Chapter 4-4

Flowchart Approach to Industrial Cluster Policy in Danang

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Chapter 4-4

FLOWCHART APPROACH TO INDUSTRIAL CLUSTER POLICY IN DANANG

Dinh Hien Minh[1]

Abstract

This paper is about the role of the investment climate in Viet Nam to usher its industries into the regional production network. One way this can happen is to form an industrial cluster. Based on the flowchart approach to policy formulation/development of industrial clusters, interviews have been conducted in Danang City. Findings from the interviews were as follows: 1) industrial zones/special economic zones need to be improved; 2) more comprehensive, physical infrastructure needs to be upgraded, especially roads linking Danang with neighboring provinces; 3) warehouses and railways as well as power plants should be built; 4) institutional reforms should be sustained and regulations made clearer, transparent and consistently enforced; 5) manpower training should be undertaken to attract foreign firms, including anchor ones, to invest in Viet Nam; 6) business environment as well as living conditions should be enhanced and facilities needed set up (e.g., shopping centers, hospitals, international schools and amusement centers); and, last but not least, 7) more incentives should be extended to anchor firms. All this shows that Viet Nam still has a lot to accomplish if it is to achieve its goal of becoming an industrialized country in 2020.

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INTRODUCTION

Viet Nam's socio-economic situation has exhibited remarkable changes in over 20 years of renovation and development. As one of the country's enormous achievements, gross domestic product (GDP) per capita rose to US$1,053 in 2008 from US$86 in 1988. This is because Viet Nam managed to sustain a relatively high growth for a long period: average GDP growth rate for 1986-2000 was 6.8 percent per year, and 7.5 percent per year[2] for 2001-2008.

However, Viet Nam is still considered a low-income country and is still in the early stages of development. In its Socio-Economic Development Strategy for 2001-10, Viet Nam's goal is to accelerate its industrialization and modernization process. From underdevelopment to "a modern-oriented industrialized country" is what Viet Nam hopes to achieve by 2020. Viet Nam recognizes that there is a link between building an industrialized country and pursuing a proactive international economic integration. The country also recognizes that deepening integration can bring ample opportunities (e.g., creating greater foreign market access, larger foreign investment attraction, technology, management skill transfer, and efficient resource allocation for industrial sector) as well as big challenges (fierce competition among enterprises on the world market as well as on domestic market) for Viet Nam. Effetive international economic integration plays a key role in enhancing efficiency and promoting economic growth. Effetive international economic integration creates the necessary conditions for building an industrial economy.

The recently developed conceptual framework of Viet Nam, i.e., new economic geography and the fragmentation theory, suggests that the economic forces of concentration and dispersion of economic activities can be utilized for attaining opportunities of deepening integration and narrowing development gaps if proper policy environment is prepared.

[2] GDP growth rate for 2008 was lower (6.23 percent) than those of the previous years because of the global financial crisis impact

Viet Nam enjoys geographical proximity of dynamic industrial agglomeration in Thailand and China, and large gaps in income levels and development stages can provide ample opportunities for inviting economic activities to Viet Nam. Viet Nam has abundant, reasonably well-educated and low wage labor. Yet, it has only participated to a modest extent in production and distribution networks in East Asia. If infrastructure in Viet Nam improved further, costs of service links and doing business in Viet Nam will decrease so that firms, especially foreign ones, will start seeing them as attractive investment sites. Transport hub development along the economic corridors can play an important role to reduce the cost of service links.

This case study in Danang city aims to find the hindrances to forming industrial clusters[3] to Danang by applying the flowchart approach—a step-by-step guide with focus on economic corridors such as East-West Economic Corridor (EWEC) and industrial zones (IZs), since they are instrumental in attracting foreign direct investment (FDI) and setting up production networks in East Asia. Local small and medium enterprises (SMEs) may also become suppliers to foreign firms in industrial clusters. The study concludes with policy recommendations for local governments, as well as for the Central government: (1) to attract FDI and to participate in production networks in East Asia; (2) to recommend policy measures to utilize effectively economic corridors and IZs; and (3) to recommend policy measures to develop industrial clusters in order to reach the goals of industrialization.

This paper is organized as follows. Section 2 presents the basic model of the flowchart approach to industrial cluster policy, and Section 3 applies this model in the case of Danang, Viet Nam. Section 4 presents findings relating to certain issues about industrial cluster policy. Section 5 concludes the paper by proposing policy implications in forming an industrial cluster.

