

Report of the Working Group
on
Clustering and Aggregation
for the 12th Five Year Plan

Department of Industrial Policy and Promotion
Ministry of Commerce and Industry
Government of India
October, 2011

Table of Contents

	Name	Page No.
Chapter	1- Introduction	3
Chapter	2- Constraints faced by the clusters – at macro and sectoral levels	7
Chapter	3- Developments of the existing and new clusters	17
Chapter	4- Recommendations	23
Chapter	5- Clusters to industrial corridor – A natural extension	33

Chapter – 1

Introduction

1.1 Industrial clusters are increasingly recognized as an effective means of industrial development and promotion of small and medium-sized enterprises. Cluster is a geographically proximate group of interconnected companies and associated institutions in a particular field, linked by commonalities and complementarities (external economies). The issue has gained immense popularity among the policy makers as a very important tool of intervention. Enterprises can better improve their competitiveness due to the presence of specialized suppliers of raw materials, parts and components, machinery, skills and technology as well as other supporting services. The research on clusters clearly reflects the advantages of focusing on clusters with positive interrelationships amongst the stakeholders. Developing clusters is not only a means to improve the competitiveness of industry but also an instrument for alleviation of poverty, generation of sustainable employment, fostering innovation, enabling better, effective and sustainable credit flow.

1.2 Organisation of industry into some kind of homogeneous clusters has been a historic phenomenon. Even for large industries, clusters develop because of the growth of ancillary industries. Being a part of cluster is important for the sustainable growth of MSMEs. In India, there are around 7000 clusters in traditional handloom, handicrafts and modern SME industry segments (as per table given below). In addition to the clusters shown in the table, it is estimated that there are about 2500 unmapped rural industry clusters in the country.

	Distribution of Clusters in India by Regions						Total
	Traditional Manufacturing		Micro Enterprises				
	SME		Handloom		Handicraft		
No.	%	No.	%	No.	%		
North	315	28.1	124	25.1	627	20.3	1066
East	148	13.2	110	22.2	807	26.2	1065
West	294	26.2	122	24.6	816	26.5	1232
South	350	31.2	83	16.8	537	17.4	970
North-East	15	1.3	56	11.3	297	9.6	368
Total	1122	100	495	100	3084	100	4701

Source: Policy and Status Paper on Cluster Development in India, Foundation for MSME Clusters, 2007

1.3 Common initiatives that individual units may not be able to afford could be supported through a cluster development program which provide added advantage to the individual units to derive competitiveness through such provision of inputs. The cluster can have a common facility centre as one of the many possible options. Several existing institutions including service centres provide a variety of services such as locating markets, linking technology, facilitating common purchases, linking up with designers and other BDS providers, facilitate subcontracting and training etc. Each cluster can find its own unique model that can cater to the requirements of its constituents.

1.4 Clusters can also be considered as part of a bigger value chain mechanism (raw materials, intermediates, finished products and marketing) where the value chain extends beyond geographically defined boundaries. Defined by relationships rather than a particular product or function, clusters include organizations across multiple traditional industrial classifications which make drawing the categorical boundaries of a cluster a challenge. Specifically, participants in industry clusters include:

- Organizations providing similar and related goods or services;
- Specialized suppliers of goods, services, and financial capital (backward linkages);
- Distributors and local customers (forward linkages);
- Companies with complementary products (lateral linkages);
- Companies employing related skills or technologies or common inputs (lateral linkages);
- Related research, education, and training institutions such as universities;
- Community colleges, and workforce training programs;
- Cluster support organizations such as trade and professional associations;
- Business councils, and standards setting organizations;

