Bangladesh Garments Accessories and Packaging Manufacturers & Exporters Association (BGAPMEA)

Final Study Report
on
"Encourage formation of clusters of packaging and accessories units for better integration for Garments Accessories & Packaging (GAP) Sector"

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FOREWORD

Global countries and regions have embraced the cluster concept with even more enthusiasm than ever before. Not surprising since much of the research that informs industry cluster studies originates in case studies of European regions such as in northern Italy, southern Germany, Great Britain, and Denmark. Industry cluster analysis informs National Innovation Systems (NIS) planning at the OECD and most members of the European Union have conducted cluster studies at the national and or industry-level. It seems that the question "Why study industry clusters?" could be answered simply by noting the popularity of the concept in development planning; it is clear that one cannot fully understand regional development policymaking without some knowledge, perhaps even direct experience, with industry cluster applications. But are industry clusters a passing fad, the latest craze in a field prone to embrace miracle solutions only until a more fashionable idea emerges? Certainly, at issue among some regional scholars is whether there is actually anything new or innovative about industry clusters.

In this monograph, we argue that the greatest value in the industry cluster concept is its capacity to help both the analyst and policymaker see the regional economy as a whole. That is, industry cluster analysis is not so much an innovation in regional theory or methods, as it is a comprehensive approach for understanding regional economic conditions and trends, as well as the policy challenges and opportunities of those conditions and trends portend. In large measure, industry cluster analyses and policies may be viewed as applications of a set of well-worn but rejuvenated theories of how geography helps drive economic growth and change. Industry cluster analysis can help exploit the growing wealth of regional economic data, provide a means of thinking effectively about industrial interdependence, and generate unique pictures of a regional economy that reveal more effective policy options.

Boekholt writes that the "multitude of cluster initiatives has led to a wide spread confusion of what clusters really are, and in what way they differ from related phenomenon, such as industrial districts, techno poles, networks, and industry-research collaborations. Held notes: "Sadly, in the rush by various governments to employ clusters, some fundamental issues have been slighted, including appropriate research methods and even the definition of the cluster itself." In this report, I examined the rich literature in geography, regional science, urban planning, economics and other related fields that explores core theoretical and applied concepts on which applied and scientific industry cluster studies are based.

EXECUTIVE SUMMARY

The term business cluster, also known as an industry cluster, competitive cluster, or Porterian cluster, was introduced and popularized by Michael Porter in The Competitive Advantage of Nations. The importance of economic geography, or more correctly geographical economics, was also brought to attention by Paul Krugman in Geography and Trade (1991). Cluster development has since become a focus for many government programs. The underlying concept, which economists have referred to as agglomeration economies, dates back to 1890, and the work of Alfred Marshall. Michael Porter claims that clusters have the potential to affect competition in three ways: by increasing the productivity of the companies in the cluster, by driving innovation in the field, and by stimulating new businesses in the field. According to Porter, in the modern global economy, comparative advantage how certain locations have special endowments (i.e., harbor, cheap labor, availability of raw materials, motive power-economies of scale) to overcome heavy input costs. Now, competitive advantage how companies make productive use of inputs, requiring continual innovation is more important. Porter argues that economic activities are embedded in social activities; that 'social glue binds clusters together'. This is supported by recent research showing that particularly in regional and rural areas; significantly more innovation takes place in communities which have stronger inter-personal networks.

Put in another way, a business cluster is geographical locations where enough resources and competences amass reach a critical threshold, giving it a key position in a given economic branch of activity, and with a decisive sustainable competitive advantage over other places, or even a world supremacy in that field (e.g. Silicon Valley and Hollywood). Industry clusters have become an extremely popular concept in development policy circles. This report presented a set of working definitions, a brief summary of Porter's important contribution, and a discussion of five core theoretical concepts that are frequently cited in the literature as forces driving cluster change or as justifications for cluster policies. At the present, industry cluster initiatives have seen relatively little criticism. Yet they raise fundamental empirical and policy questions. On the one hand, very little evaluation of cluster-based policies has been conducted. Above I note the failure of related growth center applications. Though industry cluster policies are based on different theoretical principles in many respects, there is still evidence that the concept is often misapplied either as a sector-based approach or as wishful thinking in an underdeveloped area.

On the other hand, regional cluster initiatives, by definition, imply a policy-led attempt to strengthen regional concentrations. If industry is most competitive when geographically clustered, this may make good sense. But a traditional goal of regional policy has been to minimize regional disparities in growth and income. Unlike growth pole/growth center concepts, which at least attempted to address links between core and peripheral regions, the industry cluster theories speak very little to the spatial diffusion of growth. European unification, the North American Free Trade Agreement, and other attempts and common market creation and economic integration are bringing with them renewed focus on development imbalances. Moreover, industry clusters policies contract traditional wisdom of regional industrial diversification. While it is true that the largest places will develop multiple clusters, or specializations, the vast majority of cities and regions have little prospect of developing more than one or two viable clusters. Such issues must become central to the industry cluster debate.

INTRODUCTION

Industry clusters have become one of the most popular concepts in local and regional development research and practice. Even a cursory Internet search will turn up numerous dedicated web sites by research institutes, industry associations, consultants, and cities, states, and regions reporting cluster studies for particular localities or offering perfunctory guides to industry cluster concepts. Hundreds of U.S. European Central American, Asian and African cities and regions have also developed cluster strategies, from Monterey Bay, California to Jacksonville, Florida. In 1999, two major U.S. associations of development practitioners (the National Association of State Development Agencies and the State Science and Technology Institute) held national day-long workshops on cluster analysis and practice.

The Bangladesh Garments Accessories & Packaging Manufacturers & Exporters Association (BGAPMEA) received a fund from the European Union for the project "Strengthening Role of Bangladesh Garments Accessories & Packaging Manufacturers & Exporters Association (BGAPMEA) in Export Growth and Competitiveness" wherein this study is an integral part. At present packaging and accessories industries are scatteredly situated as such they can not avail any economies of scale and thus common infrastructural facilities. Nearness of factories can reduce quite a number of common costs and reduce their cost of production, thus being competitive. Due to heavy traffic jam many of the working hours are lost on the street. Nearness of industrial units is an important factor to be cost efficient. Bangladesh government has planned to set an industrial park for printing industry in Munshiganj, where a number of plots have been proposed for BGAPMEA. This is not enough, inconsideration of the huge contribution of the packaging and garment accessories industries in the country's export sector in addition to huge local and foreign export market potentialities. There should be an exclusive industrial park for packaging and garment accessories.

CHAPTER-l

Operational Concepts and Supporting Frameworks

What are Clusters?

Clusters are networks of production of strongly interdependent firms (including specialized suppliers), knowledge producing agents (universities, research institutes, engineering companies), bridging institutions (brokers, consultants) and customers, linked to each other in a value adding production chain. The cluster approach focuses on the linkages and interdependence between actors in the network of production when producing products and services and creating innovations.

Dr. Michael Porter's (Harvard Business School) definition of cluster industries as "…geographic concentrations of interconnected companies, specialized suppliers, service providers, firms in related industries, and associated institutions (e.g. universities, standards agencies, trade associations) in a particular field that compete but also cooperate…" and pointed out that cluster industries have played different roles at different times in the nation's economic development.

Definition of Industrial Cluster

"Clusters are geographic concentrations of interconnected companies and institutions in a particular field. Clusters encompass an array of linked industries and other entities important to competition. They include, for example, suppliers of specialized inputs such as components, machinery, and services, and providers of specialized infrastructure. Clusters also often extend downstream to channels and customers and laterally to manufacturers of complementary products and to companies in industries related by skills, technologies, or common inputs. Finally, many clusters include governmental and other institutions--such as universities, standards-setting agencies, think tanks, vocational training providers, and trade associations." (Porter, M.E. (1998). "Clusters and the New Economics of Competition," Harvard Business Review, November-December, 1998.)

An industry clusters may be defined very generally as a group of business enterprises and non-business organizations for whom membership within the group is an important element of each member firm's individual competitiveness. Binding the cluster together are "buyer-supplier relationships, or common technologies, common buyers or distribution channels, or common labor pools." Competitive firms make a competitive cluster, and, as Enright (1996) notes, economic self-interest is ultimately the glue that binds the cluster together. Though many scholars emphasize the role of trust and cooperation among cluster firms (and their role in solving joint problems and generating other benefits for cluster enterprises), in the end, a "cluster" comprised of enterprises that gain no real economic advantage from their presence in the group loses all conceptual meaning from a theoretical and policymaking perspective. Non-business organizations may include industry associations, technical and community colleges with specialized industry programs, universities, government industrial extension programs, network brokers, and the like. Such entities are frequently defined in the literature on clusters as "related and supporting institutions"; they are often a critical element in the success of the cluster.

Cluster Dimension

In application, defining an industry cluster can become exceptionally difficult, particularly as competing policy objectives come into play. On the one hand, both space and time are relevant dimensions, such that the basic characteristics of the policy-relevant cluster vary widely between applications. On the other hand, data and methodological constraints may partially dictate cluster definitions. The latter is not necessarily a limitation if recognized explicitly by the analyst and policy conclusions are determined accordingly. However, if clusters are defined one way and measured another, resulting policy conclusions will clearly be tenuous. Industry clusters may be more or less geographically concentrated. As we outline below, early

regional development theories explicitly recognized that interdependence between enterprises may be distance-sensitive to varying degrees. It is entirely possible that the "binding ties" among a localized group of enterprises may very well be between a firm or firms located in a distant region. A sizable number of southern Ohio and northern Kentucky automotive components manufacturers that sell to final market assemblers in Michigan and South Carolina is one example. At one scale, an automotive cluster may appear to be concentrated in the southern Ohio-northern Kentucky region. Another level of analysis, however, might reveal an automotive cluster along the north-south axis between the traditional vehicle heartland in Michigan, concentrations of suppliers in Kentucky, Ohio, the Carolinas and Georgia, and the new southern automobile manufacturing regions in South Carolina, Alabama and Tennessee. Development officials in northern Kentucky cannot afford to ignore key linkages of local firms to enterprises farther north and south, at least if they truly want to understand what drives the competitiveness of their local industries.

Regional industry clusters are industry clusters that are concentrated geographically, normally within a region that constitutes a metropolitan area, labor market shed, or other functional economic unit. Regional clusters are similar, in varying respects, to Italianate industrial districts , business networks , industrial complexes of the early regional scientists concept of the innovative milieu. All of those concepts hold in common the notion that geographic proximity between member enterprises lends certain competitive advantages, though the specific nature of the advantages varies slightly from concept to concept. Some clusters exist at the present time. Vehicle production in Detroit, computers in Silicon Valley, and flowers in The Netherlands are examples. Others may be more accurately characterized as emerging or potential . Biotechnology as a cluster is only now emerging in a limited number of regions worldwide, as advances in medicine, biology, and chemistry make it possible create entirely new products and new associations between firms, industries, universities, and other economic agents. From a policy point of view, knowing what could become a cluster (perhaps with proper policy stimulation) is frequently more critical than knowing what *is* a cluster. Indeed, the latter may be obvious more often than not.

Cluster Measurement

Measurement issues also play some role in defining clusters. One of the only consistent and detailed sources of data on cross-industry linkages are input-output tables. Analysis of input-output patterns to identify "clusters" had its beginnings in the 1960s, fell off in the late 1970s and 1980s, and has seen resurgence with the recent policy interest in industry clusters. What has effectively occurred is a merging of traditional regional science methodological techniques with a conceptual framework based largely in strategic management, industrial organization, and economics proper. This blending of perspectives and research interests has both advantages and disadvantages. On the one hand, analytical methods developed by early regional scientists and recently advanced in cluster applications lend analytical rigor to more the qualitative and pragmatic research approaches common to the strategic management and industrial organization literatures. On the other hand, partly as a result of conceptual differences and partly because of data and definitional limitations, input-output based derivations cannot fully capture the set of interrelationships specified in the modern industry cluster concept. Thus, it is important that input-output based clusters be clearly distinguished. In this monograph, we identify value-chain industry clusters as those defined primarily on the basis of trading patterns among member enterprises. Trade between enterprises need not be direct (it might be indirect through tertiary partners). Moreover, it is possible, that input-output methods can identify a set of enterprises and industries that constitute the most likely candidates (or "suspects") for non-trade-based dependencies (i.e., linkages based not on trade, but rather similarities of technology or shared labor pools).

Explaining Competitive Advantage

Real policy interest in regional industry clusters has its origins in Michael Porter's The Competitive Advantage of Nations, published in 1990. Porter's readable account of the sources of national competitive advantage, which includes a key role for geographic proximity, is largely consistent with a growing body of literature on how interdependence between firms, industries, and public and quasi-public institutions affects innovation and growth in regional agglomerations. Porters' work, which included case studies of competitiveness in multiple nations, also offered some anecdotal verification of highly theoretical research

on the role of business externalities and spillovers in driving growth and innovation. Nearly every analysis of industry clusters begins with--or at least makes some mention of--Porter's "diamond," a characterization of his four key drivers of competitiveness.

Barometer of competitive strength of a nation

For Porter, industries' successes in international markets are the primary barometer of the competitive strength of a nation. The success of any given firm can be traced to four major factors:

1) the nature of firm strategy, structure and rivalry in the country, including attitudes toward competition, market institutions, the degree of local competition, and other cultural and historical factors affecting how firms do business with each other, their workers, and the government;

2) factor conditions, or the basic endowments or conditions on which the firm seeks to compete (e.g., cost-related basic factors such as ready supplies of natural resources or inexpensive, unskilled labor versus knowledge and/or technology related advanced factors);

3) demand conditions or the nature of local demand (e.g., the needs and wants of the consumer for foreign and domestic goods as well as the existence of local industrial demand for related intermediate goods);

4) the presence of related and supporting industries, including suppliers and successful competitors (both to stimulate cooperation, the latter to also stimulate rivalry).

Competitive companies must depend, to a degree, on the competitiveness of their intermediate input suppliers, who must depend on the capabilities of their suppliers, and so on, back through all links in the value chain. But such companies also depend on service providers (management, marketing, financing, legal, etc.), sources of basic and applied R&D (e.g., universities and/or contract research organizations), capital goods suppliers, wholesalers and distributors, and suppliers of trained workers (again, universities and colleges). Even competitors are important, including direct competitors to the company as well as competitors to the company's suppliers, since their presence maintains pressure to continually upgrade processes and techniques and to seek new opportunities. Competitors also provide opportunities for cooperation in solving joint problems or addressing industry-wide issues. Thus, the success of an individual company may be partly traced to the size, depth, and nature of the cluster of related and supporting enterprises--both private and public of which it is a part. Much of Porter's analysis focuses on outlining the basic conditions determining cluster competitiveness. His framework leads naturally to a focus on end market sectors as the point of departure for studying clusters. But such end-market industries should not be studied in isolation; the critical function of interdependence in the process of economic growth and change not just in terms of how it has traditionally been viewed, i.e., in technical or input-output terms is the guiding principle in this study.

