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**Industrial cluster policies and regional development
in the age of globalisation
-Eastern and Western approaches and their differences**

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Preface

Now it is the time of globalisation, when every product, service or business activity faces global market opportunities and global competitors as well.

As most SMEs in the manufacturing industries have been depending on their own market segment or niches, global competition can not only threaten their existing base and competitive strength. They may find their potential market chances and business partners in unknown countries or territories. Nevertheless, it must be understood that their existence and competence were also strongly supported by regional or local business concentration and networking, which is based on deep social division of labour and specialisation, including typical subcontracting system controlled by a big manufacturer, as well as industrial districts where small manufacturing or trading firms come all together. Mostly SMEs cannot survive if they simply depend on own limited resources and specialised skill and technological capabilities alone^{*1}.

*1 These viewpoints were argued in my former presentations at the 19th and 26th International Small Business Congresses, in 1992 and 1999.

Globalising economy inevitably testifies whether individual regional economies and SMEs in them can compete and survive by showing their own competitiveness or not. Once it was widely believed that the very development of transporting and information technology and borderless economy inevitably break the barrier of distance and make regional economies or industries almost meaningless. Nevertheless, surprisingly a sort of reincarnation of regionalism started in the 1980s, and many academics and researchers then ignited debates as well as numbers of empirical research works on the importance of regional industrial agglomeration and local networking.

Among them, the most popular one is M. Porter's 'industrial cluster' thesis, which is based on his own 'diamond theory' and economic geography principles. Many governments and organisations throughout the world adopted that idea to deploy new policies to stimulate own regional economies and to strengthen global competitiveness, depending on 'industrial cluster policy.'

This paper tries to examine and compare ongoing policy developments based on the idea of 'industrial cluster' model and their effects on regional economies and SMEs in some regions, both in Japanese and European ones. Unsolved problems or good lessons are also picked up and discussed.

Many examples and research materials were found and applied in a series of empirical research projects, one of which is the JASMEC's comparative research project last year, and another is funded by the Japanese Government's research grant^{*2}. Secondary sources are also occasionally used.

1. Globally spreading idea of 'industrial cluster' and the resurgence of 'local economy'

As already mentioned above, a sort of reincarnation of regionalism occurred, and many researchers have been discussing on the importance of regional industrial agglomeration and local networking and their contemporary meaning in the age of globalisation since the late 1980s. Names like Piore & Sabel, Krugman, Scott, Storper, Saxenian, Florida, Keeble &

*2 The former report was published in 2003 and can be downloaded from the JASMEC's WEBSITE; http://www.jasmec.go.jp/ck/cyousa/pdf/cy_ventureh14.pdf .

The latter project is 2 year's one, organised by Mitsui's research office, FEIS, YNU, and its report will be published in 2004. Nevertheless, descriptions and opinions in this paper are solely the author's personal ones.

Wilkinson are rather popular mostly in Western academic societies, and now well known to Japanese counterparts as well as policy makers. Local economies are one of the focuses of academic and public attention. The socio-economic background, however, is not necessarily favourable for local economies and communities. Slacking economies, declining industrial districts and threatened local community life in Japan since the 1990s have been widely recognised and variety of policy measures have been launched to rescue and stimulate existing local industries. Industrial 'hollowing' problem and growing number of unemployment, as well as decreasing number of SMEs with less birthrate and more death rate are so far not yet reversed in most regions, and it is now widely believed that creating new industries which can be competitive and sustain economic society must be on the top of agenda.

M. Porter's theory of 'industrial cluster' model and competitiveness^{*3} is now the most popular one in Japan, and many governmental ministries, local governments and public organisations are enthusiastically trying to apply it to seek regional innovation system, promotion of local business networking and new industrial development. Not only that theoretical ideas, but its practical deployments and their attainments in Western countries, such as in Finland, Ireland, Sweden, UK or USA, are also attractive and frequently visited. As a result, new expected players are not necessarily existing local SMEs and skilled craftsmen, but universities, research institutes, or public institutions which can be linking together and creating critical mass for further innovation and industrial development.