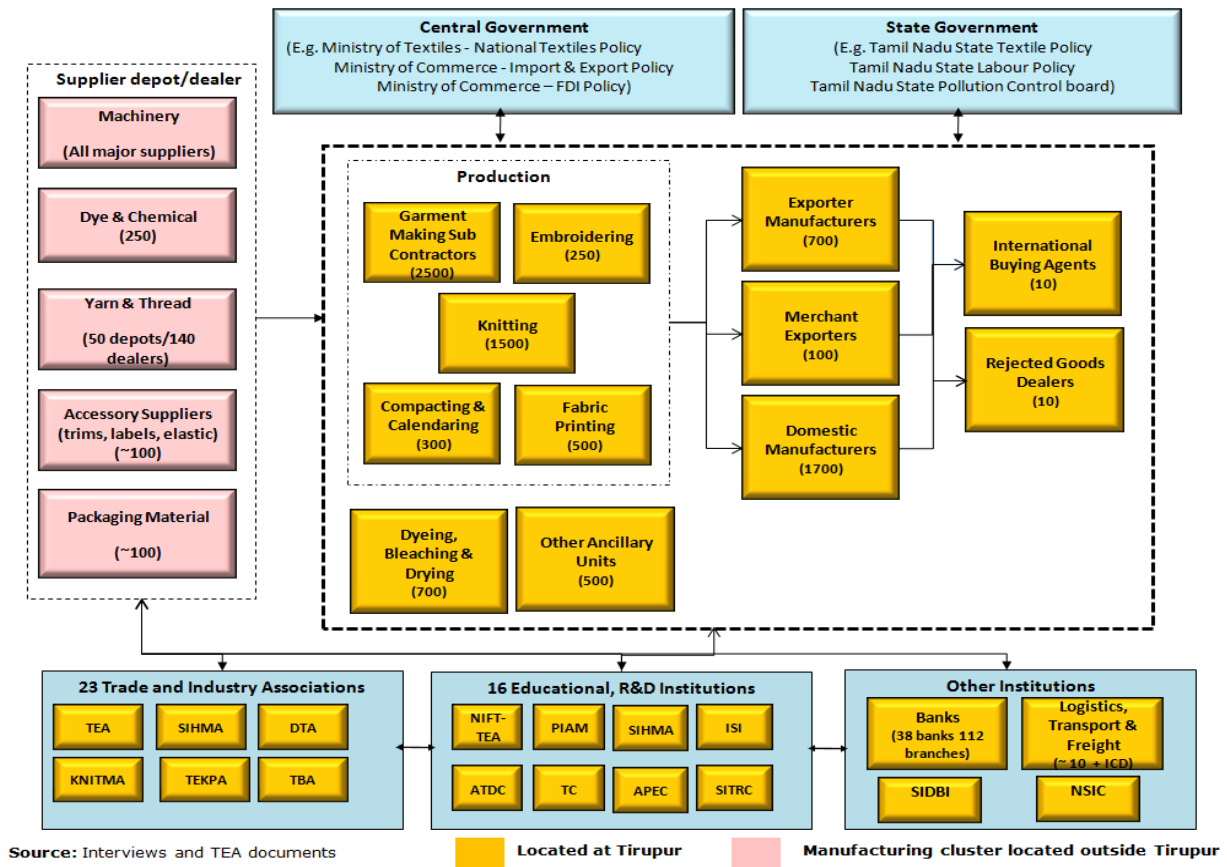
1.5 Lack of infrastructure has always been a critical constraint affecting growth of industries and its dispersal across the regions. With a view to promoting industrialization and their dispersal in backward areas, the Government in June, 1988 announced a scheme of developing Growth Centres, as new green field locations for industries. The growth centre, each of which was to be developed in areas of 400-800 hectares was to be endowed with the basic infrastructural facilities like power, telecommunication, water and banking, enabling them to attract industries. While 68 centres were

sanctioned under the scheme throughout the country, it was discontinued on March 31, 2009. The cluster based infrastructure support, being demand driven, was considered a preferred intervention strategy compared to these green field new locations.