Porter does not argue that the dynamics that characterize industry clusters are necessarily localized in scope, though he does believe that clusters tend to be geographically concentrated. To complicate matters, the degree of economic and geographic clustering one observes for a particular end-market industry is relative to space, time, and scale. An end-market sector clustered geographically from a national perspective may not be spatially clustered from a regional or local one (or vice versa). Moreover, a given sector becomes more economically clustered as vertical, horizontal, and lateral linkages and relationships expand and deepen (with growth in related and supporting industries and/or the establishment of stronger ties or networking with existing enterprises). And there is no reason, a priori, to assume that clustering along either dimension need only increase over time, even with economic growth and nominal increases in various elements of the cluster. Changes in the social, cultural, or political environment could lead to altered relations between cluster firms such that the positive synergies described by Porter are reduced. Alternatively, improvements in the transportation or communication infrastructure may lead to some spatial dispersal of cluster firms and a reduction in geographic clustering. Finally, there is the element of scale.

True clusters are probably large, perhaps exceeding some threshold, but size alone does not guarantee clustering.

Porter's ideas are not without important antecedents. In the 1950s, Francois Perroux argued that to understand economic growth and change, analysts need to focus on the role of propulsive industries, those industries that dominate other sectors because of their large size, considerable market power, and/or role as lead innovators. Propulsive industries (or even individual firms) represent poles of growth which attract, focus, and direct other economic resources. Such constellations of producers, suppliers, and other economic actors sound surprisingly like clusters. Perroux viewed economic space as the non-spatial sphere in which relations between firms and their buyers and suppliers (as well as other key economic institutions take place. For Perroux, there is no reason why physical space should necessarily bear any relationship to economic space; enterprise linkages will extend without spatial limit throughout the globe, at least where they are economically justified. Directing one's analysis to particular regions will only provide a distorted picture of the growth and development process geographic space as 'banal'.

Cluster Relations

The similarities between the cluster concept and Perroux's theory of growth poles are readily apparent. The cluster focus on how end-market industries drive the deep and broad value chains of which they are a leading part is consistent with propulsive industries as dominant economic actors. End-market industries in given clusters transmit growth pulses through the cluster through demand for intermediate and capital goods. In addition, because they are composed of internationally competitive, best practice firms, they may play an important role as diffusers of process and product innovations. To the degree, for example, that large original equipment manufacturers (OEMs) can use their market power to dictate (or perhaps strongly encourage, even assist with) technology upgrades and improved manufacturing strategies to their suppliers, such end-market industries might be said to drive, at least in part, overall cluster competitiveness. On the other hand, one can also conceive of market power among some cluster members as exerting a detrimental influence on the overall cluster. For example, short-term, least cost-focused contracting practices of OEMs with their suppliers may actually discourage strategic thinking and investment.

Perroux's ideas, and their extensions, are relevant for the industry cluster concept in another respect: his theory gave rise to a related regional development strategy (growth centers) that enjoyed a meteoric rise in popularity in policy circles only to eventually prove a dismal failure. While it is too soon to tell whether industry cluster policies will be similarly ineffective, the rise in their stock appears nearly as dramatic. But one of the most important reasons why such strategies misfired more often than they succeeded is that too little attention was paid to the economic and social pre-requisites that are necessary–at least as hypothesized in the vast theoretical literature for growth centers to work. Most applications focused on the role that backward and forward linkages to strategic and favored sectors could play to leverage regional growth, particularly in underdeveloped areas. But political and equity considerations often dictated, through a criterion of need rather than potential, the designation of very small and peripheral towns as "growth centers." Linkages were regarded almost mechanically, as if localized inter industry trade would automatically flow in a form resembling the average patterns observed in input-output accounts. A critical difference between growth centers and the industry cluster concept is that the latter emphasizes why businesses choose to align themselves or partner in trade (where location is only one possible reason), while the former effectively assumed such partnerships were inevitable.

Still, there is no question that industry clusters identified in practice often bear little resemblance to Porter's ideal type. It is not uncommon for local and regional agencies to designate clusters for policy attention that are actually very poorly developed or that constitute the only viable industry in the given region (designations motivated more by limited choice sets or politics than any economic rationale. While most of the current cluster debate is taking place in industrialized countries with already diverse economies and relatively strong effective demand (domestic and/or international), in less developed regions a policy decision to concentrate resources on key industries, instead of more general infrastructure needs or other strategies that would serve best a broad array of industries, brings with it significant risks against which the gains remain unverified. If one thing is clear, it is that Porter's eloquent and convincing account of

economic interdependence, geography, and competitiveness is short on specifics. As a result, most of the literature takes his concepts only as a point of departure, tapping instead a wide range of more developed ideas to explain the origins of industry clusters, the dynamics of cluster growth and change, and advantages to using clusters as a basis for regional policy. The following section outlines a set of core concepts that are frequently cited or called upon to either explain cluster dynamics or legitimate cluster-based policies.

Theoretical Foundations

Some analysts of the behavioral phenomena behind industry clusters emphasize explanations for observed spatial clustering of business enterprises, with theories of business externalities, agglomeration economies, labor pooling, and knowledge spillovers the main focus. Others stress the link between innovation and clustering, drawing on theories of growth poles, development blocks, and Schumpeterian entrepreneurship specify three major drivers of industry clustering:

1) strategic business opportunities derived from specific kinds of inter firm alliances;

2) traditional regional factor market advantages (labor pools and localized knowledge spillovers); and

3) the role of non-business institutions such as universities, colleges, trade unions, and associations. Rivalry, just-in-time trends, niche marketing, and civic capacity are among the concepts.

In the end, there is no obvious organizational scheme for lying out and drawing connections between relevant theories. My own reading of the literature suggests that five core theoretical concepts underpin the literature on regional industry clusters: external economies, the innovation, environment, cooperative competition, inter firm rivalry, and path dependence. I make no attempt to be comprehensive and exhaustive in my discussion; readers should consult the many citations to flesh out ideas in more detail.

External Economies

Regional scientists and geographers are keenly interested in how and why enterprises cluster in geographic space, and particularly how such clustering influences regional development paths. Two basic conceptual approaches to understanding benefits to concentration dominate the literature:

1. industrial location theory that builds on Weber and Hoover, where the benefits are called agglomeration economies, and
2. the Marshallian perspective that takes as its point of departure Marshall's analysis of external scale economies and their presence in "industrial districts."

In both cases, various, often anecdotal, types of externalities (or, more appropriately, sources of externalities) are cited as the reason why firms co-locate. The literatures differ somewhat in their relative emphasis on static versus dynamic externalities, while neither perspective is particularly concerned with distinguishing between pecuniary and technological externalities.

Industrial Location Theory:

Weber identifies agglomeration economies–defined as cost savings firms enjoy as a result of increased spatial concentration–as one of three primary causes of spatial clustering or agglomeration. But Weber is not particularly concerned with why such agglomeration economies arise, preferring to suggest that they are simply external varieties of internal scale economies. In point of fact, his primary aim was to model how such economies might lead to agglomeration (rather than identify what explains the economies themselves). It was a theoretical approach and methodological emphasis that eventually became the traditional regional science/urban economics approach to the study of externalities.

Though Hoover is nearly as vague as Weber, he does introduce the now accepted distinction between urbanization and localization economies. In the cluster literature, the focus is mainly on externalities related to proximity among business enterprises (localization economies), rather than externalities associated with general urban advantages (urbanization economies). Other researchers cite particular advantages of proximity between firms, including increased market power through brokered buying and selling, the better availability and use of specialized repair facilities, shared infrastructure, reduced risk and uncertainty for aspiring entrepreneurs, and better information. In a recent monograph intended to guide practitioners, Rosenfeld cites "tailored infrastructure" as a key advantage firms in regional clusters enjoy. He uses scale economy logic: "As industry concentration increases, individual businesses benefit from the development of sophisticated institutional and physical infrastructure tailored to the needs of specific industry." Such infrastructure includes "local product showrooms, foreign sales offices or distribution centers, supply centers, common waste treatment facilities."

Marshallian Theory:

Marshall defines external scale economies as cost savings accruing to the firm because of size or growth of output in industry generally. Such economies contrast directly with internal scale economies, which are the source of increasing returns from growth in the size of plant. Such external economies are essentially spatial externalities, which may be defined generally as economic side-effects of proximity between economic actors. They can be either negative or positive, static or dynamic, pecuniary or technological. The static varieties are reversible, whereas dynamic externalities are those associated with the technological advances, increased specialization, and division of labor that accompanies and/or drives growth and development.

For the most part, regional scientists are interested in dynamic external economies, though this is not made explicit. A static external economy enjoyed by a firm in a given industrial district might be the lower costs it enjoys for intermediate inputs because of proximity to its suppliers (e.g., as a result of reduced shipping costs). That economy is also pecuniary and imposes no market failure since it is fully reflected in the price mechanism. There is certainly no role for government to encourage geographic clustering in this context. To the degree that such benefits outweigh any costs associated with agglomeration (congestion), enterprises will be inclined to cluster on their own.

Of most relevance for understanding industry clusters are dynamic external economies associated with learning, innovation, and increased specialization. Marshall illustrates the workings of (largely dynamic) external economies with reference to concentrated industrial districts, places where firms enjoy the benefits of large, skilled pools of labor, greater opportunities for intensive specialization (a finer social division of labor), and heightened diffusion of industry-specific knowledge and information (knowledge spillovers). Behind those dynamics is not just the size of the district alone, but social, cultural and political factors, including trust, business customs, social ties, and other institutional considerations. Much of Marshall's analysis is relevant to Porter's discussion of firm structure, strategy and rivalry as one of the four determinants of competitiveness, about which I have more to say below. In effect, Marshall provides some of the first hints as to how micro-level business relationships might influence regional growth and development.

The Innovation Environment

Just as enterprises do not conduct business in isolation, they do not innovate in isolation. The innovation environment constitutes research that attempts to the characteristics of "learning economies," economies that help sustain the perpetual research and innovation necessary to continually generate new products and open new markets.

In modern innovation theory the strategic behavior and alliances of firms, as well as the interaction and knowledge exchange between firms, research institutes, universities and other institutions, are at the heart of the analysis of innovation processes. Innovation and the upgrading of productive capacity is seen as a

dynamic social process that evolves most successfully in a network in which intensive interaction exists between those ‘producing’ and those ‘purchasing and using’ knowledge.

Industry clusters are regarded as an important tool in policies related to national innovation systems (NIS), an important theoretical framework in European national and regional policy circles. Lundvall defines NIS as "the elements and relationships which interact in the production, diffusion and use of new and economically useful knowledge. That are either located within or rooted inside the borders of a nation state. In a more recent contribution, Lundvall argues that increases in the rate of innovation dictate important changes in national and regional policy, with particular emphasis on contributions to "the learning capability of firms, knowledge institutions and people."

Industry clusters and networks can serve as mechanisms whereby firms exchange knowledge and information that cannot be codified. Such tacit forms of knowledge are viewed as increasingly important given the rapidly changing global economic environment. Tacit knowledge must also be exchanged between individuals, not business entities, reinforcing advantages to spatial clustering. Such advantages are likely to be strongest for technology-intensive firms, yet even traditional, design-oriented sectors such as furniture and apparel, may seek to improve flexibility and ability to innovate by clustering in particular regions. Characteristics of the regional environment may also play a role in helping firms innovate. Saxenian for example, highlights even land use and design issues in describing the unique capacity of Silicon Valley to promote innovation.

Innovative milieu

According to Maillat the Innovative milieu must be envisaged in such a manner that it has a significant action on the manner of giving life to the innovation process. The milieu is not a warehouse from which one obtains supplies; it is a complex which is capable of initiating a synergetic process. From this point of view the milieu cannot be defined merely as a geographical area, it must be envisaged as an organization, a complex system made up of economic and technological interdependencies. Like research on industrial districts, literature on the milieu focuses on the specific nature and quality of transactions, alliances and partnerships between enterprises. But the focus is less on bilateral ties than the degree to which they support a collective environment for innovation.

Cooperative Competition

One of the predominant themes in the industry cluster literature is "cooperative competition," the notion that the most competitive firms find ways to work together even as they go head to head in the development of new products and the battle for markets. Out is the notion that companies minimize risks and maximize their competitive position by strictly regulating any information exchange with direct competitors. Modes of cooperation based on trust, familial ties, and tradition are most often described for industrial districts in Third Italy, where they are believed to be one means by which small and medium-sized enterprises seek to counter internal scale economies enjoyed by their larger competitors. The new industrial districts literature, in turn, draws on theories of flexible specialization, though the latter’s’ focus on substantiating a basic sea-change in the organization of production is less important for understanding the specific, micro-level relationships that undergird regional industry clusters. Of more significance are recent efforts to clarify the general relationships between scale and scope economies, as well as the many case studies of particular industrial districts that identify not only basic economic trends in agglomerations of smaller firms, but also social and cultural behavioral codes that govern relationships between firms in those dynamic regions and related articles in World Development. The study of the ‘social embeddedness’ of economic transactions constitutes a principle contribution of the new industrial district literature, and holds promise for making clearer the broad institutional factors Porter cites in his work.

Outside of the industrial districts literature, however, examples of cooperation between enterprises in given clusters are relatively few. Many of the characteristics of firm inter-dependence in Italy are culturally specific; modes of business behavior in the United States and many other industrialized countries are very

different. Doeringer and Terkla offer two circumstances in which cooperation among co-located firms can payoff. The first is when just-in-time inventory and delivery systems are used. They cite the joint location choices of Japanese manufacturers and their suppliers, which is often necessary to make JIT truly work, as evidence of how cooperation drives regional industry clustering. The second example is a function of the speed and frequency of interactions between companies in a regional industry cluster. The more frequent and rapid the interactions between suppliers, the more likely companies are to identify niche markets and new specialized products. They characterize such dynamics as "collaboration economies" or "the ability to participate in, and respond rapidly to, changing design and manufacturing practices among firms that buy and sell from one another."

The problem with both of those examples is that they apply primarily to end market producers and their suppliers, rather than between competing end market producers. As Enright notes, the distinction between vertical and horizontal types of cooperation is important, since the potential costs and benefits of each type vary significantly. He cites lobbying, foreign market research, joint export promotion, trade fairs, and specialized infrastructure investments as typical areas in which competing producers might cooperate. On the other hand, they tend to compete in the areas of marketing, production, sales, new product development and process improvements. Contrast this view with writing on industrial districts, which focuses much attention on cooperation in production (particularly collective efforts to solve joint production problems). Ultimately, the "social embeddedness" of firm relationships means that internal dynamics of regional industry clusters are likely to vary widely between countries, and often within them.

Rivalry

On the face of it, the emphasis on inter firm rivalry in Porter's analysis would seem to contradict the view that clusters are imbued with a spirit of cooperative competition. Porter adopts the traditional neoclassical view in arguing that a competitive industry structure i.e., multiple companies competing on the same playing field ensures continued pressure to upgrade technologies, minimize costs, innovate, and so forth. But a simple industrial concentration index is not an adequate barometer of the degree of rivalry among firms in a given industry or region. More important is the competitive ethos of the industry. Also, rivalry will likely be stronger among competing firms are geographically concentrated in a particular area. In such a case, the dimensions of competition multiply. Firms in the same region compete not just for customers, but also for labor, capital, publicity, and political support.