We must be careful, however, if we are examining possible and sustainable development of new local industries and economic revitalisation of local communities as a whole, about whether and what vast majority of SMEs and human resources can play and contribute, as 'interconnected companies,' 'specialised suppliers' or 'service providers,' which are exploiting 'geographic, cultural and institutional proximity' and maximising the advantages of 'knowledge, relationships and motivation,' concerning the real formation and development of industrial clusters. Without many competent and vital SMEs and their joining, critical mass formation and robust business linkage cannot be completed, and local economies cannot enjoy sufficient spillover effect and balanced development.

*3 M. Porter's 'diamond theory' is stressing on value chain, competitive scope, competitive advantage of nations and global platform and picking up 4 determinants, i.e. factor conditions, demand conditions, related and supporting industries and firm structure, strategy and rivalry. He extended his idea to 'industrial cluster' model, as that of keeping or strengthening high productivity, innovation and new business creation accompanied with spillover effect. His 'cluster' concept is defined as "geographic concentrations of interconnected companies, specialized suppliers, service providers, and associated institutions in a particular field that are present in a nation or region."

2. EU's regional innovation strategies and industrial cluster projects

In the early 1990s the European Union and its member states admitted their weak industrial competitiveness and planned to deploy more interventionistic policy measures to enhance European industries' competitive power. On the other hand, the EU's regional policy, which had been mainly aimed to minimise regional disparity and to promote economic and social cohesion, was more oriented to developing new local industries and stimulating innovation. Regional Innovation Strategies (RIS), which was originally formulated in 1994 and launched in the late 1990s, are new challenge to combine regional, vocational training, RTDI, industrial, and enterprise policies at individual local level. In addition, in the 2000s more attention was given to new knowledge-based economy, also innovative activities, technology transfer, inter-firm cooperation and cooperation with higher education institutions and research centres were strongly encouraged, by using the keyword, inter-firm 'cluster' development. Joint activities and project approaches were recommended.

There are a number of examples which show practical application of industrial cluster model and policy measures in the EU countries. One of them is the case of Western Scotland, where former traditional heavy industries had dominated but declined for decades. Scottish Enterprise (SE, former Scottish Development Agency) attracted FDI in the 1980s and made it 'Silicon Glen.' Later in order to be not depending on FDI alone but to promote sustainable and indigenous economic development, Scottish Enterprise Glasgow (SEG) and Strathclyde European Partnership jointly developed RIS, and in 1999 SEG and Glasgow City Council released *Joint Economic Strategy*, which aimed sustainable economic growth, creating jobs, tackling social exclusion, developing a competitive workforce and improving Glasgow's competitiveness. Thanks to the EU's structural funds, UK or Scottish government's support^{*4} and SE's own budget and power, JES has been successful not only economically, but socially. JES is now oriented to 'industrial cluster approach,' with target industries and seed technologies designated, universities, science parks, incubators, public agencies encouraged to join and link together, and partnership and project development strongly promoted.

Clear developments can be found in biotechnology and life science, software, optoelectronics and health care industries, and universities' positive efforts promoting spin-outs and

*4 In 1999, Scottish Executive and Scottish Parliament were established, as a result of the UK government's decentralisation policy. SE is now under the Scottish Executive's direct control.

technology licensing are rewarded by many success stories as high-tech SMEs' growth, as well as supporting local supplying firms. JES is now under evaluation and modification, with more emphasis on the linkage between universities and industries. More infrastructure investment is also expected, as well as human resource development and regional learning programs.

Not only Western Scotland and Glasgow city, similar experiences were found in West Midlands, UK, and Shannon district, Republic of Ireland.

Their common lessons are:

1. Strong commitment to 'cluster' policies
2. Powerful autonomous core body and its own budget and authority
3. Cooperation and partnership with regional bodies and local governments
4. Comprehensive strategy and policy, with individual projects development
5. Wide range of targeted industries
6. Positive roles played by universities, promoting partnership between education and research activities
7. Joint actions on regional and social issues and community developments
8. Attention on human capital and human development.

