

APEC Best Practices Guidelines on Industrial Clustering for Small and Medium Enterprises

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- **Advantages of Industrial Clustering**

The ability to innovate under globalization is the key to the competitiveness of an economy. Industrial clusters are favorable for the establishment of such an ability and enable SMEs to sustain both their development and innovation capabilities. It is well known that there are several advantages for firms, especially SMEs, within an industrial cluster.

First of all, it can provide complementary resources, such as technology and information exchange, management assistance, and so on, to enhance the performance of the firms. Industrial clusters underline the benefits of knowledge sharing, which is the basic reason for firms to congregate together.

Secondly, since these firms are located in very close proximity to one another, industrial clusters make regional competition that much keener, thus promoting firms' efficiencies. Fierce competition for both clients and suppliers is unavoidable.

Thirdly, industrial clusters also help firms to quickly respond to the demands of the market or to changes in technologies. Firms within the cluster can fulfill their OEM or ODM contracts much more quickly than those outside of the cluster. The ability to leverage resources to adapt to changes in the markets and to fluctuations in technology should be one of the major benefits for firms to stay within a cluster.

Finally, the adoptions of new information technologies, ICT, do not threaten, but rather enhances cluster viability and vitality. ICT infrastructure alone would not have the same effect. The interaction between cluster dynamics and ICT infrastructure

produce the types of benefits. SMEs, located outside a cluster, would not gain as much from the use of the ICT infrastructure even if with a strong reputation. Presence in a branded cluster helps remote clients find SMEs, and trust them to perform the kinds of activities needed.

- **Cluster-based Policies**

Cluster-based policies are useful for regional and national economic development. In an industrial cluster, the government, universities, and firms form a complementary network to facilitate continuous industrial growth, upgrading, and restructuring. An industrial cluster establishes a regional competitive advantage that allows itself to absorb technologies, create new technologies, diffuse knowledge, and retain skilled workers. National endowments create industrial districts, but afterwards the governments should take some policy efforts to transform an industrial district into an industrial cluster. Benefits of industrial clustering apply to both high-tech and traditional industries and there is no reason why SMEs cannot benefit from industrial clustering. However, one must keep in mind that there is no one-size-fits-all industrial-based policy.

1. **Infrastructure**

It is possible for a government to drive industrial agglomeration through regulatory or policy measures, or through the establishment of industrial parks in the early stage. These strategies may include financial funding to promote incubator best practice, promoting venture capital industry, reducing market-entry barriers by simplifying regulatory and tax schemes, and pursuing international technology cooperation.

Infrastructure items, such as electricity, water, telecommunications, suitable land, living environment and one stop services by the government are all important to pull potential firms and human skills together. For developing countries that lack their own resources to embark on a full-blown infrastructure development, it may be useful for them to concentrate efforts in a small region to attract investments, including foreign capital. After a cluster emerges in the region, then the area can be gradually expanded to include adjacent regions.

2. **Sources of Technologies**

Geographic location may provide another useful set of boundaries within which to organize innovation. Geography may provide a platform upon which knowledge may be effectively organized. It can be argued that innovation is an important element in the operation of an industrial cluster. Without the capability to innovate, an industrial cluster will soon be on the decline and firms will begin to disperse and relocate to other regions. This capability has to be owned by the firms themselves; public institutions can help, but they cannot replace private efforts.

A cluster may be developed initially by borrowing foreign technologies, but eventually the sustainability of the cluster has to depend on indigenous technologies. Without the indigenous technologies, a cluster can only be an enclave at best. In other words, foreign investment is not enough to create a sustainable industrial cluster. The government has to make sure that indigenous technologies can be accumulated along with the formation of an industrial cluster.

3. Human Resource Development

Human resources are an indispensable ingredient in the formation of an industrial cluster. Although part of human resources can be obtained from abroad, the availability of locally-sourced human resources is crucial to the operations of a cluster. Therefore, investment in human resources is an absolute necessity for any country that is interested in developing an industrial cluster. There is no evidence that training institutions such as universities have to be located near a cluster, but geographical proximity does appear to be useful in terms of facilitating knowledge diffusion. Public institutions devoted to industry-specific training of human resources also prove to be useful in accelerating skill formation in preparation for cluster development.

4. Cross-border linkage

Growth is also a very important element in an industrial cluster. Growth leads to an increase in the number of firms and it drives horizontal differentiation of products. Without significant growth in market demand, a cluster will never emerge. Therefore, a linkage to a growing market is essential to the formation of a cluster. For most developing countries, the major growing markets are often in developed countries, and therefore the ability to export to these markets is critical to the success of an industrial cluster. In this regard, foreign direct investments as well as liberal trade are

useful in bringing about the linkage to such export markets. In addition to foreign investment, domestic firms have to be a part of the export drive, making their own linkage to the major markets. Personal connections, such as returning engineers from the major markets, sometimes also help.

5. Facilitation of E-commerce

In the adoption of e-commerce, there are many weaknesses confronted by SMEs. These general barriers to adoption of the Internet are well-known: lack of skilled employees, lack of ease in using technology adapted to SMEs, and also a lack of an awareness of the potential benefits for them. Being more followers than leaders, SMEs seem to need support from public institutions in performing e-business. A series of projects toward e-commerce for SMEs should be launched.

In addition to providing SMEs with information relevant to e-commerce, the government can work with large dominant enterprises to provide technical service, human resource training, and incentives as well as setting up systems to encourage active participation by SMEs. Policy makers need to ensure high quality broadband infrastructures for economic development. The policy of ICT infrastructure cannot be isolated from other business development policies, and especially from cluster-based policies in targeted sectors, such as biotechnology and high technology.

6. Division of labor within an industrial cluster

Vertical disintegration is a norm in industrial clusters. Vertical disintegration allows small-scale specialized suppliers to reap the benefits of economies of scale - an important driving force for agglomeration. There is no apparent effective policy to prompt vertical disintegration in industry. Vertical disintegration is a result of competition and the need to cut production costs through subcontracting and out-sourcing. The only meaningful policy in this regard is to ensure that competitive forces are at work in an industry. In this regards, the government should not attempt to protect incumbent firms or create a situation that brews a monopoly. Even if domestic firms have a dominant position in the global market, it is still useful to make them contestable.

7. Entry of new firms

The prevalence of subcontracting and out-sourcing arrangements in an industrial cluster not only allows specialized suppliers to emerge, but also reduces the cost of entry. As the entry barrier is lowered, more firms will compete in the industry, which drives the dynamic process of clustering. It has been shown that entry barriers are lower in industries that are more geographically concentrated. Therefore, industrial clustering is also useful in promoting competition and incubating SMEs. The government can adopt some proactive policies to attract specialized suppliers in a cluster if such suppliers are absent due to location-specific entry barriers. Any missing links in the production chain tends to limit the development of an industrial cluster, which further impedes potential firms' market entry.