An early analysis of the link between market structure and geographic concentration is Chinitz's paper on market structure as a key determinant of agglomeration economies. In a brief but rich discussion that essentially anticipates the present day focus on how firm and industry organization influences regional development paths, Chinitz essentially draws a direct link between firm structure and rivalry and regional economic fortunes. Critiquing the agglomeration economies literature's focus on urban and industry size, Chinitz argues that industrial structure particularly influences learning, innovation, and entrepreneurship, giving diverse, and small-firm rich places like New York a leg up over large firm, single industry towns like Pittsburgh. This has become an important theme in the Marshallian new industrial district theory as well.

Path Dependence

Polarization, core periphery, and cumulative causation models all refer to the tendency for regional growth or decline to reinforce itself. While such models emphasize disequilibrium in the space economy, with some regions establishing dominant positions vis-a-vis peripheral regions, neoclassical regional growth theory predicts that natural market mechanisms tend to gradually eliminate interregional economic disparities. The latter result is based on a constant returns world that admits no role for externalities. Neoclassical theory tended to dominate mainstream views of regional growth through the 1980s. The debate between equilibrium and disequilibrium views of regional growth was renewed in the 1990s with recent contributions in mainstream economic growth theory that highlight the role of increasing returns. According to Krugman, what accounts for the new interest in increasing returns among mainstream economists are modeling advances that permit their more rigorous and consistent treatment. New growth

theory suggests that a comparative advantage established in a given region or country, perhaps by accident, chance, the distribution of natural resources, or other non-behavioral phenomena is likely to strengthen as a result of external scale economies.

Like the new growth theory, 'new international economics' also holds important implications for regional analysis. It is not that trade theory now admits a geographic dimension; trade theory has always been spatial theory. Rather, the incorporation of increasing returns in models of trade implies the prospect of a highly concentrated geographic pattern of development, including sustained disparities in regional income and employment. Again, the focus is on knowledge-related externalities as sources of increasing returns, particularly in advanced technology industries. The process of cumulative advance in regions whose industries have established a competitive lead in given markets has been described as an example of a 'lock-in effect'. In principle, the initial lead may be as much a result of luck or historical accident as business acumen. But either way, particular 'locational clusters' may be able to establish a type of monopoly advantage over industries in other places. How likely or sustained such a process would be is an empirical matter.

Path dependence refers to the general notion that technological choices even seemingly inefficient, inferior, or suboptimal ones–can assume a dominant lead over alternatives and be self-reinforcing, though not necessarily irreversible given a significant enough shock. David's discussion of the modern keyboard is the classic example. Path dependence can have clear geographical implications by virtue of the fact that businesses, as a general rule, cluster in space. Krugman cites the carpet industry in Dalton, Georgia. From a geographers point of view, it was certainly by chance that tufting technology was essentially invented there.

Stimulation by Cluster

Clusters stimulate regional competitiveness in three ways:

- by increasing business productivity
- by boosting their innovation capacity, which underpins future productivity gains
- by stimulating the formation of new businesses, which expand and strengthen the cluster

Firms that are part of a cluster are expected to operate more efficiently when sourcing inputs; accessing information, technology and institutions; coordinating with related firms; and measuring their performance against other firms so as to improve.

A business cluster is a geographic concentration of interconnected businesses, suppliers, and associated institutions in a particular field. Clusters are considered to increase the productivity with which companies can compete, nationally and globally. In urban studies, the term agglomeration is used. Clusters are also very important aspects of strategic management. The cluster approach focuses on the linkages and interdependence between actors in the network of production when producing products and services and creating innovations.

Importance of Industry Clusters

The changing nature of competition in market-based innovation systems has prompted the growth of networking. For their success in the innovation process, companies are becoming more dependent upon complementary knowledge and know-how in companies other than their own (interdependency hypothesis). Successful and innovative firms are seldom alone [spatially]. Innovation and economic growth is often situated within a unique combination of firms tied together by knowledge and production flows. There is a clear trend indicating the growth of industrial networks.

Innovative interactions cross sectoral borders. Due to this, traditional industrial analysis can be criticized for its limited scope. By specifying strict boundaries for industries, the traditional sectoral approach fails to

take into account the importance of interconnections and knowledge flows within a network of production. The growth potential cannot be analyzed by studying separate branches; practically no single sector or firm would succeed without sufficient supporting structures. The cluster approach offers an alternative to the traditional sectoral approach and is more in line with the changing nature of rivalry in market-based innovation systems as well as with recent insights from modern innovation theory.

In countries that have implemented a comprehensive cluster-based policy, the outcomes of cluster studies have been the corner stone of policy making in this area. Cluster studies not only provide an analytic tool to analyze systems of innovation at the reduced scale level, but in practice can also be used as a working method for policy making and as a development tool for strategic business development. The analysis of linkages and interdependence between actors in a value chain or innovation system can be carried out at different levels of analysis (micro, meso and macro) and with different techniques (i/o analysis, innovation interactions matrices, graph theory, correspondence analysis, monographic case studies), depending on the needs and questions to be answered. Most countries' cluster analyses concentrate on networks of strongly interdependent firms or industry groups, sometimes focusing on trade linkages, innovation or knowledge flow linkages, and sometimes on a common knowledge base or common factor conditions.

Types of Clusters

Industry Clusters: A Key to Competitiveness in the New Economy

Industry clusters consist of agglomerations of competing and collaborating industries in a region networking into horizontal and vertical relationships, involving strong common buyer-supplier linkages, and relying on a shared foundation of specialized economic institutions. Because they are built around core export oriented firms, industry clusters bring new wealth into a region and help drive the region’s economic growth.

Economic Infrastructure: A Key to Cluster Performance

Industry cluster competitiveness derives not only from the concentration of related industries, suppliers and services in the same place, but also from access to highly specialized economic inputs that are not usually provided solely by the business sector. These resources often referred to as "economic infrastructure" or "foundations," include institutions that provide: adaptable skills; accessible technology; adequate financing; available infrastructure; advanced communications; acceptable regulatory and business climate; and achievable quality of life.

When regions have been successful at nurturing industry clusters they typically have developed high quality economic institutions, responsive to the specialized needs of existing and emerging clusters in the region. When this occurs, strong civic leadership and collaboration among organizations, across sectors, and across communities in the region have often been central to success. This regional culture creates what could be called "collaborative advantage." This is what defines a successful market - buyers and suppliers working with each other and using proximity and economies of scale to improve innovation and access to markets.

By composition

Following development of the concept of inter-organizational networks in Germany and practical development of clusters in the United Kingdom; many perceive there to be four methods by which a cluster can be identified:

- *Geographical cluster* - as stated above
- *Sectoral clusters* (a cluster of businesses operating together from within the same commercial sector
- *Horizontal cluster* (interconnections between businesses at a sharing of resources level e.g. knowledge management)
- *Vertical cluster* (i.e. a supply chain cluster)

It is also expected - particularly in the German model of organizational networks - that interconnected businesses must interact and have firm actions within at least two separate levels of the organizations concerned.

By type of comparative advantage

Several types of business clusters, based on different kinds of knowledge, are recognized:

- *High-tech clusters* - These clusters are high technology-oriented, well adapted to the knowledge economy, and typically have as a core renowned universities and research centers like Silicon Valley, the East London Tech City or Paris-Saclay.
- *Historic know-how-based clusters* - These are based on more traditional activities that maintain their advantage in know-how over the years, and for some of them, over the centuries. They are often industry specific. For example: London as financial center.
- *Factor endowment clusters* - They are created because a comparative advantage they might have linked to a geographical position. For example, wine production clusters because of sunny regions surrounded by mountains, where good grapes can grow. This is like certain areas in France, Lombardy, Spain, Chile or California.
- *Low-cost manufacturing clusters* - These clusters have typically emerged in developing countries within particular industries, such as automotive production, electronics, or textiles. Examples include electronics clusters in Mexico (e.g. Guadalajara) and Argentina (e.g. Cordoba). Cluster firms typically serve clients in developed countries. Drivers of cluster emergence include availability of low-cost labor, geographical proximity to clients (e.g. in the case of Mexico for U.S. clients; Eastern Europe for Western European clients).

Knowledge services clusters - Like low-cost manufacturing clusters, these clusters have emerged typically in developing countries. They have been characterized by the availability of lower-cost skills and expertise serving a growing global demand for increasingly commoditized (i.e. standardized, less firm-specific) knowledge services, e.g. software development, engineering support, analytical services. Examples include Bangalore, India; Recife, Brazil; Shanghai, China. Multinational corporations have played an important role in 'customizing' business conditions in these clusters. One example for this is the establishment of collaborative linkages with local universities to secure the supply of qualified, yet lower-cost engineers. of identifying, defining, and describing a cluster

Process of identifying, defining, and describing a cluster

A cluster is not standardized. Individual economic consultants and researchers develop their own methodologies. All cluster analysis relies on evaluation of local and regional employment patterns, based on industrial categorizations such as NAICS or the increasingly obsolete SIC/HS codes. Notable databases providing statistical data on clusters and industry agglomeration include:

- The Cluster Mapping Project (for the USA), conducted by the Institute for Strategy and Competitiveness at Harvard Business School
- The European Cluster Observatory (for Europe), managed by the Center for Strategy and Competitiveness at the Stockholm School of Economics

An alternative to clusters, reflecting the distributed nature of business operations in the wake of globalization is Hubs and Nodes.

Cluster Effect

The cluster effect can be more easily perceived in any urban agglomeration, as most kinds of commercial establishments will tend to spontaneously group themselves by category. Shoe shops (or Cloth shops), for

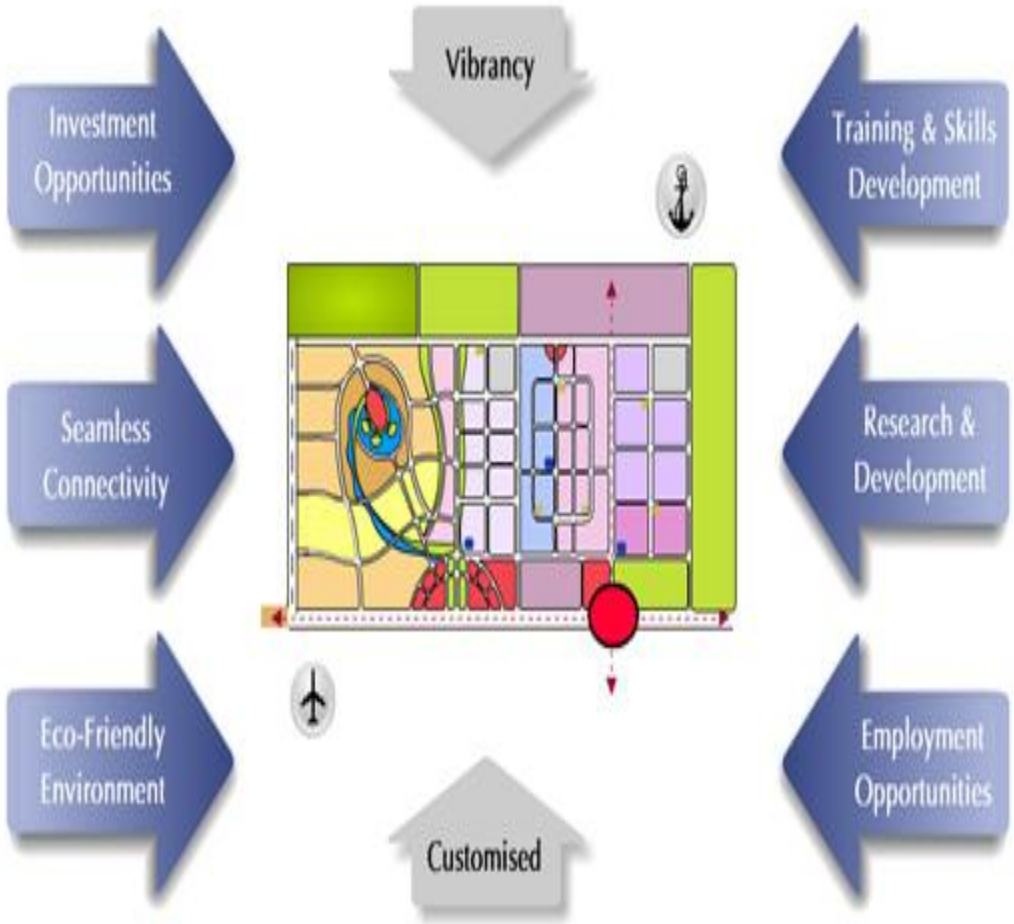
instance, are rarely isolated from their competition. In fact, it is common to find whole streets of them. The cluster effect is similar to (but not the same as) the network effect. It is similar in the sense that the price-independent preferences of both the market and its participants are based on each ones perception of the other rather than the market simply being the sum of all its participants actions as is usually the case. Thus, by being an effect greater than the sum of its causes, and as it occurs spontaneously, the cluster effect is a usually cited example of emergence.

Governments and companies often try to use the cluster effect to promote a particular place as good for a certain type of business. For example, the city of Bangalore, India has utilized the cluster effect in order to convince a number of high-tech companies to set up shops there. Similarly, Las Vegas has benefited through the cluster effect of the gambling industry. In France, the national industrial policy includes support for a specific form of business clusters, called "Pôles de Compétitivité", such as Cap Digital. Another good example is the Nano/Microelectronics and Embedded Systems" or in short "mi-Cluster" that was facilitated by "Corallia Cluster Initiative " in Greece. Corallia introduced a bottom-up, 3-phase program framework for facilitating cluster development, and was short-listed among the final classification (finalists) for the DG REGIO's RegioStars 2009 Awards in the category "Research, Technological Development and Innovation".