[3] Cluster development is a relatively new concept, having emerged only around the 1990s. Yet in a relatively short period of time, the subject has gained immense popularity among policymakers as a very important tool for microeconomic, small and medium enterprise development. For further discussion on the concept of cluster development and policy, read *Foundation for MSME Clusters*, 2006.)

1. THE FLOWCHART APPROACH TO THE INDUSTRIAL CLUSTER POLICY

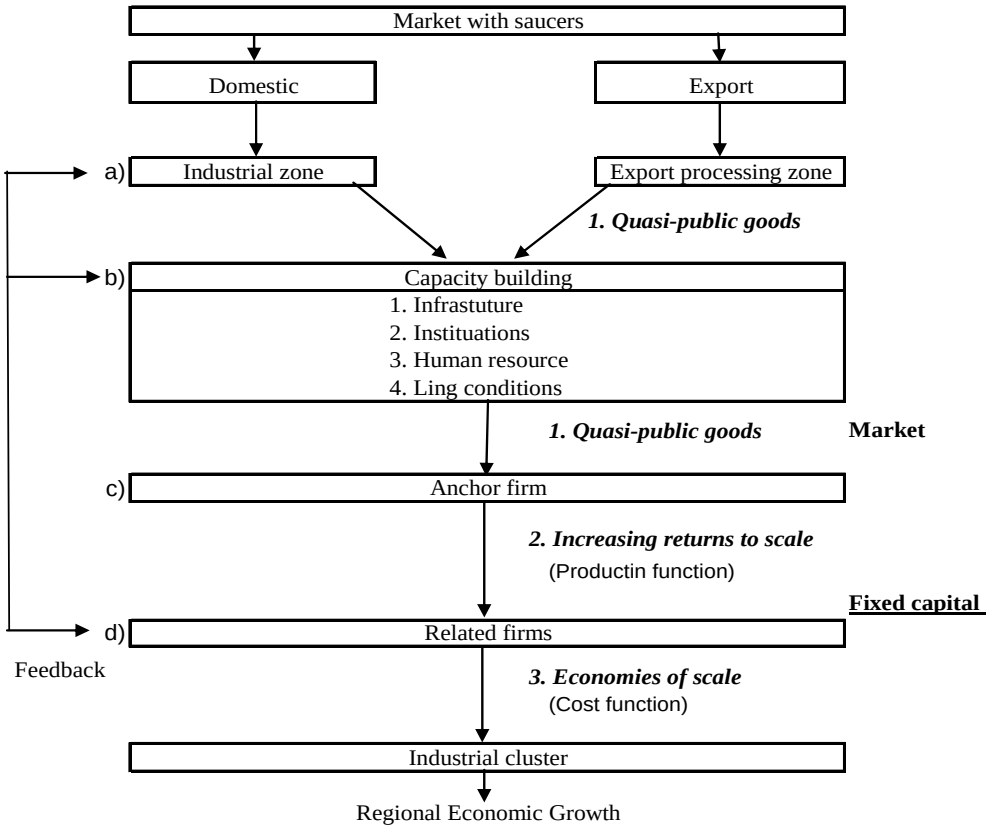
According to Kuchiki (2005), cluster development focuses on the cluster as an interconnected system rather than a physical agglomeration of enterprises in a location. It therefore must encompass the entire economic value chain which the cluster is a part of and goes beyond. It understands and directs the efforts right from raw material provision to the delivery of goods and services that the cluster produces. Cluster policy should provide the flexibility to harness the potential in different clusters of the country based upon local ground conditions in those locations.

Kuchiki (2005) has developed a theory to analyze and facilitate an effective adoption of an industrial cluster. He proposed a "flowchart approach to industrial cluster policy," theorizing that cluster policy is effective in forming industrial clusters by establishing export process zones (EPZs) and IZs, building capacity, and inviting anchor firms. The flowchart approach to industrial cluster policy can be seen in Figure 1.

