

Chapter 4

An Emergence of New High-Tech Cluster? The Case of Biocluster in Singapore

Yumiko Okamoto

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(Doshisha University)

I Background

Singapore is one of the first countries that introduced a cluster approach to enhance industrial development in Asia. So far, Singapore has been successful in developing such clusters as electronics, petro-chemicals, and ICT. Since the beginning of 21st Century, the government of Singapore has been very active in promoting a biocluster. The cluster was chosen since it is considered to become one of the key industries for Singapore to maintain an international competitiveness in the increasingly globalizing economy.

The task to develop the biocluster does not, however, seem to be an easy job. First of all, the biocluster is a highly R&D-intensive industry. That means the project will involve a lot of risk. Second, the global competition is becoming increasingly intensive not only because developed countries are very active in promoting the cluster, but also China and India are joining the race. In every field, ASEAN countries including Singapore nowadays feel a strong competitive pressure due to the emergence of both China and India as industrial and IT powers. It is, therefore, interesting to consider whether Singapore will be successful in penetrating both regional and global markets in this high-tech industry.

II A Development Model of a Biocluster in Developed Countries

1. A successful and/ or an unsuccessful case of development
2. Factors for the success and/or failure
3. Lock-in effect
4. The role of government

III Preliminary Assessment of the Biocluster in Singapore.

1. Initial success of agglomeration of pharmaceutical and medical equipment companies
2. Quick development of buildings and facilities for conducting bio- research (biopolis)
3. High role of National University of Singapore in developing human resources in the field of bio and bio-related industries, and
4. High demand for the provision of good medical services can be expected not only in Singapore, but also in the neighbouring countries. The medical services are becoming internationalized these days mainly due to the development of IT technology.

IV What are remaining issues?

1. Risk needs to be diversified. That means the development of venture capital is a key to success. Underdevelopment of venture capital seems to be one of the weakest parts of biocluster in Singapore.
2. When will major breakthroughs be generated?
3. Will worldclass researchers as well as companies gather in Singapore?
4. Cost effectiveness of the high-tech project. The role of the government of Singapore has been enormous in the development of clusters in many ways. Is this government-led model applicable in the development of high-tech clusters such as biocluster ?