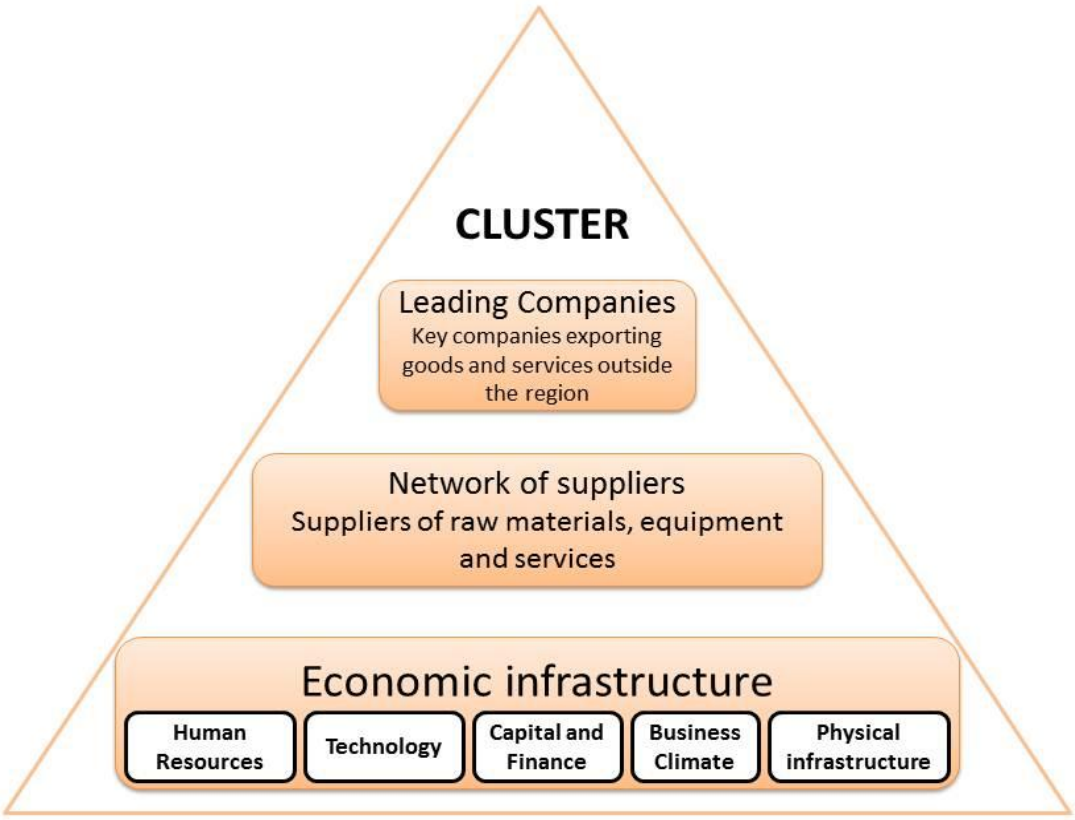
The cluster effect does not continue forever though. To sustain cluster performance in the long term, clusters need to manage network openness to business outside the cluster while facilitating strong inter-organizational relationships within the cluster. Its relative influence is also dictated by other market factors such as expected revenue, strength of demand, taxes, competition and politics. In the case of Silicon Valley as stated above for example, increased crowding in the valley led to severe shortage of office and residential space which in turn forced many companies to move to alternative locations such as Austin, Texas and Raleigh-Durham, North Carolina even though they would have liked to stay in the valley. Sometimes cluster strategies still do not produce enough of a positive impact to be justified in certain industries. For instance, in the case of Builders Square, the home improvement retailer could not compete with industry leaders such as home depot when it could not materialize the same low costs and contracts. As a result it was presented with an option to form a merger with another home improvement retailer, Hechinger to better improve their business clusters and compete with home depot and other industry leaders. However, when it failed to do so, it slowly began to fail and eventually fell into bankruptcy. Although the merger attempted to create geographic clusters to compete with the low costs of other firms, costs were not lowered enough and eventually the plan failed, forcing Hechinger into liquidation and Builders Square out of the industry.

CHAPTER-ll

Cluster Structures



The Enterprises in the cluster make a network of their competences and potential and together create products and solutions that are flexible and quickly meet the needs of international markets. The unification of companies facilitates the communication, provides cheaper access to raw materials and energy, aids the introduction of more scientific and applied research, creates training and educational centers. Following this philosophy, Transworld Resources Inc. developed a model of classical pyramid cluster group of interconnected, export-oriented industrial companies.

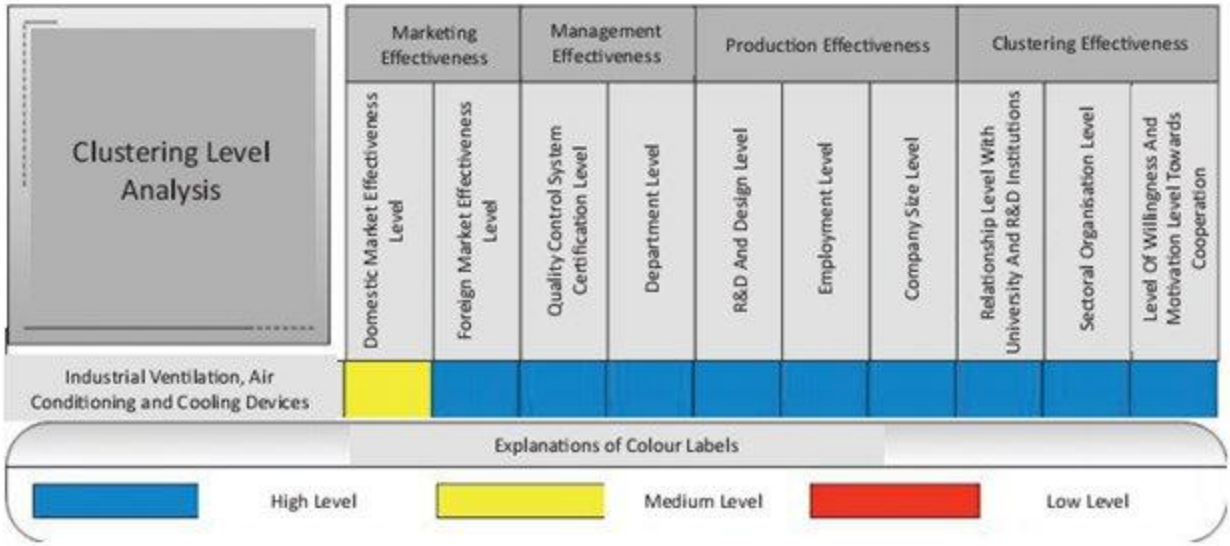


Challenges

- Support of industrial policy and development
- Improvement of energy efficiency
- Recruitment and deployment of new technologies
- Health and safety
- Environmental Protection and improved water use
- Development of regional infrastructure
- Improvement and development of public services
- Development of public-private partnership
- Attracting new investment in the region

An insight look into the Concept

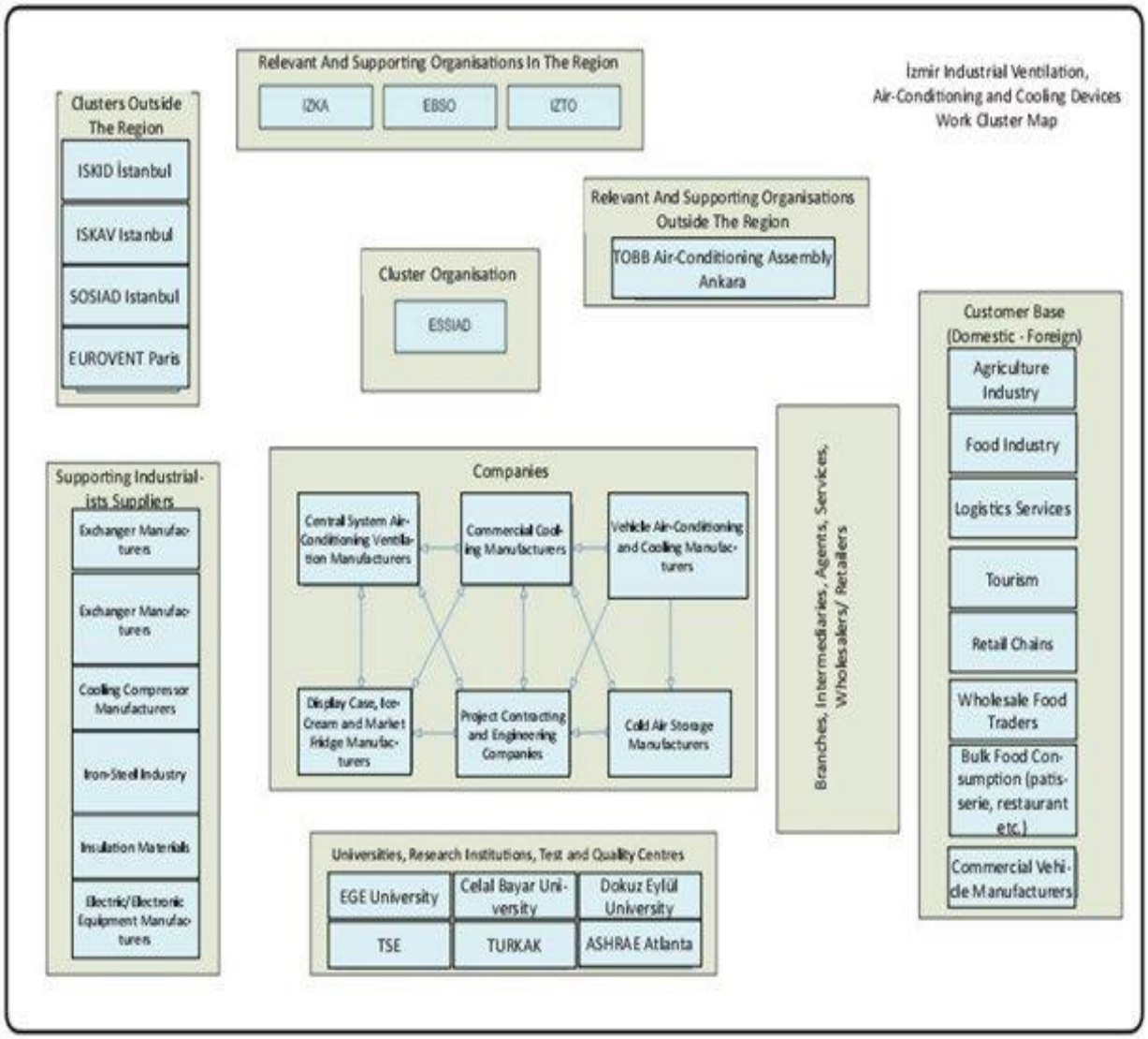
According to the business and needs analysis conducted, both horizontal and vertical parameters are observed to be at an adequate level. Both domestic and foreign marketing/production positioning of the companies is at an adequate level.