Industrial clusters grow through step-wise development. As shown in Figure 1, forming an industrial cluster starts by building an IZ typically with the central government being in charge. An IZ serves as a saucer, with fulfilled conditions ready for business and manufacturing operation, to invite investors. This is the prerequisite of companies considering investing into the region. An anchor firm coming to the IZ is expected to bring with it related suppliers and partners, and that brings prosperity to the IZ and the local region. It forms an industrial cluster inside and around the IZ. Even if it is a poor area with a low-income level and high unemployment rate, after the arrival of the anchor firm, it will rise and become an attractive place for economic/production activities and municipal development.

All the foregoing forms part of *phase I of industrial cluster development*, aptly called Industrial agglomeration (Figure1). Industrial agglomeration consists of four steps by establishing EPZs and IZs, building capacity, inviting anchor firms and related firms.

Figure 1: Prototype Model of "Flowchart Approach" to Industrial Cluster Policy



Source: A. Kuchiki (2008)

Related firms that are mostly local SMEs can gradually join production networks as capacity building combines facilitation of physical infrastructure, institutional reform, human resource development and preparation of living conditions. Physical infrastructure refers to roads, ports, communications, and so on. Institutional building, also crucial to successful atraction of foreign investors, includes streamlining investment procedures through one-stop services, deregulation of laws, and introduction of preferential tax systems. Human resources, which are usually an initial condition for foreign investors, include skilled and unskilled labor, managers, researchers and professionals. Living

environment, for example, includes the provision of hospitals and international schools to attract foreign firms. An anchor firm will be ready to invest after all of this capacity building has been carried out.

Phase II of industrial cluster development is innovation stage that has the same "Capacity Building" as Phase I, only at a higher level. The differences here are: (1) Once Phase 1 has been accomplished, the demand for more skilled labor and R&D activities for the sake of further development will urge universities and research institutes to grow and enhance themselves; (2) The advent of anchor person(s) can encourage further foreign investment into the region, enlarge the scope as well as enhance the quality of the industrial cluster(s).

2. THE FLOWCHART APPROACH TO THE INDUSTRIAL CLUSTER POLICY IN DANANG CITY

This section applies the flowchart approach to the industrial cluster policy in Danang. This is phase I of industrial cluster development. Danang City was chosen for this undertaking because it is situated in the middle of the country, right on the transport hub of the north-south highway, rail, sea and air routes, lying 764km south of Ha Noi and 964km north of Ho Chi Minh City. Moreover, Danang City lies at the east end of the East-West Economic Corridor (EWEC) and is the gateway to the Pacific Ocean at the Tien Sa Seaport. The Danang sea port (including Tien sa seaport, Han Riverport and Lien Chieu seaport) is the import-export port of the virtually untapped hinterlands of Laos, Northeast Thailand, Myanmar and central Viet Nam. Therefore, Danang City is a potential site for industrial clustering.

Interviews were conducted in Danang by applying Kuchiki's basic model of flow-chart approach to industrial cluster policy (see "The Questionnaire on Industrial Cluster Policy" in the Appendix). The questionnaire was administered to 12 key persons involved in IZs, industrial development and working in local government agencies and enterprises, including state-owned, private, joint-venture and 100 percent foreign-invested enterprises.

Results of interview using the flow chart approach are as follows:

Table 1: Summary of flow-chart-approach interviews in Danang*

	Respondents												Results	Problems
	1	2	3	4	5	6	7	8	9	10	11	12		
1. Do industrial zones exist sufficiently?	O	O	O	O	O	O	O	O	O	O	O	O	12	
Capacity building: Physical infrastructure														
2. Does road transport (infrastructure) exist sufficiently?	X	X	X	O	O	X	X	X	O	O	X	O	5	X
3. Does electricity infrastructure exist sufficiently?	X	O	X	O	O	X	O	O	X	O	X	O	7	X
4. Does communication infrastructure exist sufficiently?	O	O	O	O	O	O	O	O	O	O	O	O	12	
5. Does port infrastructure exist sufficiently?	O	O	O	O	X	O	O	O	O	X	X	X	9	
6. Does other infrastructure exist sufficiently (warehouse, train or air)?	NA	NA	NA	NA	X	X	X	NA	X	X	NA	X	6	X
7. Do institutions exist sufficiently?	O	O	X	O	O	X	O	O	X	X	X	O	7	X
Human resources														
8. Does unskilled labor exist sufficiently?	X	X	X	X	O	X	X	X	X	X	X	X	1	X
9. Does skilled labor exist sufficiently?	X	X	X	X	X	X	X	X	X	X	X	X	0	X
10. Does Professionals exist sufficiently?	X	X	X	X	X	X	X	X	X	X	X	X	0	X
Living conditions														
11. Do schools exist sufficiently?	O	X	X	O	O	X	O	X	X	X	O	X	5	X
12. Do hospitals exist sufficiently?	O	O	X	O	O	X	O	X	X	X	O	X	6	X
13. Do amusement exist sufficiently?	O	O	X	O	O	X	X	X	X	X	O	X	5	X
Anchor firms:														
14. Do anchor firms exist ?	X	O	X	O	O	NA	O	O	O	O	O	O	9	?