3. METI's industrial cluster plan in Japan

METI, the ministry in charge of economy, trade and industry in Japan, has been concentrated its efforts on the recovery of economy and industrial revitalisation. In 2002, METI announced its 'New strategy and promotion of technological innovation' plan, and designated target technologies. FY 2002's key measure was "formation of industrial clusters" to create new local industries and employment, and ¥29.4 billion was allocated to industrial cluster development measures (later increased to ¥52.2 billion).

METI approved 19 industrial cluster plans, which are based on METI's individual regional bureaus. Bureaus are expected to develop plans, to become nodes to coordinate local networking and alliances. Targeted industries are mainly biotechnology, ICT, electronics, neo manufacturing, new energy, ecology and recycling which reflect individual region's own backgrounds, scientific R&D activities and COE quality or existing industrial agglomerations. Each project plan is promoting technology licensing, university spin-outs, incubation activities, and venture investments. 3000 SMEs are expected involved. To implement plans, it is expected to exploit the Government's variety of subsidiaries and grants for science, R&D, trial experiment, business development and marketing operations.

MEXT, Ministry of Education, Culture, Sports, Science and Technology, also launched own 'knowledge cluster creation scheme,' in 2003. The scheme is based on national universities, institutes and MEXT's science promotion measures, and partnership between universities and industry is emphasised. 10 regions have been selected.

4. SME's roles and prospects in regional cluster project development

– Cases in Hokkaido, Okinawa and Kansai regions

Even if the word 'cluster' is popular and 'industrial cluster policies' are prominent, local SMEs' practical roles or their possibilities within the policy frameworks are not necessarily clear. Obviously university spin-outs can be another example of growing SMEs based on new technological outcomes, their number in Japan does not seem so impressive despite of the government's target figure and are mostly depending on governments' grants or subsidiaries, not to mention of sending successful products to the market and making stable returns to cover expenses and investment. Some distinguished academics have been supposed to be entrepreneurs who start and manage business ventures, but least impressive and convincing. Their daily engagements are still operating research laboratories with younger fellows (Hokkaido and some other cases).

Nevertheless, some SMEs are rather successful to take advantage of local industrial cluster policy measures or to develop own linkage with other firms or institutions to exploit new technological outcomes and untapped local resources. Geographical, cultural or institutional proximity, as well as considerable business accumulation and regional concentration is one of keys for their success.

In Hokkaido, before the METI's cluster plan launched, local business leaders took initiative to learn cluster ideal and some Western experiences, above all the Finish case. Their eager promotion resulted local cluster study groups, which are voluntarily organised from local business communities, farmers, government staff and academics. Groups have been trying to use local resources, existing business networks, technology accumulation and skill sets. As the METI bureau's 'super' cluster plan is targeted to IT and new biotechnology alone, both cluster ideas should be combined and show synergy spill over effect together.

Hokkaido Bio-industry Ltd., a joint venture among local entrepreneurs, has been concentrating on developing one of R&D outcomes produced by a local cluster study group and using local natural resources. Though its marketing effort was not easy one, academic researchers' support and advice, as well as various research and commercialisation grants, made it to complete development and promote the sales of healthy foods products. Job creation is a little

noticeable.

Bio Science Ltd. and Hokkaido System Science Ltd. are both engaged in custom DNA synthesis business for research laboratories and successfully growing, even if their customers are not necessarily proximate ones. Very entrepreneurial founders of both firms are materialising their plenty of experiences and marketing skills, and show rivalry and cooperation in promoting local high-tech cluster development. As a typical supporting business for emerging technology development, both can show that committed efforts will be rewarded and keep unbeatable position in the high-tech field. Local subcontractors for them are also emerging as a proof of spillover.

