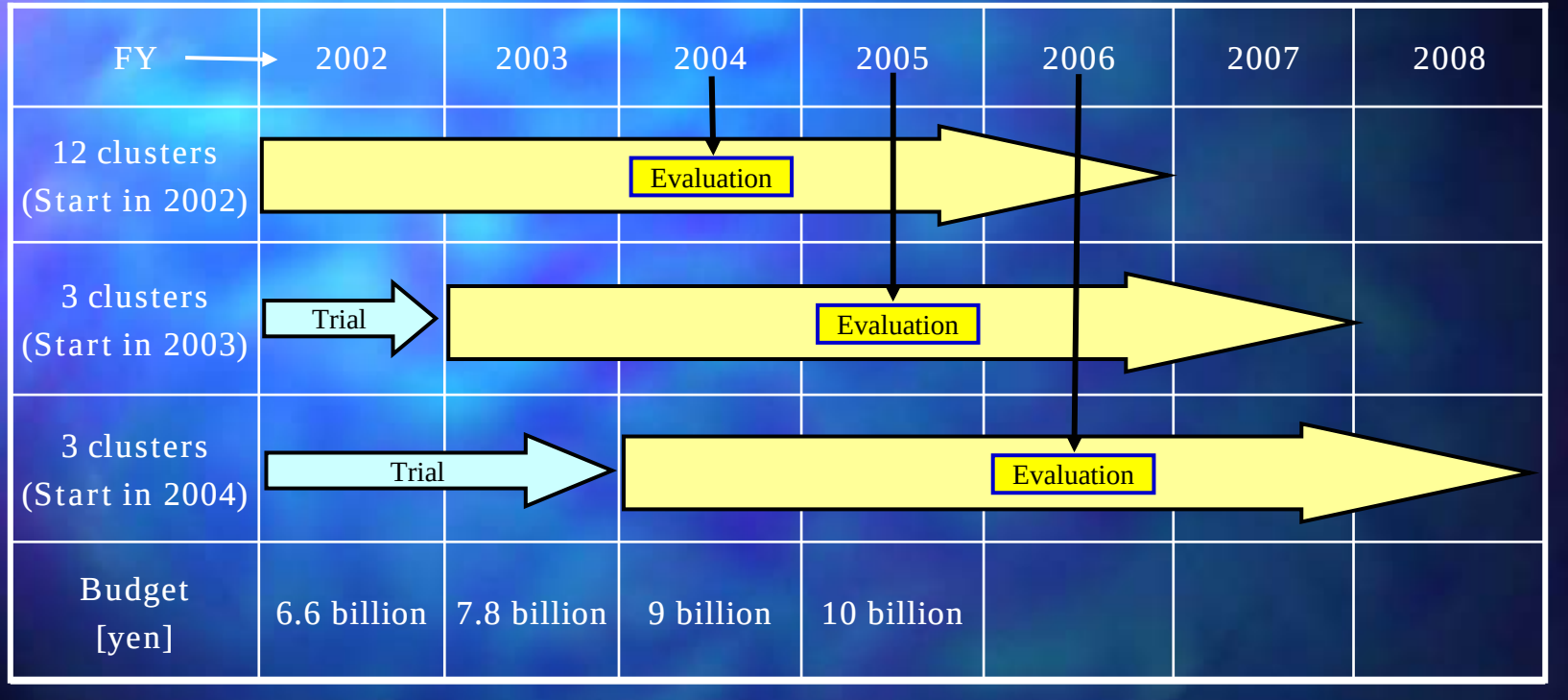
Selection Criteria

1. Basic factors
- **focus on a specific field**
- **existence of a core research organization**
- **infrastructures**

2. Technical factors
- **competence of R&D activities**
- **possibility of going into business**

3. System for projects' promotion
- **assistance capabilities of a core organization**
- **structure of the Cluster Headquarters**

4. Program carried by regional initiative
- **promoting S&T policy**
- **adjustment to their future visions**
- **Leadership of the local government**


FY
2002
2003
2004
2005
2006
2007
2008
12 clusters (Start in 2002)
Evaluation
3 clusters (Start in 2003)
Trial
Evaluation
3 clusters (Start in 2004)
Trial
Evaluation
Budget [yen]
6.6 billion
7.8 billion
9 billion
10 billion

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

Setting up

Knowledge Cluster Headquarters

Planning /Implementation

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

Core Organizations
Foundations or other corporations designated by local governments

*Various projects

Cooperation

Sponsor research

Cooperation

Cooperation

TLO, JST

Cooperation

Firms and other related entities

* • 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).