1.6 The Micro, Small and Medium Industries form the backbone of manufacturing sector not only in India but also in other developed countries. In India, the Small Scale Sector accounts for 40% of manufacturing output and 34% of total exports. The SME Sector is employment intensive and more dispersed. The Ministry of Micro, Small and Medium Enterprises (MSMEs) adopted the cluster approach as a key strategy for enhancing the productivity and competitiveness as well as capacity building of small enterprises (including small scale industries and small scale service and business entities) and their collectives in the country. Among other things, this approach was preferred as it facilitates economies of scale in terms of deployment of available resources for effective implementation and leads to sustainable results in the medium to long term. Ministry of MSME has so far taken up 471 clusters for diagnostic studies and soft and hard intervention.

1.7 One of the well known, well developed Industrial clusters in India is Knitwear apparel cluster in Tirupur. The cluster can be schematically represented as follows:

Report of the Working Group on Clustering and Aggregation



1.8. Department of Industrial Policy and Promotion also launched an Industrial Infrastructure Upgradation Scheme (IIUS) in 2003 as a Central Sector Scheme with a view to enhancing competitiveness of industry by providing quality infrastructure through public-private partnership in selected functional clusters. The objective of the scheme has been to select and provide financial assistance to industrial clusters/locations with high growth potential for creation of common infrastructure. 39 projects have so far been sanctioned. The scheme was evaluated in 2008 and based on the findings was re-casted in February 2009. Under the recast IIUS, Central assistance is provided by way of one time grant-in-aid (not equity) to the Special Purpose Vehicle (SPV) created specifically for implementing this scheme. Total approved cost under the scheme in the sanctioned projects is nearly Rs 2500 crore envisaging central assistance of Rs 1500 crore. An expenditure of Rs 1050 has already been incurred on the upgradation of infrastructure in selected clusters.

Chapter -2

Constraints faced by the clusters- at macro and sectoral levels

2.1. There have been a number of schemes¹ relating to the industrial clusters, which are supported by the Central Government. Some important lessons that could be learned from the experiences of implementation of sectoral programmes are summarized below:

2.2. The implementation experience clearly indicates that the schemes should typically combine soft and hard interventions in order to be successful. Certain schemes that focus too heavily on infrastructure development and do not have adequate budgetary provisions for soft interventions such as training, capacity building, skill improvement, marketing inputs, product development and design, etc. tend to flatter. Capacity building is essential to create initial demand among stakeholders and sustained interventions of an external capacity building agent may be necessary for substantial part of the cluster development. Such interventions, however, need the support of infrastructure development programmes and creation of common facilities eventually so that local industries see the tangible benefits of their participation in a scheme.

2.3. One size fits all approach has often been counterproductive. Flexibility in design and implementation of the schemes is important for two reasons. Firstly, it helps the implementation agency to suitably calibrate between soft and hard interventions according to the actual requirement. Secondly, as comprehensive need assessment is not available at the time of sanctioning of the scheme, interventions, not envisaged earlier, could be included. Flexibility to reallocate resources ensures that the intervention is better targeted. There however, could be some checks and balances on the flexibility so that core

¹ • Scheme for Integrated Textile Parks (SITP)
• Industrial Infrastructure Upgradation Scheme (IIUS)
• National Automotive Testing and R&D Infrastructure Project (NATRIIP)
• Mega Food Park Scheme (MFPS)
• Micro & Small Enterprises – Cluster Development Programme (MSE-CDP)
• Indian Leather Development Programme (ILDIP)
• Integrated Handloom Cluster Development Scheme (IHCDS)
• Babasaheb Ambedkar Hastshilp Vikas Yojna (BAHVY)
• Scheme of Fund for Regeneration of Traditional Industries (SFURTI)

objectives are not missed. Utilization of the assets is extremely critical for the participants to realize the benefits of the common facilities. Demand pick up may not be immediate and intervening period may need additional support, which could gradually be reduced. In the long run, user contribution/ service fee would alone ensure sustainability of the project