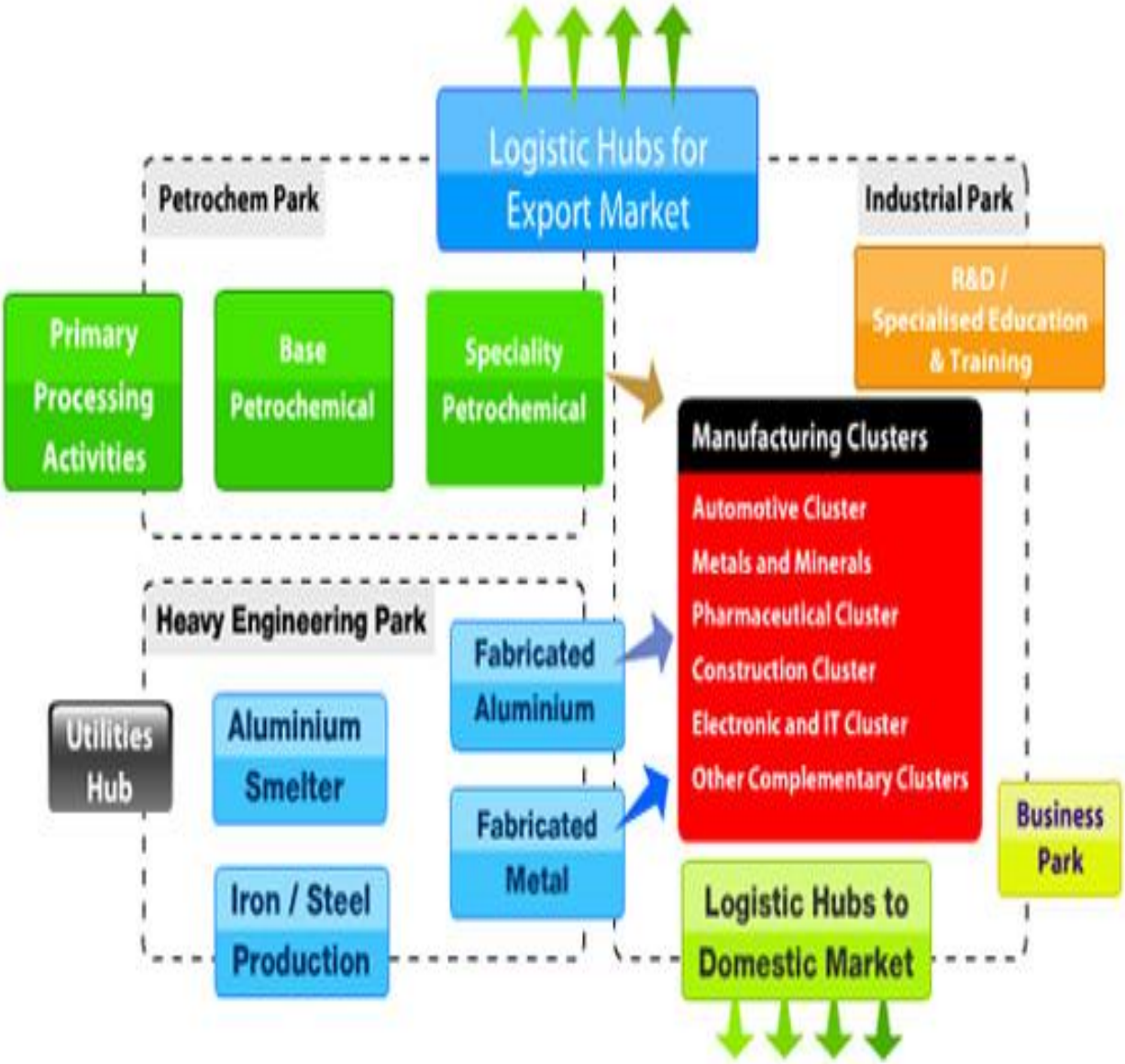
Clustering Level Analysis

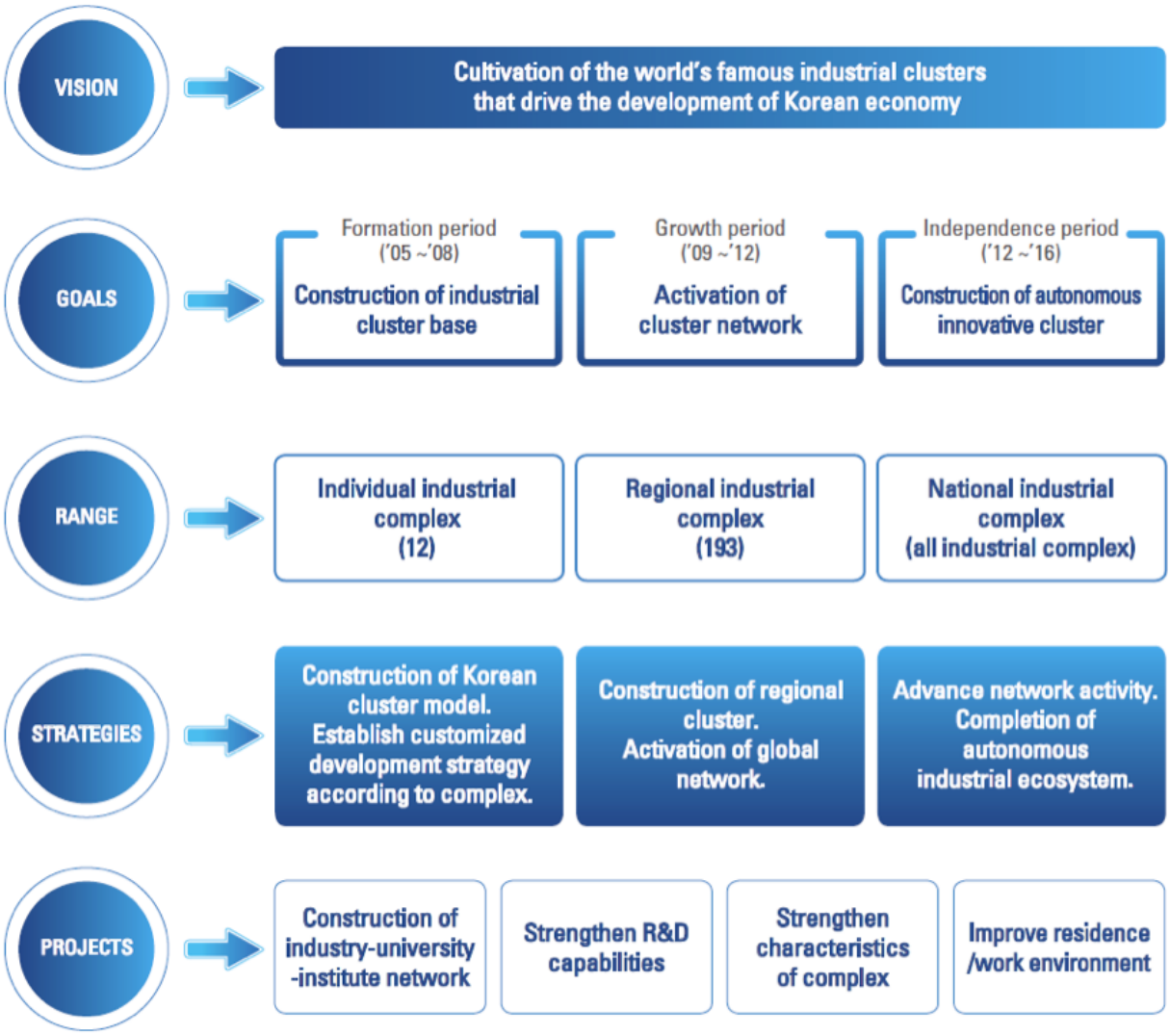
According to the field survey report there is an extensive and multidirectional relationship between sector companies regarding both vertical and horizontal planes. While the sector's competitiveness, internationally open and innovative characteristics of the sector, have an influence on the relationships being such extensive and communication channels such as operational; creating several environments for the owners, managers and employees of companies to interact (associations, chambers of industry, professional meetings, social meetings), absence of agreements, prohibiting employee transfers, communication not being controlled from a single centre – presence of several communication nodes and high education level of key persons, shaping communication are also important factors. Relations and communication network in the sector are present at a high level not only among the institutions within the region but also with national and international institutions and organizations.

Cluster Dynamics Analysis



Industrial Cluster Map





Few renowned Industrial Clusters of the World

The Silicon Valley case

In the mid to late 1990s several successful computer technology related companies emerged in Silicon Valley in California. This led anyone who wished to create a startup company to do so in Silicon Valley. The surge in the number of Silicon Valley startups led to a number of venture capital firms relocating to or expanding their Valley offices. This in turn encouraged more entrepreneurs to locate their startups there. In other words venture capitalists (sellers of finance) and dot-com startups (buyers of finance) "clustered" in and around a geographical area.

The cluster effect in the capital market also led to a cluster effect in the labor market. As an increasing number of companies started up in Silicon Valley, programmers, engineers etc. realized that they would find greater job opportunities by moving to Silicon Valley. This concentration of technically skilled people in the valley meant that startups around the country knew that their chances of finding job candidates with the proper skill-sets were higher in the valley, hence giving them added incentive to move there. This in turn led to more high-tech workers moving there. Similar effects have also been found in the Cambridge IT Cluster (UK).

The Digital Media City case

In the late 1990s, the Seoul Metropolitan Government in South Korea developed the Digital Media City (DMC), a 135 acre complex, four miles outside of the city's central business district in the Sangam-dong district. With Seoul's rapidly growing cluster of multi-media, IT, and entertainment industries, the Digital Media City, through its vibrant agglomeration, helped to promote these industries and companies whose core business required use of information, communication, and media technologies. DMC grew and prospered as a global business environment, raising Seoul as an east-Asian hub of commerce. The cluster of its digital media-related, high-tech firms spawned partnerships which in turn leveraged both human and social capital in the area. Eventually, DMC fed the innovation of more than 10,000 small-scale Internet, game, and telecommunication firms located in Seoul.

In development of DMC, the Seoul government leveraged initial funding by private technology partners and developers. It is also provided IT broadband and wireless networks to the area as well as needed infrastructure. The Seoul government even provided tax incentives and favorable land prices for magnet tenants who would attract other firms to the area due to established business relationships and through their presence which would in turn promote DMC as a prime location. With such a concentration of these entities, Seoul has become a major nexus of high-technology and digital media. It is home to digital media R&D firms across a range of types including cultural media creation, digital media technologies, digital broadcasting centers, technology offices, and entertainment firms. Just outside the DMC complex include international firm affiliates, schools, moderate to low income housing, commercial and convention facilities, entertainment zones, and the city's central rail station. The cohesive connection of industry, cultural centers, infrastructure, and human capital has fostered Seoul as a strong metropolitan economy and South Korea, the Miracle on the Han River, as a storied nation transitioning from a manufacturing to an innovation economy. More Information on Cluster and/or Sector Development

The following is an abstraction and slight adaptation of the executive summaries of two studies. They are:

- Cluster Analysis and Cluster Based Policy in OECD Countries: Various Approaches, Early Results and Policy Implications. Draft synthesis report on Phase 1, OECD Focus Group on Industrial Clusters. Theo J.A. Roelandt & Pim den Hertog. May 1998
- Cluster Based Economic Development: A key to Regional Competitiveness Economic Development Administration (EDA). Prepared by Information Design Associates (IDeA) with ICF Kaiser International. *The statements, findings, conclusions, and recommendations are those of the authors and do not necessarily reflect the views of the Economic Development Administration.*

Government and Clusters

Cluster studies have revealed a need to redefine the role of the government as a facilitator of networking, as a catalyst of dynamic comparative advantage and as an institution builder, creating an efficient incentive structure to remove systemic and market inefficiencies in (national) systems of innovation. In most participating countries cluster based policy initiatives have originated from a trend towards designing governance incentive structures to reduce systemic and market imperfections within their innovation systems. The changing role of the state in industrial policy making coincides with a shift from direct intervention to indirect inducement. In most countries this changed perspective resulted in creating supporting structures, like initiating broker and network agencies and schemes and providing platforms for constructive dialogue and knowledge exchange. Most countries use the cluster approach to organize a market-led economic development strategy by initiating dialogue between the various actors in their relevant systems of innovation and fostering knowledge exchange and knowledge transfer.

Most Common Features of Cluster-Based Policy

- a vigorous competition and regulatory reform policy (almost all countries).
- providing strategic information by technology foresight studies (e.g., Sweden, The Netherlands),

cluster studies (e.g., Finland, Denmark, Sweden, The Netherlands, UK, USA, Austria, Italy), special research groups (e.g., Denmark, the Austrian TIP research program) or special web sites (STRATEGIS in Canada).

- broker and network agencies and schemes (e.g., Danish network program, Dutch Innovation Centers).
- cluster development programs (e.g., cluster programs in Finland and The Netherlands, regional development agencies in UK, USA and Germany and the Flemish R&D support to clusters).
- initiating joint industry-research centers of excellence (e.g., Belgium, Denmark, Finland, Spain, Sweden, Switzerland and The Netherlands).
- public procurement policy (e.g., Austria, Denmark and The Netherlands).
- institutional renewal in industrial policy making (e.g., Finland and Canada).
- providing platforms for constructive dialogue (e.g., US focus groups, Danish reference groups, the Swedish industrial system approach, UK regional development agencies, the Dutch broker policy, and the Finnish National Industrial Strategy).

Leading Policy Principles when Designing a Comprehensive Cluster-Based Policy

- The creation of clusters should not be a government-driven effort but should be the result of market-induced and market-led initiatives.
- Government policy should not have a strong orientation towards directly subsidizing industries and firms or to limiting the rivalry in the market.
- Government policy should shift from direct intervention to indirect inducement.
- Government should not try to take the direct lead or ownership in cluster initiatives but basically should work as a catalyst and broker that brings actors together and supplies supporting structures and incentives to facilitate the clustering and innovation process.
- Cluster policy should not ignore small and emerging clusters; nor should it focus only on 'classic' and existing clusters.
- While cluster policy needs cluster analysis and cluster studies, the government should not focus on analysis alone without action. An effective cluster policy means interaction between researchers, captains of industry, policy-makers and scientists and creating a forum for constructive dialogue.
- Clusters should not be created from "scratch" declining markets and industries

Eras or Waves of Economic Development Approaches

Era	**Industrial Revolution**	**Cost competition**	**Regional Competitiveness**
Driver	Export Base	Scale Economies	Innovation & Entrepreneurship
Strategies	Financial incentives to firms Industrial parks	Industrial consolidation and cost cutting Deregulation	Entrepreneurship Clusters Commercial research
Keys to Success	Government funds for subsidies and tax breaks Industrial infrastructure	Health of existing industries	Distinct regional assets such as industry specializations, human capital, higher education & amenities

Across the country businesses are looking now at cluster industries as systems and from perspectives of competitiveness that could provide frameworks for organizing and implementing public policies/investments related to economic development. For example, businesses which focused on business retention and expansion, are examining specific opportunities for strengthening and growing core industry sectors. Those more interested in business attraction and start-up formation may be working on recruiting and developing new core firms and suppliers that could tie into regional clusters. And, those dedicated to leveraging human capital and work force development are working with universities, tech colleges, community colleges and others to "…articulate career paths, develop standardized industry training and collaboratively recruit/retain talent."

After a very informative discussion that touched on work force migration patterns, location quotients and other key measurements of cluster industry strength and growth potential, suggested some guidelines and cautions. First, private sector involvement is critical**.** Implementation is an exercise that requires developing a cluster identity, coalition building and action based on common needs. It also encouraged to determine what differentiates a cluster in one region from a similarly named cluster in another region**.** Industries dependent on natural resources, it is not enough to simply have the resources present. Critical skills and knowledge are needed to use those resources. A cluster that is primarily based on natural resources should increasingly become knowledge-based. It was also pointed out that clusters generally cannot be created from scratch, but can be built upon existing assets; that most regions have a unique industrial heritage that provides some expertise and resources that might constitute the basis for innovation, technological advance and sustainable competitive advantage; and cautioned against relying solely on Industrial policy or generic definitions such as "high tech" reserve, controlled or "advanced manufacturing" for defining clusters.

Finally I urge the group to determine an appropriate role for government, pointing out that while government may decide to support all existing and emerging clusters, participate in discussions about those clusters, enable data collection and dissemination at the cluster level, and even finance initiatives, government should not pick favored clusters or companies, subsidize or distort competition, or define cluster action priorities.

The majority see a role for the clusters in helping the country identifying approaches to regulatory and tax policies that would enhance a cluster industry's ability to grow and compete. A majority also indicated that they saw a role for clusters in supporting and growing entrepreneurial community and encouraging start-ups. Focused on the value of collaborative effort both within and among the cluster industries. I am convinced that smaller groups seem more focused on how to improve communication and action within and among clusters than on whether or not collaboration should be encouraged. The organizations should make sure they balance "tools with advocacy." Nonetheless, others, while supportive of the need for more collaboration and cross-fertilization of effort warned against duplication of effort. Ultimately, it seems fair to say that a significant majority do believe that cluster industries could play a larger, positive role in the economic development efforts and to conclude that they would be interested in pursuing the question of how to achieve greater collaboration, focus and capacity within and among the clusters. It may seem hard to believe in this age of the Internet and virtual reality, but anything can't be anywhere. Despite the emergence of a global economy, regional and countrywide economic initiatives based on industry clustering have taken hold, proving the importance of place as a trigger for bolstering economic development and business success.

Two Schools of Thought

In 1990 study of the competitive advantage of national economies, Harvard Business School Professor Michael E. Porter found that location characteristics play an important role in the success of a region's industries. Porter wrote that implementing a targeted approach of industry clusters could help firms achieve a competitive advantage by promoting their common interests. And while the strategy has produced mixed results, it remains a well-established model for economic development and business attraction.

Given the economic challenges presented by the past few years, though, two distinct schools of thought have emerged with regard to industry clustering: those who embrace Porter's thesis, and those who decry clustering as an ineffective model that limits a region's economic potential.

The Washington Post challenged the effectiveness of industry clustering - "Industry Clusters: The Modern-Day Snake Oil" - as an economic development strategy. The author, Vivek Wadhwa, an executive in residence and adjunct professor for the Pratt School of Engineering at Duke University, cited a Norwegian study that suggested clusters like Raleigh's Research Triangle Park are "irrelevant for innovation," arguing that what's missing is people who have the motivation and ability to start ventures. Basic infrastructure is always needed for regional economic development success. As early as the time of Plato's writing of The Republic in 360 B.C., there were signs of increased productivity through specialization and economic growth through collaboration. More recently, Porter laid down the gauntlet challenging economic development professionals to analyze what is driving their local economies and identify the resources giving them a competitive advantage. The old adage "success breeds success" is at the heart of any region's cluster strategy.

Proximity Matters

Sixty percent of the respondents to Area Development's 2010 Corporate Survey said the presence of activities similar to theirs was a consideration when selecting a site. More recently, a 2011 Brookings Institution report showed that "strong clusters foster innovation through dense knowledge flows and spillovers; strengthen entrepreneurship by boosting new enterprise formation and start-up survival; enhance productivity, income levels, and employment growth in industries; and positively influence regional economic performance."

Of course, "If you build it, they will come" really only works in the movies. It's not enough for economic development organizations to simply create fancy industrial parks and state-of-the-art buildings and expect new companies to line up at the doorstep. That's why, in recent years, more and more states and regions have been tailoring training, education, and incentive programs that build on existing clusters or foster the development of new ones in order to thrive in the "next economy."

But economic development officials on the Space Coast believe industry clusters will help launch a new economy there. The region has targeted clean energy, defense, life sciences, information technology, and aerospace as industry sectors that can produce job growth in each sector ranging from fewer than 1,000 to nearly 14,000 new jobs through 2015, with hourly wages between $21 and $30.

In Sacramento, Calif., key stakeholders in that capital region of 2.1 million people are taking an in-depth look at their economy, by industry and by cluster, to identify what they do well, what they do better than others, what their best areas of specialization are, and what presents the region's greatest opportunities for job and cluster growth.
"The plan will focus on new job creation and capital investment activities," says Martha Clark Lofgren, interim president and CEO of the Sacramento Chamber. "The urgency of the current economy compels the region to focus on immediate actions that can be taken to help bring about economic prosperity across the capital region as quickly as possible."

In South Carolina, a research project was conducted in 2005 to identify clusters as an opportunity to boost prosperity by bringing a critical mass of businesses, service providers, customers, suppliers, training institutions, and others into close proximity. It challenged the state to reshape its approach to economic development. The analysis, for which Porter served as a senior advisor, asserted clusters must be grown and nurtured through increased productivity and efficiency, more innovation, and greater entrepreneurship.

How do leaders determine the industry clusters?

Area leaders need to understand their geographic region's positioning for success with certain types of industry clusters. In other words, any community may state that it is targeting the life sciences industry sector, but it may or may not be well positioned to leverage positive results. Consequently, leaders must identify the key drivers for the different industry sectors they are considering targeting. Key issues to consider include:

tax structure, regulatory environment, cost and quality of labor force, transportation systems, supplier networks, economic development incentive programs, quality of life amenities and education.