Characteristics of the project

- Initiative of Local Government
- The “core organization” financing universities for research
- Leadership of the cluster headquarter
- Competition with other regions

⇒～500 organizations, ～1500 researchers

⇒promoting reformations of university's systems

Knowledge Cluster Initiative (2002-2004fy)

	treatises		awards	patents				to other funds	product	Sales (yen)	Newa		
				Dms.		abr.					paper	TV	journal
	Dms.	abr.		app.	acq.	app.	acq.						
Sapporo	30	34	16	40	0	2	0	5	7	0	66	11	56
Sendai	40	56	9	66	0	7	0	6	37	17,849	50	9	15
Nagano	41	136	10	118	0	10	0	2	7	37,400	301	56	49
Hamamatsu	23	43	2	69	0	16	0	2	1	0	131	27	10
Kyoto	71	252	17	93	0	18	0	17	27	37,229	151	3	78
Keihan-na	97	77	12	116	0	18	0	13	12	31,577	98	12	21
Ooala(Saito)	12	188	9	17	0	5	0	9	11	273,930	86	2	5
Kobe	37	113	3	34	0	1	0	1	6	0	35	3	8
Hiroshima	12	29	7	23	0	4	0	7	7	6,700	95	20	32
Takamatsu	18	12	1	31	0	2	0	13	12	0	132	9	13
Fukuoka	55	77	10	10	0	0	0	0	1	0	44	2	19
Kita-Kyushu	52	151	5	84	0	7	0	5	27	53,120	84	1	46
Toyama-Takaoka	16	36	2	30	1	8	0	2	9	5,000	142	15	35
Nagoya	76	296	19	119	0	11	0	1	8	78,000	25	1	29
Tokushima	26	40	0	13	0	2	0	2	30	3,500	24	4	26
Kanazawa	39	52	14	32	0	3	0	0	0	0	45	6	3
Gifu	32	54	6	31	0	2	0	1	2	0	30	13	14
Ube	51	62	1	18	0	0	0	0	15	0	25	3	15
Total	728	1708	143	944	1	116	0	86	219	544,305	1564	197	474