2.4. Development and joint management of common facilities requires a lot of trust and cooperation among cluster participants. Companies often view others as competitors and do not want to participate in joint activities (common activities). This requires building up trust among the participants. One way of building trust is through showcasing successful clusters. Even though the concerns and opportunities in each cluster in many ways are unique, there exist many similarities. These could be replicated and exchange visits, funded from the cluster budget, could have a strong demonstration effect. Developing trust and cooperation although difficult, but all the more necessary in case of cluster related interventions in handloom, handicraft and other traditional products as the artisans are also driven by their social consideration while making economic choices. Multi faceted capacity development of such cluster actors is required for tangible benefits. In case of certain sectors like agro-processing, traditional handicrafts, garments and furnishing, etc. the initiatives need to cover entire value chain. This also brings into focus the need to have a variety of stakeholders such as farmers, agro-processing industries, infrastructure service providers, etc. to participate in the implementation process.

2.5 Agriculture based cluster development: Cluster development could make greater national impact through industry-agri linkages. India is today the second largest producer of food in the world. Agriculture production has shown a growth of about three per cent per annum, and today, India is the number one producer of milk, and second largest producer of fruits and vegetables in the world, with a buffer stock of over 60 million tonnes of wheat and rice. Due to poor handling of the produce, post-harvest losses have been high, resulting in a significant gap between gross production and the net availability of the produce to the consumer. The profits from agricultural commodities have also greatly diminished. Since nineties, the cost of agricultural inputs has increased faster than the market price of the outputs. As a result, farmers are about 15-20 per cent worse off, even after taking into account the gains in productivity. There are very few examples of successful

food processing clusters, much less the agricultural clusters, not just in India but even globally. Location of food-processing units should be strategically placed depending upon the raw material availability, labour, product utilisation and domestic and/or export marketing. It should be nurtured to evolve on a natural course after initial nucleation, as done for IT industry.

2.6. It is necessary that cluster intervention strategy is demand driven and developed through a 'bottoms up approach'. Business Membership Organisations (BMOs) such as industry associations, Cooperatives, SPV, Networks etc. help clusters to grow. The BMOs on their own may do not have capabilities of organizing themselves or building institutions, therefore hand holding can lead to better results. This hand holding may be needed for a longer term for developing marketing, designing, financial and managerial aspects for which currently there is no provision for support.

2.7 Capacity building of industry associations: Cluster based industry associations with targeted vision, committed leadership and technically qualified support staff have made significant difference towards sustainable growth of MSMEs. These associations have been providing various critical services in the areas of infrastructure creation, marketing, financing and human resource development of the industry. In this process, they are also able to make substantial use of various government schemes. Innovative and original thinking is also leading to creation of customized support to association members. However it has been observed that most of these associations are in existence for the name sake. The associations do not have proper secretariat in place or any building of their own and operate mostly from the office of the association president. Their services seem to be limited to advocacy only. They also seem to be operating without any proper planning or vision; elections are conducted without participation of all or majority of the members; meetings are not held regularly etc. Given the presence of 3500 industry associations in the country there exists a huge scope to capacitate these associations to play a pivotal role in the development of the MSMEs in clusters, besides generating sustainable business for themselves. A national programme on BMO capacity building across the country should be launched to reach at least 1000 associations in the 12th Five Year Plan.