This form of cluster analysis allows elected and economic development officials to better understand how to support existing companies and position their area to attract new companies. With this understanding, officials can address common needs that serve as the key underpinnings of the industry cluster. It is important to recognize that clusters exist on their own and cannot be created by government. However, community and state leaders can help these clusters thrive by creating the best environment for the companies' operation and growth. By supporting specific industry clusters, areas boost their companies' competitive advantages.

Finally, policy makers must determine a vision for the future of their area. By establishing this vision, the area has defined where it wants to go and what success will look like. These key steps allow elected officials and economic development professionals to build a roadmap to ensure success.

How do leaders construct roadmap for cluster implementation?

Often, a combination of local leaders and consulting firms work collaboratively to construct the roadmap. It is important to complete in-depth analysis of the best ways to support the key drivers identified for the different industries during the cluster selection process. Issues related to tax policy, workforce, regulations, economic development incentive programs, supplier networks, infrastructure, quality of life amenities and education, are all vital to ensuring the growth of a key industry sector in a geographic area. In addition, an area must benchmark itself against peer competitors for the targeted industry sectors. The implementation plan must establish quantitative metrics, timelines and accountable organizations.
While the process to identify the targeted industry sectors is very important, it is more critical to construct

the blueprint for implementation and act on it. Many good plans are developed, but they only become great if they are successfully implemented**.**

Lobbying or pressure group: special interest group strategies and tactics

As discussed above, lobbying involves working to bring pressure to bear on policy makers to gain favorable policy outcomes. In order to accomplish their goals, interest groups develop a strategy or plan of action and execute it through specific tactics. The particular strategies developed and the specific tactics used, however, vary widely both among and within political systems. Three factors are of particular importance in shaping lobbying strategies and tactics:

One is whether the political system is democratic or authoritarian. Because there generally are few restrictions on interest groups in democratic societies, they have more options available (e.g., hiring lobbyists, using the press, and staging public demonstrations). Thus, strategies and tactics are more formalized and open than in authoritarian societies, where they must be more ad hoc and less publicly visible.

A second factor is the structure of the policy process. As indicated above, in democratic parliamentary systems, where the executive is drawn from the major political party or party coalition in the parliament, the legislative branch is less important than the prime minister and the cabinet in policy making. For example; as the power placed in the U.S. Congress and state legislatures, the United States is one of the few countries in which legislative lobbying is a major strategy of interest groups.

A third factor is political culture as it relates to group activity and lobbying. In the United States, for example, the use of contract lobbyists, those hired by contract specifically to lobby government is much more accepted than in most other countries, including those of the European Union, where public officials usually prefer to deal directly with the members of the concerned group, organization, or business.

Three major factors can also be identified to explain why lobbying strategies and tactics vary within a political system:

One is the nature of the group and its resources. “Insider” groups—those older and more traditional business, labor, and professional groups with extensive resources, including money and established access to public officials are more able to pursue “insider tactics,” utilizing their close friends and associates in government to promote their goals, and generally have many more options available to them than do “outsider” groups. Such outsider groups tend to be newer and sometimes promote radical causes; they usually lack key contacts with policy makers and major financial resources, and they often focus their energy on grassroots efforts, which may include letter writing or Internet campaigns or public demonstrations to gain media coverage (insider groups may also use such methods).

Second, whether the purpose is to promote or defeat a legislative proposal helps to explain variations in strategies and tactics across different political systems.

Third, a country’s political climate influences strategies taken by interest groups. Which party is in power (such as one favorably disposed to an interest group’s agenda), the major issues facing the government, and the country’s budget circumstances will influence the types of strategies an interest group uses.

Although strategies and tactics vary between and within political systems, there is one aspect of lobbying that is common in all systems, whether democratic or authoritarian: building close personal contacts between group representatives and public officials to foster trust and credibility and to persuade the government that it needs the group. In democracies, tactics are usually broad-ranging, but building relationships is universal regardless of the type of democratic system.

In authoritarian and developing political systems, personal contacts between political elites within and outside of government are often the major tactic (and sometimes the only tactic available).

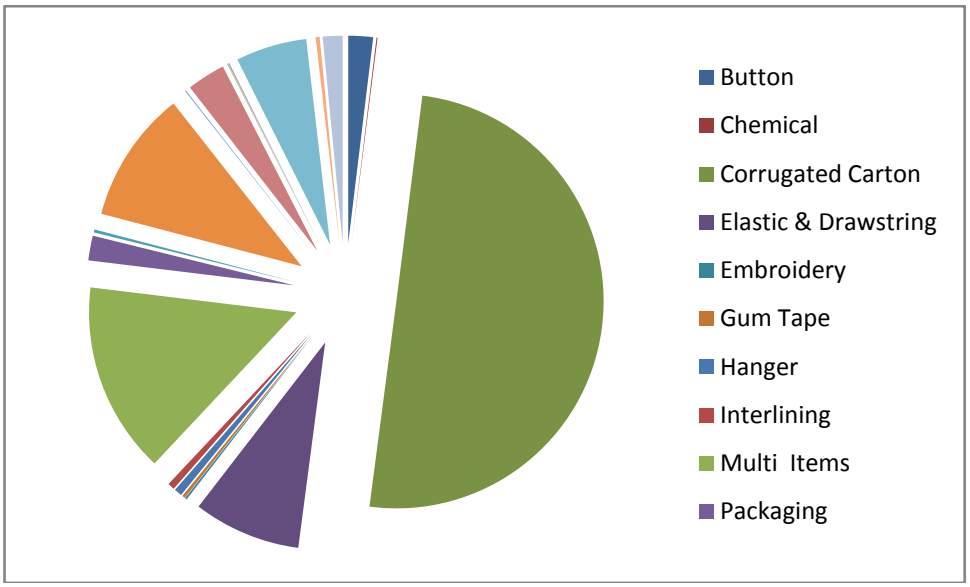
Among democracies, it is in the United States that interest group activity is most accepted and displays the widest range of tactics. In regard to lobbyists in Washington, D.C connection with the terms “K Street” and “Gucci gulch,” as it is on K Street that many of the contract lobbying firms are located, and the corridors in the Capitol where lobbyists congregate have been nicknamed for the expensive shoes and garments they often wear. Increasingly, however, American-style tactics have been adopted in other democracies and in transitional systems as ideology, and the centralization of the policy process has been eroded. In the United Kingdom and other countries of the European Union, Australia, and Canada, lobbyists are becoming increasingly important (they are usually known by other designations such as political consultants or government-affairs or public-affairs representatives) and there also has been more use of the media and increased campaign contributions.

CHAPTER-lll

BGAPMEA SCENARIO

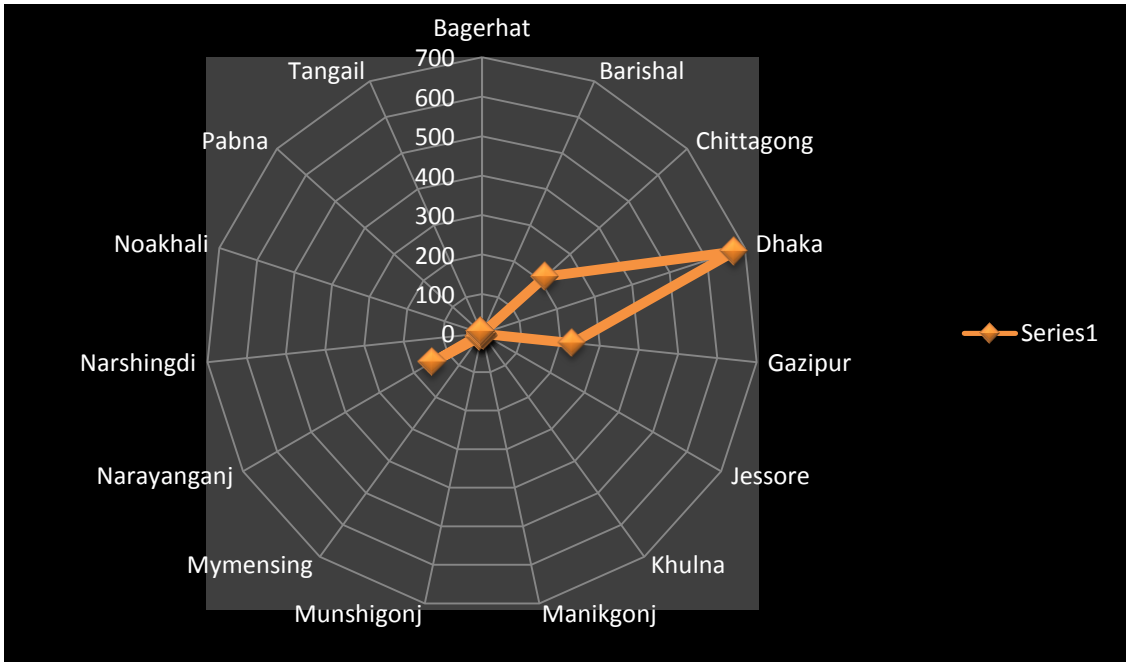
Item wise BGAPMEA Members

Sl. No.	Item Name	No. of Unit
01.	Button	25
02.	Chemical	01
03.	Corrugated Carton	651
04.	Elastic & Drawstring	109
05.	Embroidery	02
06.	Gum Tape	03
07.	Hanger	08
08.	Interlining	07
09.	Multi Items	194
10.	Packaging	25
11.	Padding	03
12.	Poly	134
13.	PP Band	01
14.	Labels	39
15.	Quilting & Padding	01
16.	Resin	01
17.	Sewing Thread	72
18.	Screen Print	04
19.	Zipper	20



Geographical Dispersion of BGAPMEA Member Factories

Sl. No.	Area	No. of Unit
01.	Bagerhat	01
02.	Barishal	01
03.	Chittagong	216
04.	Dhaka	672
05.	Gazipur	230
06.	Jessore	02
07.	Khulna	08
08.	Manikgonj	02
09.	Munshigonj	01
10.	Mymensing	11
11.	Narayanganj	146
12.	Narshingdi	01
13.	Noakhali	01
14.	Pabna	02
15.	Tangail	06



Analytics

The analysis is based on industry sector and geographical location sector:

1. From the above tables and data it is evident that of the total 1300 industrial units corrugated carton accounts for 50% of the total sector, while multi item accounts for 15% and poly accounts for 10%, making a total of 75% by only three sub sectors items.
2. In the case of geographical location of the units, Dhaka region accounts for 52% of the industries, while Chittagong region accounts for 18% and Narayanganj region for a little above 11%. In fact Dhaka region includes Gazipur and Narayanganj and makes above 81% industrial units.

Energy requirement

No	Source of energy	Power (kWh)	Total MWh (25 years)
1	Grid station	500	3,900
2	Photovoltaics	500	3,900
3	Gas generator	500	3,900
4	Diesel generator	500	3,900

Source: ttz Bremerhaven report

Adequate supply of energy must be ensured proportionate to the with the growing demand for energy

CHAPTER-lV

Conclusion & Recommendations

Increasing numbers of economic development organizations throughout the world are using cluster-based economic development strategies to determine the best ways to invest resources for economic growth. Regions, states and nations that target and invest in specific industry clusters tend to have greater focus, utilize resources more effectively and deliver better results.

Traditionally, clusters are defined as entities located in a geographic area which compete and/or collaborate with one another. As a result of the competition and collaboration dynamic, a new word, "competition," was spawned to define this relationship. It is important to recognize that industry clusters can also include suppliers and end users of products and services generated by companies in the targeted industry sector.

Increasingly, the competitiveness of metropolitan regions relies on the development of industrial clusters, or geographic concentrations of businesses and institutions in related economic sectors. The physical proximity of the players encourages interaction and promotes the exchange of ideas and expertise.

A look at successful economies also highlights the importance of developing innovative industrial clusters characterized by a high level of interaction among firms, thus enabling them, as a group, to learn about changing economic conditions, adapt to them and benefit from them. The interactive nature of clusters stimulates innovation and economic learning. Industrial cluster greatly contributes in the economic development of a country as well as increases competitiveness of the business. Clusters' main challenges are linked to a series of paradoxes and tradeoffs:

Show concrete results working mainly in building intangible assets (tacit knowledge, strategic change, etc.) Guarantee proper professional governance for a spontaneous phenomenon, Assure long term sustainability without creating structural rigidity, Keep focus on local competitive advantages with global market operations, Assure cross sectoral scope maintaining market coherence. Create social capital and specialized institutions provide visibility for a low profile policy intervention.

Recommendations

- The industry ministry is to plan for setting up a Garments accessories and Packaging industrial park in the outskirt of Dhaka aimed at reducing the pressure of accessories and packaging units in and around the capital city and Chittagong area.
- The estimated size of the park is about 350 acres of land ideally should be near Bausia under Gojaria upazila of Munshiganj or any other place around Dhaka City.
- To avail the advantage of economies of scale due to the industrial park at this place for RMG, as Garments accessories and Packaging industries are complimentary to each other. This will reduce lead time further and make transportation easier and faster in these days of serious traffic congestions and road blockade, strike, labor unrest etc. This will be a model GAP industrial park, which will help attract foreign and local buyers.
- The park will have various facilities including such as attractive industrial plots, internal roads, drainage facilities, uninterrupted supply of utilities, Central Effluent Treatment Plant, waste dumping yard and fire fighting , security and surveillance equipments, Industrial police etc.
- Setting up of such an industrial hub is an epoch-making one and which would definitely give a further boost to the potential industry.
  The GAP industry has expanded substantially but industries were set up in an unplanned manner mainly in Dhaka and Chittagong, though the highest number of such industries are concentrated in Dhaka region followed by Chittagong region.
  Given the situation, necessity of shifting the unplanned and haphazard GAP factories to

convenient places was felt both at public and private level long before. Internal concentration of similar type of industries are also important such as Zipper industries in a certain zone/sector , Corrugated Cartoon in another zone/sector , button and other in another zone/sector and so forth. Industries need ETP need to be concentrated in a place so that CETP advantages may be ripped and cost is minimized to a large extent.