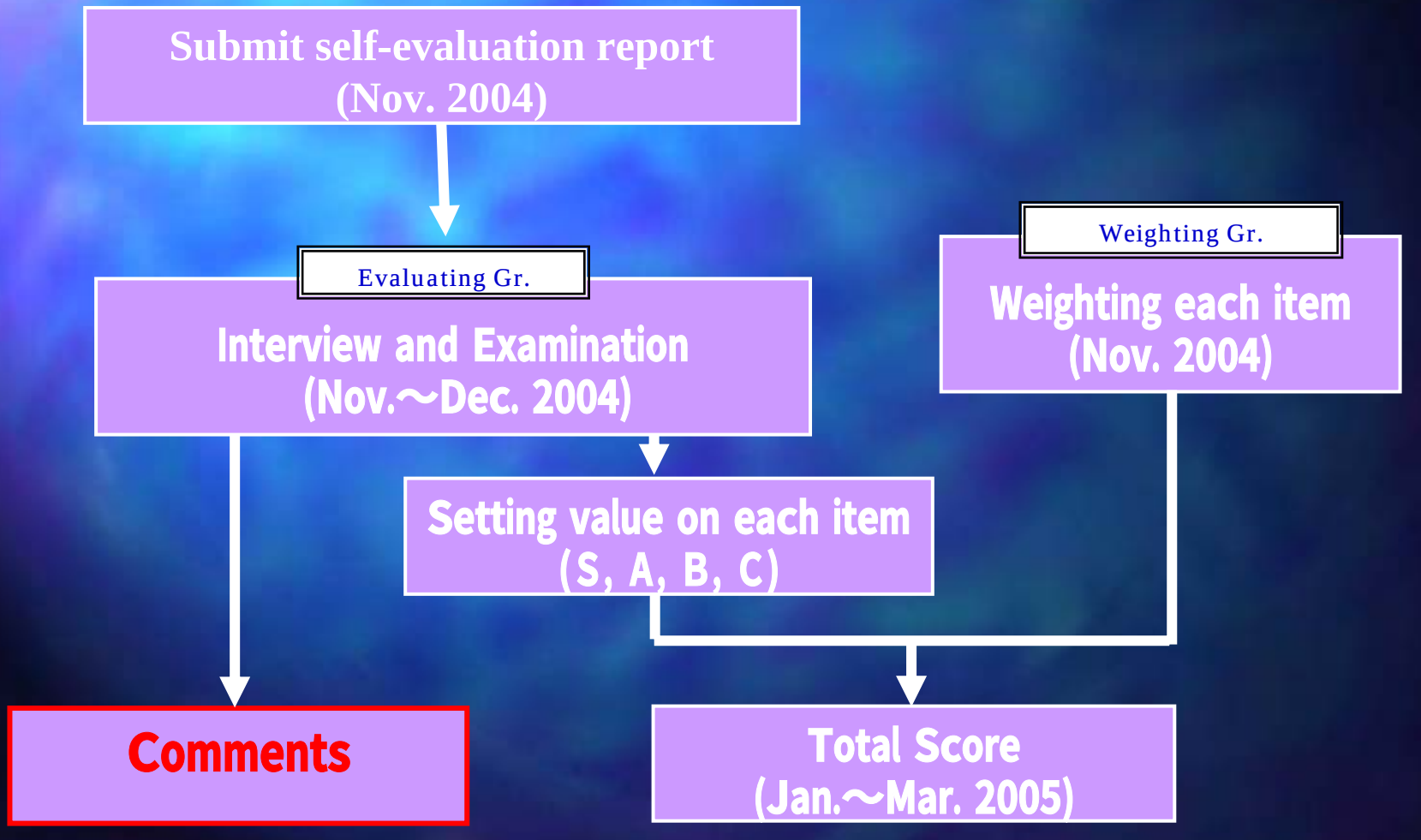
Intermediate Evaluation -①Policy-

- **PURPOSE** : Effective implementation of the Knowledge Cluster Initiative in each region and formation of clusters
- **TRAGET** : 12 clusters which started in FY2002
- **POLICY** :
  - ○ Evaluation from a long-term point of view in consideration of regional autonomy (as this is the support system in a developing phase for the formation of "Knowledge Clusters" in the future)
  - ○ Each cluster should be motivated to evaluate and reexamine its own project appropriately.
  - ○ Subsidy in FY2005 for each cluster increases or decreases according to the results of the evaluation under a sense of rivalry.
  - ○ MEXT evaluates the progress of past 2.5 years, self-evaluation, plans for next 2.5 years

Intermediate Evaluation－②Criteria－

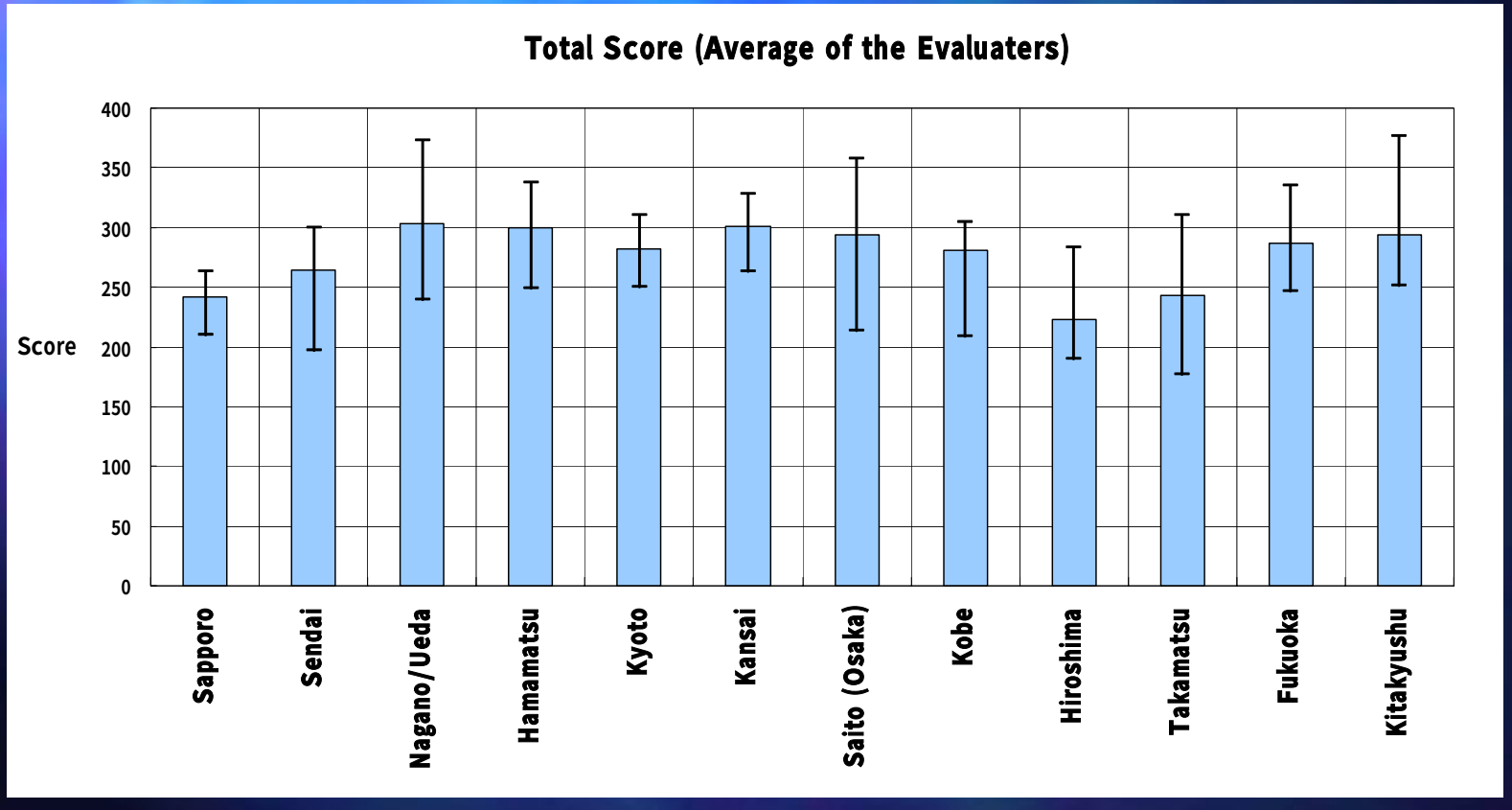
<table>
<tr><th>Item Ⅰ</th><th>Item Ⅱ</th><th>ItemⅢ</th></tr>
<tr><td rowspan="3">1．Progress
(result in the 1st half)</td><td colspan="2">(1) Technical factors (R&D progress)</td></tr>
<tr><td rowspan="2">(2) Regional programs and autonomy</td><td>①Strategy for intellectual property, industrializing, etc.</td></tr>
<tr><td>②harmonization with other policies</td></tr>
<tr><td colspan="2">(3) Systems for the projects' promotion</td></tr>
<tr><td colspan="3">2．Quality of Self-Evaluation</td></tr>
<tr><td rowspan="3">3．Plans
(plans for the 2nd half)</td><td colspan="2">(1) Technical factors (R&D plans)</td></tr>
<tr><td colspan="2">(2) Regional programs and autonomy</td></tr>
<tr><td colspan="2">(3) Systems for the projects' promotion</td></tr>
<tr><td colspan="3">4．Possibility of the future cluster</td></tr>
</table>