2.8. Clusters, in many cases, have also not been able to generate the competitive stimulus and dynamism, particularly in MSME segments because

of a lack of effective agents who could aggregate the produce for marketing. The effectiveness of the agents, where ever they exist, have been limited because of the lack of integration of key drivers of growth such as finance, training, facilitation and creation of market linkages. The missing integration has prevented the informal sector to set up registered institutions to access institutional support. It is often easier for producers and micro-entrepreneurs to manage what they can by negotiating informal sources rather than through formal institutions. The lack of support policies for small entrepreneurs is particularly acute. However, cluster growth is dependent on micro and small entrepreneurs who have to maneuver their way to growth rather than be supported institutionally. This makes it necessary for the intervention to be supportive of inclusive growth. Start-up stage of cluster development (especially for poverty alleviation and employment) is the most difficult because it requires considerable facilitation by external agencies. Usually, once the clusters get established and integrated after some years of growth, they are better managed because gradually they acquire the status and ability to negotiate with the agents of support like finance, training and marketing etc. The real challenge for cluster development for poverty alleviation in the 12th Plan will be to ensure the flexibility in cluster initiatives not just in scheme designs but also in implementation because that is where the problem lies.

2.9 The cluster development schemes in MSME sector do not often provide required flexibility and scope for investments. Moreover the schemes are heavily focussed on development of common infrastructure which accounts for nearly 80% of all expenditure under various cluster development schemes. Apparently it ensures spending but ignores investing into social capital building and capacity building of BMOs that is vital to sustainable growth of clusters.

2.10 MSMEs face problem of acute shortage of working capital. About 5% of the MSMEs are able to get institutional finance. The major reason for this has been the high risk perception among the banks about this sector and high transaction costs for loan appraisal and their maintenance especially for small currency loans. The severity of the problem is faced by the units requiring finance in the range of Rs. 1 lakh to 10 lakh. The other reason for the problem is collateral demanded by the banks. There is a need for structural change in

financing MSMEs and also development of local structures to support linkages of MSMEs with financial institutions and banks.

2.11. DIPP commissioned RAMKY Enviro Engineers Limited to have a critical evaluation of Industrial Infrastructure Upgradation Scheme (IIUS). The study, conducted during 2007-08, observed that setting up of common facilities has benefitted the society and the industry. There has been increase in production in the range of 30 to 80% through induction of latest technologies resulting in improvement in efficiency up to 60%. There has been an enhancement of export of some of the chemicals and consumer goods in the range of 30 to 35%. There has also been recovery of valuable chemicals from waste streams and installation of common facilities has resulted in minimization of the waste. The report recommended the scheme to be re-casted to be more effective. It should adopt a two-tier approval mechanism giving in-principal approval in the first stage after the technical appraisal of the project. Formal sanction may be provided after project has achieved setting milestones like acquisition of land, matching contribution from industry, approval from the State Governments and Special Purpose Vehicle (SPV) having taken over the management. The SPV, which would be the mode of implementation of IIUS should conceptualize, formulate proposals, manage infrastructure and achieve financial closure. SPV should also prepare a detailed project report covering, financial, technical and institutional aspects.

Lessons from the Italian Clusters

The NMCC has been stressing the need for appropriate macro policies such as trade policy, exchange rate policy etc. to combat the low pricing policies adopted by the competing countries which hinders the competitiveness of the Indian manufacturing sector. In a recent study of the Italian clusters, it is seen that globalization has resulted in low priced Chinese products edging out the technologically superior Italian products. In order to survive, some of the Italian firms have started to diversify from the traditional business while others seek to face the challenge with the help of regional authorities, creation of a group trade mark and peer pressure to retain the skills in the sector.

The Study throws up a very important aspect relating to clusters in the current world of globalization and global competition. The standard

argument is that clusters and aggregation will result in cost advantage due to a number of factors which are well known. The Study seems to bring out that while it may be true in most cases, it may still not make the cluster units competitive. What the Italian clusters seem to be facing is not a problem of technology or quality but one of price competitiveness due to the pricing policies adopted by the competing countries. It is precisely for this reason that NMCC has been insisting that appropriate macro policies such as trade policy, exchange rate policy etc., are important as they are likely to have a very major impact on the competitiveness of the Indian manufacturing including the clusters.