- To help industries flourish and come to the industrial village Government should make CEPT plant by its own fund.
- Relocation compensation as is being given to Leather sector should also be given to GAP industries relocating in the industrial park for business loss, machinery damage, installation cost, profit loss, employee financial compensation etc.
- The industrial park should have plots with infrastructural facilities, utility services, medical facilities, CETPs (central effluent treatment plants), day-care centers, roads, drainage facilities, waste-dumping yards, fire-fighting equipments, banks, insurance offices. The village should be a unique model for GAP sector with all compliance issues like work place environment, health, fire safety and other social issues. The GAP manufacturers have been demanding a planned gap village around the capital city- Dhaka for long, which they said will help develop the industry further to keep pace with growing demand of apparel exports as well as packaging.
- According to industry sources, an approximate amount of Tk. 100 billion (Tk. 10,000 crore) will be required for setting up the Garment accessories and packaging palli. A factory owner will have to pay Tk. 6.5 million for one bigha of land there.
  It will also help ease the city's traffic congestion and ensure habitable environment in the capital as well.
- The GAP training institute and Laboratory may also be placed under the same umbrella-location so that testing and training can also be done in the same location as well as production. Industrial attachment is an important factor for trainees' development, while sample testing will be easier and time as well as money saving if all three are in the same compound. Training Institute and testing lab employees may also have their official residence in the location for overall convenience. All in one place will reduce operational cost, time cost, security cost, utility cost etc by a significant amount. The land area for a training institute has been estimated to be 60000 sft. built in area on 1 acre land excluding buildings for their employee residential accommodation. The testing laboratory will also need similar land area and built in area.
- **Energy Scenario:** Bangladesh is considered one of the most energy-poor nations, with one of the lowest per capita electricity consumption rates in the world. More than a third of Bangladesh's 166 million people still have no access to electricity, while the country often is able to produce only some of its 11,500-megawatt generation capacity. Commercial energy consumption is mostly natural gas (around 66%), followed by oil, hydropower and coal. As of 2011, 79 natural gas wells are present in the 23 operational gas fields which produce over 2000 millions of cubic feet of gas per day (MMCFD). It is well short of over 2500 MMCFD that is demanded, a number which is growing by around 7% each year. To overcome the increasing energy demand it is necessary to switch over to renewable energy sources. At the moment Bangladesh has 15 MW solar energy capacity through rural households and 1.9 MW wind power in Kutubdia and Feni.
- Government should ensure steady supply of energy(motive power) for uninterrupted production in the industrial village

Recommendations for Sustainable Production

The following recommendations should be considered for better practice:

- To monitor and record each stage of the production's energy consumption
- To give emphasis on reuse, recycle and recover
- To focus on energy recovery by incineration
- Construction of Effluent Treatment Plants (ETP)
- If the setup cost of ETP is high, adjacent small factories at the same industrial area can establish common ETPs to treat effluents and share costs.
- Waste minimization is the great policy and can help in significant decrease of pollution amount as well as production costs and treatment operation costs.

- Introduce an industrial ecology and symbiosis approach within the same industrial zone that would certainly reduce the waste generation and will ensure the efficient resources use.

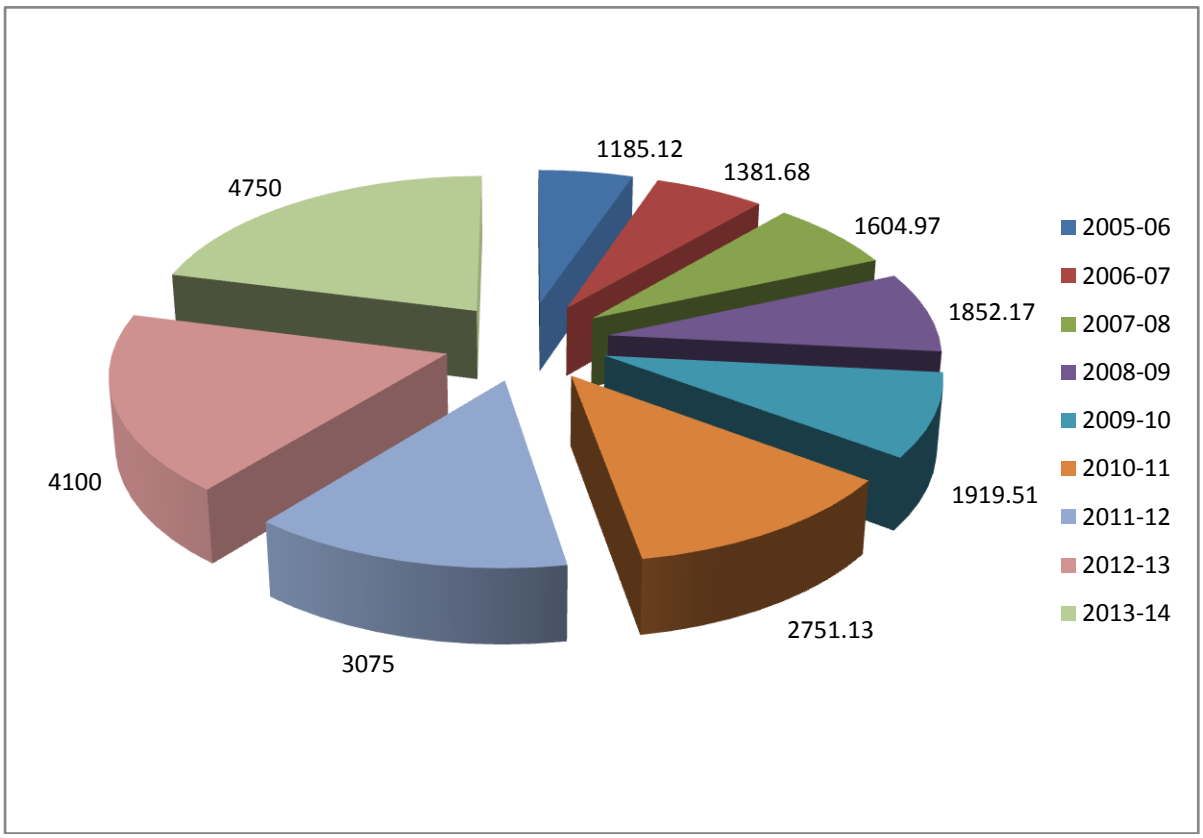
- Increase of competitiveness of the industry
- Sustainable development and environmental protection in accordance with national and regional priorities
- Improvement of technical and social infrastructure in the region
- Growth of the quality and standard of living
- Technological innovation and implementation of innovations
- Improvement of energy efficiency
- Improvement of the working conditions in the enterprises participating in the cluster network
- Improvement of the system for enhancing the education and training of the stuff for the needs of the cluster network
- Implementation of other projects of mutual interest
- Achieve wastage control and Cost savings
- Protecting the environment
- Support of industrial policy and development
- Recruitment and deployment of new technologies
- Health and safety
- Environmental Protection and improved water use
- Development of regional infrastructure
- Improvement and development of public services
- Development of public-private partnership
- Attracting new investment in the region
- Adequate supply of energy must be ensured proportionate to the with the growing demand for energy.

Annexure-l

Export earnings & growth rate of RMG vis-vis Garments Accessories & Packaging sector of Bangladesh (in million US$)

Fiscal Year	Total Export Earning (in mn US$)	RMG Export Earning (in mn US$)	Percentage & growth rate of RMG, Packaging & Accessories sector	Backward/deemed export of packaging & accessories
2005-06	10526.16	7900.80	75.06	1185.12
2006-07	12177.86	9211.23	75.64	1381.68
2007-08	14110.80	10699.80	75.83	1604.97
2008-09	15565.19	12347.77	79.33	1852.17
2009-10	16204.65	12796.72	77.12	1919.51
2010-11	20628.73	18340.89	78.10	2751.13
2011-12	23704.19	20360.05	78.80	3075.00
2012-13	27027.36	21515.73	79.61	4100.00
2013-14	30186.62	24491.88	81.14	4750.00

(Data source: Export Promotion Bureau)

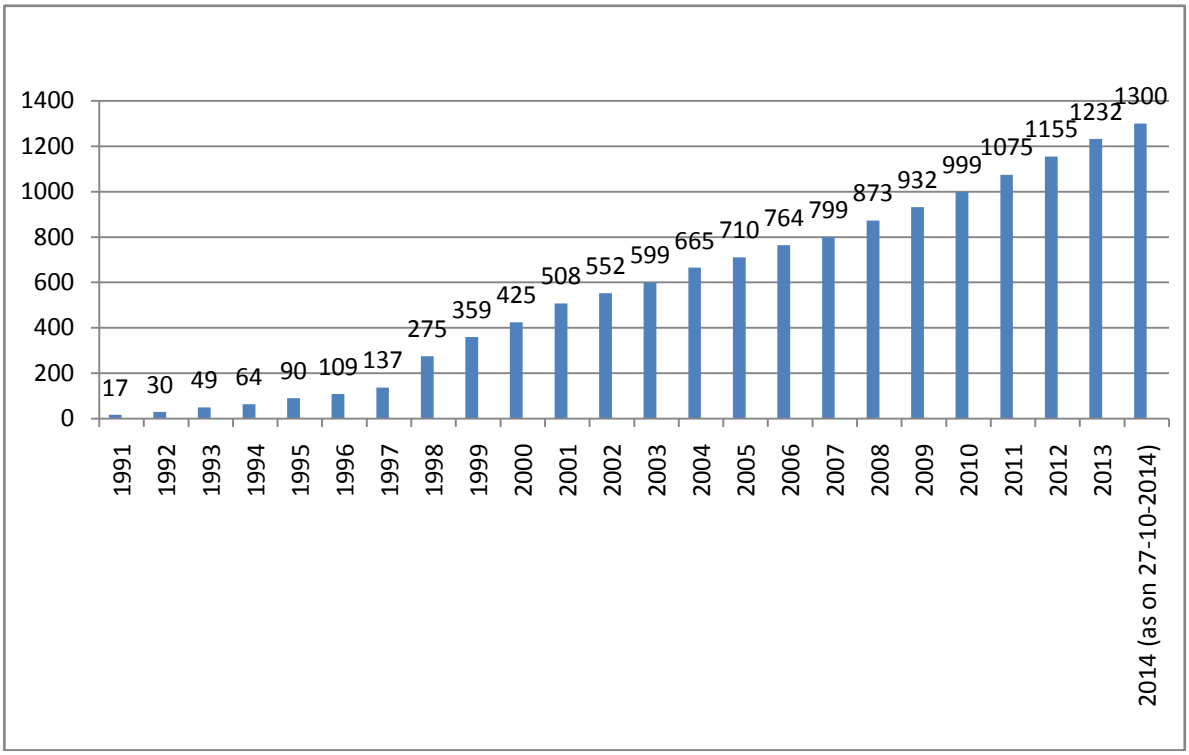


Annexure-Il

Glimpse of the BGAPMEA membership growth status

Sl.	Year	Total Members
01.	1991	17
02.	1992	30
03.	1993	49
04.	1994	64
05.	1995	90
06.	1996	109
07.	1997	137
08.	1998	275
09.	1999	359
10.	2000	425
11.	2001	508
12.	2002	552
13.	2003	599
14.	2004	665
15.	2005	710
16.	2006	764
17.	2007	799
18.	2008	873
19.	2009	932
20.	2010	999
21.	2011	1075
22.	2012	1155
23.	2013	1232
24.	2014 (as on 27-10-2014)	1300

(Source: BGAPMEA)



Annexure-Ill

VISIT TO BGAPMEA MEMBERS

Objective: Compilation of information through detail assessment of different accessories and packaging manufacturers.

Duration of Assessment: 5 Days

Total Number of industries Visited: 14

Persons involved in Assessment:

1. Mr. Mohammad Zilkad Chowdhury (Project Manager, BGAPMEA)
2. Mr. Faraz Rasheed Mir (Project Manager, TTZ Bremerhaven)
3. Dr. Abdul Jalil (Chairman Department of Textile EUB)
4. Mr. Md. Abdul Halim(Deputy Secretary, BGAPMEA)
5. Mr. Prof Dr. Feroz I Faruque (Consultant, BGAPMEA)
6. Mr. Md. Mosharaf Hossain Sarker (Senior Faculty Member,EUB)
7. Mr. Monir uddin (Former Director, BGAPMEA)
8. Mr. Harunur Rashid Bhuyan (Adviser Inspired Project, BGAPMEA)
9. Mr. Amir (Project officer, BGAPMEA)

Selected BGAPMEA member factories for Inspection/Data collection for the study under Bangladesh INSPIRED project funded by EU & Ministry of Industries.

Implemented by : BGAPMEA

Area: Savar (Weekend-Friday)

1.	Mr. S. A Jamal Director Dekko Accessories Ltd. BGAPMEA Membership # 1082 Suvastu Zenin Plaza (3rd Floor) House # 37, Road # 16, (Old-27), Dhanmomdi, R/A, Dhaka Pho: 9130904, Fax: 8128055 Mob: 01817-296352 (Mr. Shahidullah, Sr. Manager (Admin) E-mail : jamal@dalbd.com, dal@dalbd.com Website: www.dekkobd.com Product : Button, Woven Label, Printed Label, Multicolor PP/PE/OPP Polybag, Butterfly, Collar Insert, Collar Bones, Back Board, Neck Board etc.	Factory : Multi items Singair Road, Hemayetpur, Savar, Dhaka Tentative Date: 15-11-2014 (Saturday) At 2:00 pm
2.	Md. Firoz Uddin Hawlader Director AKH Packaging & Accessories Ltd. BGAPMEA Membership # 528 AKH Tower, 133-134, Hemayetpur, Savar, Dhaka Tel: 7744001 Fax: 7741831 E-mail : firoz@akhfashions.com Product: Corrugated Carton, Back Board, Neck Board, Tissue Paper, Hang Tag, Photo Card/Photo Board, Sewing Thread, Drawstring Printed Poly Bag.	Factory : Multi items Harindhara, Tenary Rd., Hemayetpur, Savar, Dhaka Tentative Date: 15-11-2014 (Saturday) At 4:00 pm
3.	Mr. S. M. Amzad Hossain Managing Director Al-Muslim Accessories Ltd. BGAPMEA Membership # 708 1101, DIT Road, Malibagh Chowdhury Para, Dhaka Tel: 9336501 Fax: 8316920 Mobile : 01711-566211, 0175-5534830 (Samsuddin) E-mail : mozammel@almuslimgroup.net, samsuddin@almuslimgroup.net Product: Elastic, Twill Tape, Embroidery, Drawstring, Draw Cord, Back Board,	Factory: Multi items Nishchintapur, Zirabo, Ashulia, Savar, Dhaka Tentative Date: 19-11-2014 (Wednesday) At 10:30 am

	Neck Board, Hang Tag, Price Tag, Photo Card/Board, Tissue Paper. (Friday-Open)	
4.	Mr. Salay Ahmed Babu Managing Director Twice Poly Bag & Thread Ind. Ltd. BGAPMEA Membership # 403 99, Kakrail (1st Floor), Dhaka. Tel: 9341330, 8319959 E-mail : info@twicegroupbd.com Product: Poly Bag, BOPP Bag, Sewing thread, Elastic, Gum Tape.	Factory : Sewing Thread 92/1, Tayebpur, Zirabo, Savar, Dhaka Tentative Date: 19-11-2014 (Wednesday) At 1:00 pm
5.	Mr. Abdus Salam Managing Director Babylon Trims Ltd. BGAPMEA Membership # 597 Kandi Boilapur, Horindhara, Tetulzhora, Hemayetpur, Savar, Dhaka, Tel: 8023495-6 E-mail : babylon@babylon-bd.com, btlmarketing@babylon-bd.com Product: Corrugated Carton, Back Board, Neck Board, Tissue Paper, Hang Tag, Price Tag, photo in lay, Collar Insert., Photocard etc.	Factory : Multi Items Kandi Boilapur, Horindhara, Tetulzhora, Hemayetpur, Savar, Dhaka Tentative Date: 19-11-2014 (Wednesday) At 4:00 pm

Area: Tejgaon I/A, Dhaka (Weekend-Saturday)