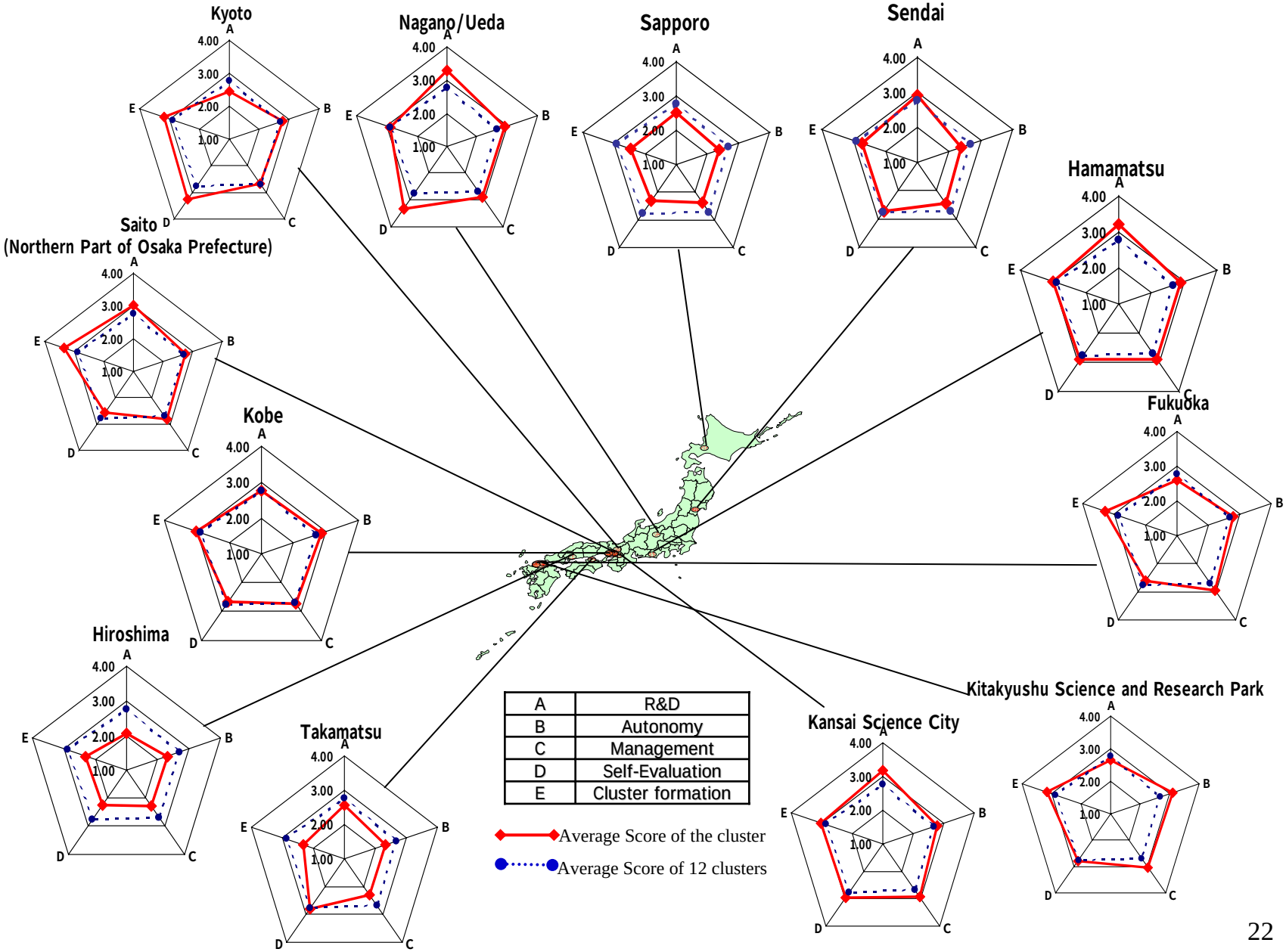
Intermediate Evaluation③ -scheme-



Intermediate Evaluation Results①-Total Score-

Announced on March 23, 2005




Kyoto
Nagano/Ueda
Sapporo
Sendai
Hamamatsu
Saito
(Northern Part of Osaka Prefecture)
Kobe
Fukuoka
Hiroshima
Takamatsu
Kansai Science City
Kitakyushu Science and Research Park
A R&D
B Autonomy
C Management
D Self-Evaluation
E Cluster formation
Average Score of the cluster
Average Score of 12 clusters

Intermediate Evaluation Results② -to be solved-

Some clusters lack……

- the course toward business in some research themes.
- integration of intellectual property strategy between Cluster headquarters and the universities.

Some clusters need……

- more market need analysis, numerical targets and involvement of private corporations.
- global activities toward the internationally competitive clusters.
- to foster or secure talented people in and out of the region.

Some clusters in life sciences field ……

- are hampered by scope of claims and lead time for clinical trials regulated by pharmaceutical affairs law.

Government has to address the system development to capitalize upon the outcome of university-level research.

Subsequent Development of the "Knowledge Cluster Initiative"

- Methodology of Ex-post evaluation
- Plan post-"Knowledge Cluster Initiative"

key-wards

-give priority

-widen area

-diversify

-harmonize & connect various policies

Cooperation with the Industrial Cluster Project of METI

CSTP : Council for Science and Technology Policy, Cabinet Office

METI : Ministry of Economy, Trade and Industry

Ministries Concerned

- Committee at the national level
- Committees at the local level within 9 regions established in October 2004

CSTP

Regional S&T Cluster

MEXT

Knowledge Cluster Initiative

New technology seeds form industry-academia-government joint research

- Setting up committees for regional cluster promotion, holding joint conferences to announce project results
- Encouraging cooperation within local entities
- "Cluster Forum 2005" at Tokyo Big Sight to be held possibly form November 30 to December 1.
- METI's budget to put new technology seeds from the Knowledge Cluster Initiative to practical use
- MEXT's budget for universities to carry out joint research with the corporations which take part in the Industrial Cluster Project

METI

The Industrial Cluster Project

New business based on the industry-academia-government networks

Continuous support from the creation of seeds to business

The Third Science and Technology Basic Plan!?

(to be enacted in 2006, now under discussion at CSTP)

Building of a regional innovation system toward the region of affluence and vitality

- Significance of regional S&T promotion
  - Sophisticate and diversify national S&T
  - Revitalize regional economy
  - Secure safety and quality of life
  - Promote dialogue between the scientific community and society
- Consistency with the strategic priority setting of national S&T
- Cooperation and complementary relations between the national and local governments

Please visit our website and get the cluster brochure

http://www.mext.go.jp/a_menu/kagaku/chiiki/cluster/index.htm

Cluster Forum held at Tokyo Big Sight on September 29, 2004