Note: * Interviews in Danang on Dec. 8-12, 2008
X means that it is a problem
O means that it is existing or existing sufficiently
NA means it is not available
Source: Authors

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- *IZs*

In terms of development of land, five IZs (Danang IZ, Hoa Khanh IZ, Lien Chieu IZ, Hoa Cam IZ, Aquatic Service IZ) have been built in Danang City. The total land area of these five IZs is at least 1,400 hectares. The infrastructure in the industrial zones have been improved to benefit local and foreign investors alike. In addition, the province city of Danang is now encouraging foreign investors to develop the new Hoa Phuong IZ with a land area of 500 hectare and a high-tech zone with a land area of 1,214 hectares (IPC Danang, 2008). At present, occupation rate in the five IZs is about 60 to 70 percent. In this

regard, it is easy to understand why all interviewees admitted that the development of land in Danang IZs would be sufficient for the formation of an industrial cluster.

- *Capacity building: Physical infrastructure*

According to Edmund Malesky et al. (2008), Danang City is one of three cities with the best physical infrastructure in Viet Nam. This is consistent with the respondents' perception that physical infrastructure in Danang have considerably improved time. Water supply and telecommunications have satisfied investors and businesses. One water plant in Danang is capable of providing at least 80,000 cubic meters a day. Existing water supply exceeds water demand. A new water facility, currently under construction, is projected to have a capacity of 120,000 cubic metes a day. In terms of post and telecommunications, Danang City has an international marine optical fiber cable station (SE-ME-WE 3), considered the ASEAN's top-ranged international transmission line with a speed of 355 mega bits per second. Major companies such as VNPT, MobiFone, Viettel, EVN telecom, HT mobi, and Sfone have existing facilities in Danang, providing services with relatively high quality.

But electricity supply and other physical infrastructure such as roads, sea ports, air ports and railways, are limited. In Danang City in general and in IZs in particular, electricity supply comes from the national North-South 500KV high voltage grid, on which the availability of electricity depends a great deal. More than half of the respondents said that in shortage of electricity usually happens during summer time, and power loss happens frequently without prior notice. This has resulted in increased production costs for some companies due to the need to reset production processes. Shortage of power supply is thus among the obstacles to industrial development.

The respondents expressed dissatisfaction on the state of transportation infrastructure. Road networks in Danang City are relatively good because they are paved, but those connecting the city with neighboring provinces (such as roads from the Lao Bao border gate to Danang) remain narrow and still underdeveloped.

Port facilities at the Danang sea port are insufficient due to lack of nearby large warehouse and internal railways. It leads to low frequent use of sea port and actual throughput is about 3 million tons. Therefore, transport of goods via sea port in Danang City is still costly compared to other sea ports.

The Danang sea port is the third largest commercial port in Viet Nam after the ports Saigon and Haiphong. With navigation depth of 11 m, it can receive 45,000 DWT ships and other kinds of vessels such as container ships and large cruise ships. The annual throughput capacity for handling cargo through the Danang port is about 4 million tons.

Still another source of respondents' dissatisfaction is the state of the Danang International Airport. The airport can handle B747, B767 and A320 aircraft, but the frequency of international flights is insufficient to meet businesses' requirements. This is evident when a company needs to transport its goods fast but freight transport of goods by airport is not feasible and sometimes very costly. At the moment, the airport is being expanded to include a new terminal that is targeted to meet the increasing demands for passengers and cargo transportation.

- *Capacity building: Institutional reforms*

All respondents noted that administrative reforms and the investment climate have improved significantly over time at the national as well as provincial levels, including Danang City. Ministries and people's committees at all levels have streamlined and rationalized administrative procedures and business requirements.