2.12. Clusters should secure contributions from stake holders, State Governments and industries and others as may be required. While the report recommended retaining the funding pattern of providing a maximum of 75% as grants-in-aid, it recommended enhancing the limit of the project to Rs. 60 crore and industries' contribution at a minimum of 15%. The report suggested that priority should be given to locate clusters in backward areas and emphasised to enhance the competitiveness and productivity of the industries with improvement in basic infrastructure. About 75% of the grants should be utilized for improving productivity and 25% for basic amenities. Report also suggested that DIPP should have a proactive role in formulation of the projects and hand holding of SPVs through project management consultant (PMC). The PMC should facilitate identification of potential projects, develop detailed framework for interventions and assist DIPP in technical and financial evaluation. The report recommended continuation of the scheme.

2.13. Infrastructure Leasing & Financial Services Ltd.(IL&FS) as a project implementer in a variety of clusters, has been of the view that a general all-encompassing scheme with a standard template for cluster parks² (schematic pattern is summarized in Annex A) may be more productive. A comparative picture of broad features of cluster programme in different sectors is in the Annexure. A common template for all such parks having features such as Common Facility Centres (CFCs), ICT facilities, Skill Development centres,

² National Manufacturing Competitiveness Council also supports a common template for clusters.

facilities for captive power generation, marketing etc. may make it easy to process, implement and monitor.

Report of the Working Group on Clustering and Aggregation

Annex-A

Cluster Development Initiatives in different sectors

Criteria	Industrial Infrastructure Upgradation Scheme (IIUS) of DIPP	Mega Food park Scheme	Scheme for Integrated Textile Parks (SITP) of MOT	Scheme for Development of AYUSH Clusters	Scheme of Fund for Regeneration of Traditional Industries (SFURTI)	Micro & Small Enterprise Cluster development Programme (MSECDP)
Objective	To enhance international competitiveness of the domestic industry by providing quality infrastructure through public-private partnership approach in selected functional clusters/locations which have greater potential to become globally competitive	To address the critical infrastructure gaps in the food processing sector thereby having a strengthened supply chain with strong forward and backward linkages	Provide world class infrastructure facilities meeting international quality, environmental & social standards Enable the textile industry To take advantage of Post-quota regime	1. To fill in the critical gaps in the sector especially related to raw material standardization , quality and productivity improvement, compliances, branding and promotion etc through development of common facilities through a cluster based approach 2. To encourage the level of organisation in the sector thereby creating social capital for sustainability of collective initiatives	To develop clusters of traditional industries To make traditional industries more competitive with more market-driven, productive, profitable and sustained employment To strengthen the local governance systems of industry clusters To build up innovated and traditional skills, improved technologies, advanced processes, market intelligence and new models of public-private partnerships, so as to gradually replicate similar models of cluster-based regenerated traditional industries.	i) To support the sustainability and growth of MSEs by addressing common issues such as improvement of technology, skills and quality, market access, access to capital, etc. ii) To build capacity of MSEs for common supportive action through formation of self help groups, consortia, upgradation of associations, etc. iii) To create/upgrade infrastructural facilities in the new/existing industrial areas/ clusters of MSEs. To set up common facility centres (for testing, training centre, raw material depot, effluent treatment, complementing production processes, etc).
Coverage	Applicable to any industrial sector/ cluster/ estate	Value chain in Agri zones covering farmers-processors-marketers	Setting up of induced clusters covering spinning, weaving, knitting, processing, garmenting	Existing clusters in AYUSH sector	Traditional industries and selected clusters of khadi, coir and village industries, including leather and pottery.	<ul style="list-style-type: none"> • Any MSME cluster SPV is eligible to apply under the Scheme • State/UT Governments through an appropriate state government agency with a good track record in implementing cluster projects.