6.	Mr. Claus Tjaerby Managing Director A-tex International Limited BGAPMEA Membership # 1098 91, Mohakhali C/A, (1st Floor), Dhaka Pho: 8833213, Fax: 8833215 Mobile : 01712-827562 (pankoj) E-mail : skm@a-tex.com, info@a-tex.com, ponkoj.roy@a-tex.com Website: www.a-tex.com Product : Zipper Slider, Thread Coning, Hook & Loop, Sticker, Labels, Hang Tag	Factory: Sticker, Hang Tag 169/D, Kunipara Tejgaon I/A, Tejgaon I/A, Dhaka-1208 Tentative Date: 16-11-2014 (Sunday) At 11:00 am
7.	Mr. Iqbal Hossain Proprietor Patriot International. BGAPMEA Membership # 42 430/1/A, Tejgaon Industrial Area, Dhaka Tel: 880-2-9880336 Fax: 9897814 E-mail : iqbal@patriotgroupbd.com Product: Corrugated Carton, Back Board, Neck Board, Tissue Paper, Hang Tag, Price Tag, Barcode, etc.	Factory: Multi item 430/1/A, Tejgaon Industrial Area, Dhaka Tentative Date: 17-11-2014 (Monday) At 4:30 pm

Area: Gazipur (Weekend-Monday)

Sl. No.	Name of Accessories & Packaging Unit	Area & item wise Factory Address & visiting date
8.	Hazi Abdul Majid Mondal Managing Director Mon Trims Ltd. BGAPMEA Membership # 584 Siaam Tower (Level 9th & 10th) Plot # 15, Dhaka Mymensingh Road, Sector # 3 Uttara Model Town, Uttara, Dhaka-1230. Tel: 8955000-2, Fax : 8931432 E-mail : info@mondol.net, ranju@montrims.com, hr@montrims.com Website: www.montrims.com	Factory : Multi Items Mouchak, Kaliakoir, Gazipur Attn : Mr. Mahfuzul Haque Bhuiyan (Ranju), Asst. General Manager (Co-ordination, Sales, Production), Mobile: 01613 031173, 01973 031173, Mr. Anowar Hossain Khan, Asst. Manager (Admin, HR)

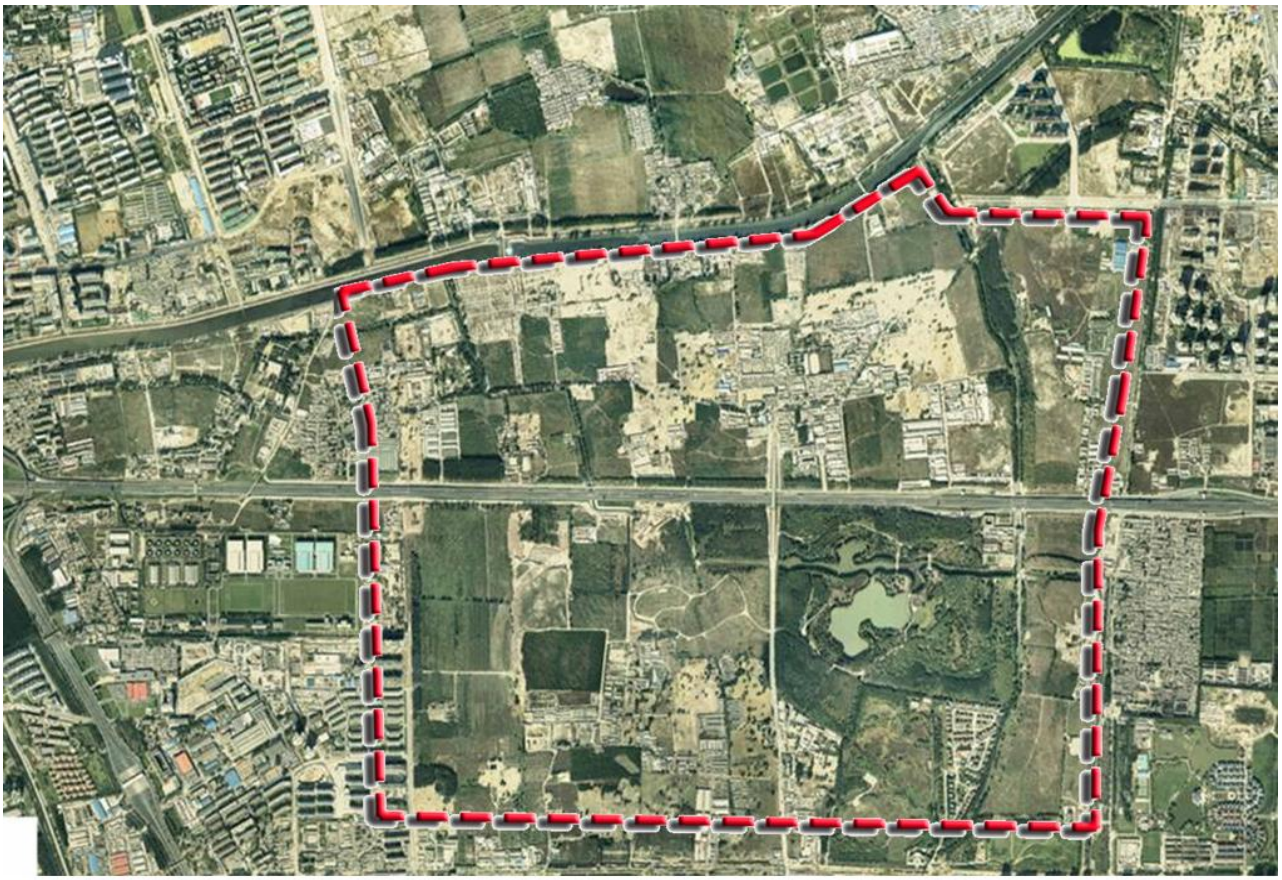
	Product: Corrugated Carton, Back Board, Neck Board, Tissue Paper, Hang Tag, Price Tag, photo in lay. etc.	Mobile: 01714 670255, 01841-670255 Tentative Date: 16-11-2014 (Sunday) At 1:30 pm
9.	Mr. Mobarok Ullah Mazumder Managing Director Siam Computerized Elastic Industries Ltd. BGAPMEA Membership # 450 60/E, Purana Paltan, Dewan Complex (4th Floor), Dhaka Tel: 9559878, 9558051, Fax: 9558253 Mob : 01711-531131, 0171-3329951 (Mannan) E-mail : mumtex@mumtex.com Product: Twill Tape, Woven Tape, Velcro Tape, Woven Elastic, Knit Elastic, Draw Cord, etc.	Factory : Elastic & Drawstring 377, Surabari, Kashimpur, Gazipur Tentative Date: 16-11-2014 (Sunday) At 3:00 pm
10.	Mr. Syed Shahidul Islam Director Well Accessories Ltd. BGAPMEA Membership # 775 Serene Apartment (Lavel-1), House # 114 Road # 3, Block # F, Banani, Dhaka-1213 Tel: 986057, 8858032, 9873219, 9896158, Fax: 8858029 Mobile : 01819-288283, 01817-149498 (Khokon) E-mail : shahid@wellbd.com, info@wellbd.com, comm.acc@wellbd.com Website: www.wellbd.com Product: Corrugated Carton, Back Board, Neck Board, Tissue Paper, Printed Poly Bag, BOPP Bag, Hanger, Gum Tape, Elastic/Non-Elastic Band.	Factory : Multi Items Vill: Baniarchala, P.O.: Bhabanipur, Union: Mirzapur, Dist: Gazipur, Bangladesh. Tentative Date: 18-11-2014 (Tuesday) At 12:30 pm
11.	Mr. S. M. Shameem Iqbal Managing Director KDS Accessories Ltd. (Unit-02) BGAPMEA Membership # 828 Road # 4, House # 63, Block-C Banani, Dhaka-1213 Tel : 9821665, 9821667 Fax : 9821682 e-mail : raisul.islam@kdsgroup.net Mob: 01777 775461 (Md. Raisul Islam) E-mail : accessories@kdsgroup.net, shameem.iqbal@kdsgroup.net, raisul.islam@kdsgroup.net Product: Corrugated Carton Boxs, Poly Bags, Hangers, Sewing Thread, Labels & Tags, Button, Heat Transfers, Trims solutions.	Factory : Multi Items West Dogory, Mirjapur, Gazipur. Western side of Rajendrapur Cantonment. Tentative Date: 18-11-2014 (Tuesday) At 2:30 pm
12.	Mr. Bo-Sun Park Managing Director. Taehung Packaging Bangladesh Ltd. BGAPMEA Membership # 107 Teen Sarak (Chandana), Joydebpur, Gazipur-1700 Tel: 9261224, Fax: 9262376 Mob: 0182-4093018 (Raihan) E-mail : info@taehungbd.com Product: Corrugated Carton	Factory: Corrugated Carton Teen Sarak (Chandana), Joydebpur, Gazipur-1700 Tentative Date: 18-11-2014 (Tuesday) At 4:00 pm

Area: BSCIC I/E, Tongi (Weekend-Friday)

13.	Mr. Md. Rashedul Haque Chowdhury Director Neo Zipper Company Ltd. BGAPMEA Membership # 781 10, Mohal Mouza (7/A, Squibb Road) Kathaldia, Borodewra, Tongi, Gazipur-1711 Tel: 9814952-4, Fax: 9814951 Mobile : 01713-022818, 01714-801155 (S.M. Arif, Sr. Com. Exe) E-mail : rashed@neozipper.com, info@neozipper.com, smarif@neozipper.com Website: www.neozipper.com Product: Zipper.	Factory : Zipper 10, Mohal Mouza, 7/A, Squibb Road, Kathaldia, Borodewra, Tongi, Gazipur-1711 Tentative Date: 18-11-2014 (Tuesday) At 10:30 am
14.	Mr. Abdul Kader Khan Managing Director, Khan Accessories & Packaging Co. Ltd. BGAPMEA Membership # 10 Plot # A-102, BSCIC Industrial Estate, Tongi, Gazipur Tel: 9801106, 9815538, 9815639, Fax: 880-2-9815539. E-mail : kapcobd1@yahoo.com Website : www.kapcobd.com Product: Back Board, Neck Board, Hang Tag, Price Tag, Photo In-lay, Tissue Paper, Sewing Thread etc.	Factory: Poly Bag Plot # A-102, BSCIC Industrial Estate, Tongi, Gazipur Tentative Date: 17-11-2014 (Monday) At 11:30 am
15.	Mr. Mostafa Kamal Managing Director Pacific Button Ind. Ltd. BGAPMEA Membership # 918 House# 351 (5th Floor), Road #27, New DOHS, Mohakhali, Dhaka Tel: 9851409, Fax: 8714854 E-mail : pacificbutton@yahoo.com Product : Button	Factory : Button B-49 (2nd floor), BSCIC Industrial Estate, Tongi, Gazipur, Tel: 9810333 Tentative Date: 17-11-2014 (Monday) At 3:00 pm

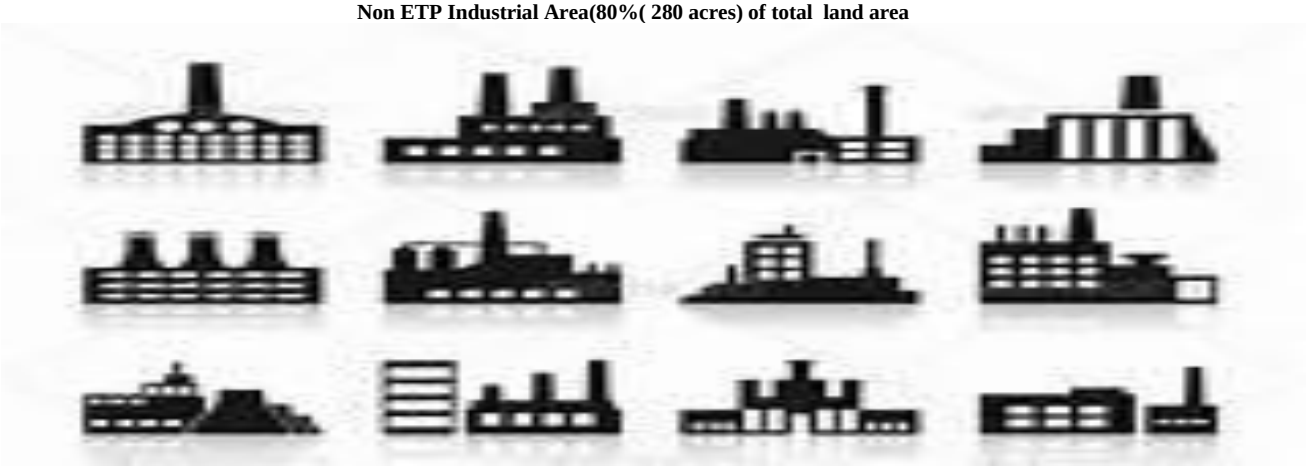
Green Design and Layout Planning(preliminary) for an Eco-Industrial cluster: Annexure-IV

Combining all factors and purposes, landscape architectural science and the art of designing green buffers for eco-industrial village are crucial and effective measures. Landscape design, especially planting design, offers wide benefits including aesthetic, socioeconomic and ecological (such as bio-indicator, biochemical filtering of the air and reduction of temperature). Finally, the study suggests having a "green area system industrial cluster", which is a significant consideration of green layout planning together with other systems.



PROPOSED SAMPLE LAYOUT PLAN (CETP/ETP No. of industry based)

Non ETP Industrial Area(80%(280 acres) of total land area



ETP Industrial area 20% (70 acres) of total land area

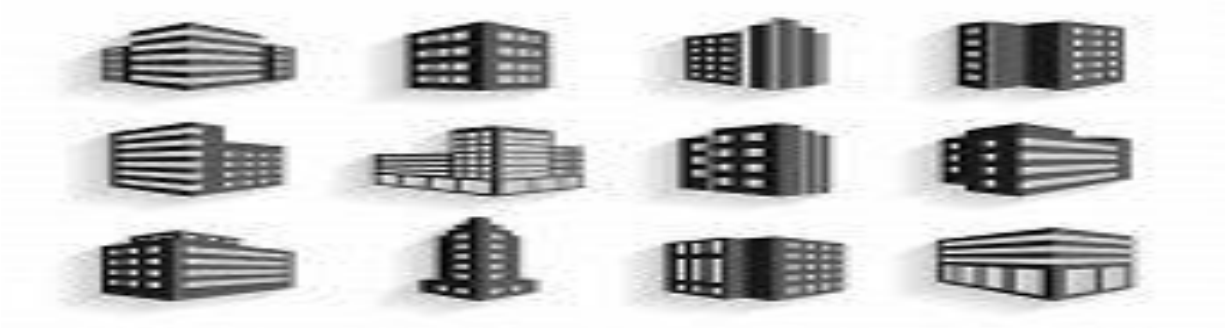
Proposed total Land Area(350 acres)

PROPOSED SAMPLE LAYOUT PLAN (No. of industry based)

Corrugated Cartoon 50%(175 acres) of total land area

Multi items(15%(53 acres) of total land area

(Poly 10% (35 acres)of total land area



Rest others 25%(78 acres)of total land area

Proposed total Land Area(350 acres)