The Management Board of the Danang Industrial and Export Processing Zones (DIEPZA) is an authority established in 1994 by the Prime Minister (DIEPZA, 2009) to undertake public administration of the industrial and export processing zones in Danang City. DIEPZA is responsible for formulating appropriate regulations for the management of IZs, undertaking infrastructure development within and outside related IZs, provide assistance in attracting investment to IZs, and grant investment licenses to foreign or joint venture investments.

Complementing the role of DIEPZA is the Danang Investment Promotion Centre (IPC DANANG), which was established by the People's Committee of Danang. IPC DANANG assists the People's Committee of Danang to facilitate investment licensing procedures and promote domestic and foreign investment to Danang.

While DIEPZA acts as a one-stop-shop service for foreign investors inside IZs, IPC DANANG is a one-stop-shop service for foreign investors inside and outside IZs in Danang City and the Department of Planning and Investment for domestic investors. The one-stop shop is the point of entry for all inquiries about establishing a new business or expanding existing ones in Danang City. As a result of the one-stop shop implementation, waiting periods for business registration and procedures for start-up have declined significantly. Investment licenses are granted to appraised projects within 10 days and registered projects in five days. As a one-stop shop, DIEPZA provides investment incentives for the IZs in Danang, such as those dealing with power and water supply costs, price of land used rights, among others.

The respondents complained that legal requirements are cumbersome and regulations and by-laws are unclear, inconsistent, and overlapping. They referred in particular to the Investment Law, Construction Law, Land Law, Environmental Protection Law, to name some. They described these legislated laws as confusing and even contradictory with each other, specifically on the sequence and procedures for setting up investments. In addition, enforcement of specific regulations is always delayed. All of this hinders on investment attraction and business development.

Despite some recent improvement in customs procedures, some respondents claimed that firms still are willing to bribe customs officers to fast-track customs clearance.

- *Capacity building: Human resources*

Danang City boasts 14 universities and colleges, 15 junior colleges and technical secondary schools, and many vocational and informatics and foreign language training centers. Every year, tens of thousands of personnel are trained in the city. Against this

backdrop, the respondents unanimously indicated that although the city's human resources are of the highest quality in central Viet Nam and the highlands, they fail to meet the requirements of businesses. They claimed that the quality of education and training system is still very low compared to international standards. Curriculums and programs are backward. As such, trained labor supply does not meet business demands, especially for terms of professional labor. Thus, it is difficult to recruit high-quality skilled labor and professionals in Danang.

Danang's average population as of 2007 is 806,900, of which the labor force accounts for 58 percent. As such, the city is considered small compared to other regions. Due to the high economic growth in Danang City over the past decade, not only skilled, but unskilled labor has also become unavailable. Many businesses have had to recruit labor from outside the city such as rural areas in neighboring provinces. But even this task has created problems. According to some respondents, some laborers from rural areas are always on the lookout for higher-paying jobs even in other areas like Ho Chi Minh City. This means higher turnover. For others, this is seen as a way to accelerate technological transfer and thus contribute to the accumulation of regional technical capacity.

- *Capacity building: Living conditions*

Living conditions include the provision of residential areas, shopping centers, hospitals, international schools and amusement centers in order to attract more foreign firms. All respondents agree that Danang City have recently begun to develop real estate, including the facilities referred to earlier. Still, they think that there are insufficient basic and modern facilities as well as amenities for foreign investors. Even public transportation is yet to be fully developed.

The lack of foreign schools is still another disincentive to potential investors. As present, there is only one international primary school in Danang.

- *Anchor firms*

An anchor firm should have high-value forward and backward linkages. A good anchor firm with upstream and downstream industries is the key force for forming an industrial cluster.

Most respondents consider the Danang ITG Phong Phu Corp., a joint venture between Phong Phu Corp. (a Ho Chi Minh City-based textile company) and International Textile Group subsidiary Burling Worldwide (USA), as the first anchor firm in Danang City. ITG is the largest textile complex in Viet Nam with a total investment of US$80 million. It specializes in producing cotton and khaki with a self-contained production line from material processing to dying, washing and finishing products. The complex includes three plants—a cloth, sawing and dying plant.

By the end of 2008 the textile complex started its production, providing employment to about 1,500 workers while seeking export markets for more than 90 percent of its output. In the years to come, the Danang ITG Phong Phu Corp. expects to purchase inputs from local firms.