In Okinawa, its lower profile in industrial development and scientific R&D, as well as its remote and scattered location, does not necessarily hinder the region to materialise cluster ideal. Typical can be found in ICT and call centre businesses, and applied (old) biotechnology. Okinawa Bio 21 Ltd., a new firm producing cosmetics made from local natural resources, takes advantage of Okinawa's unique image of healthy life style and longevity, Prefectural government's wide range of support concerning technology, management and sales, and word of mouth publicity. The regret is successful entrepreneurs in Okinawa are not necessarily from native Okinawan community, but migrators.

In Kansai (Kinki), though it covers huge metropolitan area and accumulates industrial, cultural and institutional complex, its economy has been gradually declining. METI authorised 4 cluster plans, biotechnology, revitalised manufacturing, IT, and energy and ecology. A very attractive success story is Millennium Gate Technology Ltd, which was once a small metal plating subcontractor, but is now making indispensable contribution to the production of high quality DNA chips by applying its own fine precision processing technology and licensed patent. Its skill and products are world-wide attention, and in its local industrial district a number of small manufacturers are stimulated or given allying chances.

Kinki energy and ecology cluster project attracts many local SMEs to join and develop partnerships with other businesses and universities. Adhoc Kobe, WATT Kobe, and EE Net are typical project groups or joint venture among them, and supported by public bodies, academics and volunteer consultant engineers. Though it is not easy for these groups to get under way and to make stable returns, and voluntarily supporting consultants and coordinators frequently face difficulties, member SMEs' challenges are not often rewarded financially, but by claimed reputation outside and vitalised organisational nature and culture inside.

5. Brief conclusion

- What should be learnt from the Western approaches

After quickly comparing Western and Eastern experiences, above all in Scotland and in Japan, some suggestions could be extracted.

Generally speaking, Japanese approaches so far are:

- a) Weak local initiative, less systematic decision-making and policy development
- b) Insufficient local partnership with different parties
- c) Weak combination between industrial, regional, science and education policies, lacking comprehensive philosophy and concepts and often obstructed by vertical sectionalism
- d) Unclear presence of core bodies and their power, as well as strategy bearer players
- e) Narrow strategic targets, still strong high-tech obsession
- f) Unclear 'relationship' concept with existing industrial agglomeration and local resources
- g) Room left for devising effective joint measures with policies for SMEs (start-up, technology transfer, product development support)
- h) Existing public body's too strong presence and too much expectation on university spin outs (scientist /entrepreneur really appearing?)
- i) More attention should be given on 'learning region and human development' needed

If these problems cannot be solved or minimised, the idea of 'cluster policy' might be working reversely, as if indigenous local development can be sustained by central government's regulation, initiatives, budget and policy supports.

For SMEs, industrial cluster developments and technological linkage and transfer may be opportunities, but they must understand some empirical implications.

- 1) 'Supporting business' concept to be understood as a good chance^{*5}
- 2) Exploiting variety of potential needs generated within cluster development or R&D activities
- 3) Keeping core/basic technological competence and applying or utilising it in new business chances
- 4) Indispensable entrepreneurial challenge and devotion
- 5) Never waiting for technological seeds/fruits to spill out from universities /research institutes
- 6) Important management control on product development process and marketing efforts

*5 This is confirmed by Mitsui's office postal survey of 2003.

- 7) Committed alliance with other businesses and necessary powerful leadership *6
- 8) Collective technological or business supplementing collaboration demanded
- 9) 'Reputation' effect despite many failures and setbacks
- 10) Vitalizing effect on company's organisational nature and culture

In any cases, the final lesson is that 'Entrepreneurs must take the leadership!' Then, cluster policies will truly make sense. Obviously Cluster policies are useful and have much potentials on the one hand, and they must be developed, by depending on local industrial clusters, focusing on national markets and supposing world-wide expanding oportunities on the other. If so, cluster developments may be one of future ideals for SMEs,

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*6 METI's own survey shows that SMEs which often keeping good partnership are more frequently participating in cluster organisations. Nevertheless, cluster advantages are still under-use compared with US trends, and most SMEs are not stimulated by local rivalry. Industrial cluster plan office, METI(2003)

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