3. FINDINGS FROM INTERVIEWS

Findings from the interviews using the flowchart approach are similar to a large extent to those of the investment climate survey in Danang and Ho Chi Minh City (see Dinh Hien Minh and Trinh Quang Long, Nguyen Minh Thao, 2008).

According to the respondents, among the factors that contribute to forming industrial clusters are the existence of IZs, including site development and incentives, water supply and telecommunications. The respondents in Danang viewed land development as no major problem for them, claiming there is still enough land to be developed for industry.

Factors considered as hindrances to attracting anchor firms and forminng industrial clusters are as follows:

Physical infrastructure

- Limited power supply and frequent power outages;
- Poor or insufficiently developed road networks.
- Insufficient sea port facilities in Danang City.

Soft infrastructure

- Unclear and inconsistent regulations and delayed enforcement of the existing some regulations;
- More incentives should be extended to anchor firms;

Human Resource

- Skilled and professional labor, and even unskilled ones are not available in Danang City.
- The quality of workers also presents a major issue

Living conditions

- Lack of basic facilities and modern amenities such as hospitals and amusement centers for investors.

4. POLICY IMPLICATIONS FOR INDUSTRIALIZATION

Viet Nam now stands at the threshold of industrialization and pursues regional production networks like electronic industry or garments and textiles industry. To achieve its goal of becoming an industrialized country by 2020, Viet Nam needs to pursue, among others, infrastructure development, both on the physical and soft (or institutional) sides.

Being the focal point of the special economic zone of central Viet Nam and end point of EWEC, Danang City has built its development strategy for 2010 on changing an economic structure that will create a bigger industrial share in GDP and its development strategy from 2010 to 2020. One way this can happen is to form industrial clusters. This is

an area where Danang's potential can be harnessed. Becoming a textile or garments industrial cluster or logistics service hub in the center of Viet Nam and EWEC may not be easy for Danang City, but it is feasible. Toward this end, the local government should formulate a policy to form and develop industrial clusters. It also needs to invite anchor firms that can create backward linkages. Once operational, anchor firms can usher in the second stage of industrialization—attracting related firms. The evolving supporting industry will extend beyond Danang to neighboring provinces.

Industrial cluster policy in the case of Danang should be focus on the following:

a) *IZs:* developers of IZs should take into account that the infrastructure must be comprehensive for firms.

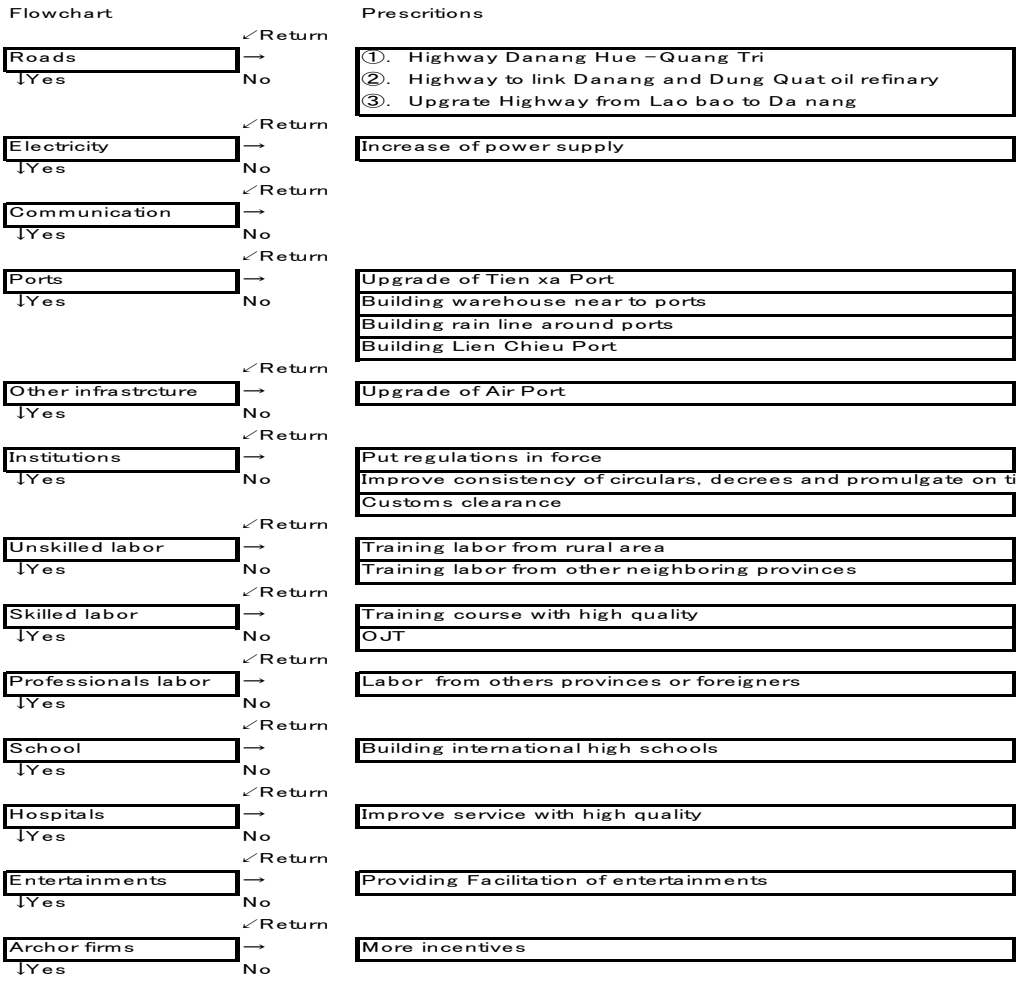
b) *Infrastructure*

Despite the acknowledged improvements in infrastructure systems, businesses are not yet fully satisfied with their present state. Further improvements are in order such as developing the transportation system in general and the road transportation system in particular. The former should be given top priority. In the case of Danang, roads from the Lao Bao border gate to Danang should be upgraded, and highways from the Dung Quat finery factory to Danang and those from Danang via Hue to Quang Tri should be built.

Achieving full capacity utilization at the Danang sea port requires increasing water depth and buildng roads, railways, warehouses and setting up logistics service companies. Such companies are preferably foreign-owned. This will mean reduced costs for enterprises engaging these companies' services, since middlemen fees will be avoided if freight and goods are bound for Singapore, Taiwan and Hong Kong as importing countries.

Continuous production requires adequate electricity or power supply This means there is a need to build more power plants, especially in the central area where there is no big power plant yet. Achieving this will reduce dependence on power transmitted from the national North-South 500KV high voltage grid, where electricity shortage is becoming serious.

Figure 2: Danang's Flowchart



Source: Authors

c) *Institutions*

The institutional aspect of achieving a better investment climate requires regulations that are simple, clear, consistent, transparent and readily enforceable. Obtaining the inputs of businesspersons during the policy making process and ensuring that laws and regulations are enforced fully and consistently nationwide will undoutedly help.

d) *Human resources*

A globally competitive workforce can be achieved through intensified training according to international standards. This can be implemented by opening more high-qualified training centers and schools. Local governments can support this endeavor providing more incentives to firms to train their workers on the job. They should also provide incentives to companies to attract more professionals and engineers to work in provinces like Danang City. Curriculum reform should be pursued alongside overseas education and training in some cases.

e) *Living conditions*

Developing IZs also requires the provision of a system of housing and other social services that serves the recreational needs of workers. Foreign investors seeking longterm stay in Viet Nam are expected to bring their families with them. Hence, basic facilities and modern amenities like schools, hospitals and recreation centers should be built on international standards./.

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APPENDIX

Questionnaire on industrial cluster policy applied Flow-chart Approach in Danang

	Answer
1. Do industrial zones exist sufficiently?	
Capacity building: *Physical infrastructure*	
2. Does road transport (infrastructure) exist sufficiently?	
3. Does electricity infrastructure exist sufficiently?	
4. Does communication infrastructure exist sufficiently?	
5. Do port infrastructure exist sufficiently?	
6. Does other infrastructure exist sufficiently (warehouse, train or air)?	
Institutions	
7. Do institutions exist sufficiently?	
Human resources	
8. Does unskilled labor exist sufficiently?	
9. Does skilled labor exist sufficiently?	
10. Do professionals exist sufficiently?	
Living conditions	
11. Do schools exist sufficiently?	
12. Do hospitals exist sufficiently?	
13. Do amusement facilities exist sufficiently?	
Anchor firms:	
14. Do anchor firms exist?	

Source: Kuchiki (2008) et al.