Report of the Working Group on Clustering and Aggregation

Criteria	Industrial Infrastructure Upgradation Scheme (IIUS) of DIPP	Mega Food park Scheme	Scheme for Integrated Textile Parks (SITP) of MOT	Scheme for Development of AYUSH Clusters	Scheme of Fund for Regeneration of Traditional Industries (SFURTI)	Micro & Small Enterprise Cluster development Programme (MSECDP)
Funding	75% of the project cost with a ceiling of Rs. 60 cr	50% of the project cost with a ceiling of Rs.50 crore	40% of the project cost with a ceiling of Rs. 40 Cr	60% of the cost of Core Interventions and 25% of the cost of Add On Interventions. Overall assistance should not exceed 60% of the total Project cost with a maximum of Rs. 10 Cr	75% for CFC, technology upgradation, product development and 100% for Capacity building, market development with component wise ceiling	<ul style="list-style-type: none"> - Diagnostic study: Rs. 2.5 lakhs - Soft interventions: Rs. 22.5 lakhs - DPR: Rs. 5 lakhs - Common facility centres: 70% of the cost of project of maximum Rs 15.00 crore. - Physical Infrastructure development: 60% of the cost of project of Rs 10.00 crore. <p>Gol grant will be higher for NE & Hill States, Clusters with more than 50% (a) micro/ village (b) women owned (c) SC/ST units</p>
Funding components	<ol style="list-style-type: none"> 1. Physical Infrastructure as water supply, roads, sewerage, ETPs, power, worker's hostel etc 2. ICT Infrastructure 3. R&D Infrastructure 4. Quality certification & benchmarking centre 5. Information dispersal/ Intl Mktg Infrastructure 6. ICT-induction & process re-engineering & management consultancy service centre 	<p>Infrastructure covering:</p> <ol style="list-style-type: none"> 1. Collection, storage and primary processing at farm level 2. Transportation through atmospheric controlled vans 3. Cold storages in the catchments 4. Central park with production units engaged in processing supported by good quality infrastructure- roads, water supply, power, ETP, testing laboratory, cold storage, packaging facilities etc 5. Capacity building support to organize the farmers into groups, training etc 	<ol style="list-style-type: none"> 1. Land Common Infrastructure as Roads, Storm water, Water supply facilities, Underground drainage facilities, Street lighting, Electrical network, sub-station/ captive power plant, Landscaping & signage etc 2. Common Facilities as Conference, Administrative Office, Product Display Centre, Design Center / R&D Center, Canteen/Food Court, Worker's Rest Room/ Crèche etc 3. Factory buildings 	<ol style="list-style-type: none"> 1. Core Interventions such as those related to setting up of common facilities for testing, certification, standardization, quality control and other capacity building measures 2. Add On Interventions such as those related to marketing/ branding, provision of general infrastructure to support production units etc 	<ol style="list-style-type: none"> 1. Technology Upgradation 2. Setting up of Common Facility Centres (CFCs) 3. Development of new products & designs 4. New/improved packaging, etc. 5. Market promotion activities 6. Capacity building activities 7. Other activities identified by the Implementing Agency (IA) as necessary for the development of the cluster 	
Implementation framework	SPV (Section 25 company)	SPV	SPV	SPV	Non-Government organizations, institutions of the Central and State Governments and semi-Government institutions with suitable expertise to undertake cluster development	Special Purpose Vehicles (SPV) consisting of the actual/likely cluster beneficiaries organized in any legal form

Report of the Working Group on Clustering and Aggregation

Criteria	Industrial Infrastructure Upgradation Scheme (IIUS) of DIPP	Mega Food park Scheme	Scheme for Integrated Textile Parks (SITP) of MOT	Scheme for Development of AYUSH Clusters	Scheme of Fund for Regeneration of Traditional Industries (SFURTI)	Micro & Small Enterprise Cluster development Programme (MSECDP)
Project Management consultant	Provision of Project Management Agency for appraisal, handholding and monitoring of projects	Provision for a Project Management Agency as the sector is highly fragmented. Concept of clusters does not fit exactly into the framework	Programme Management Consultant to handhold the project from Concept to Commissioning	As the sector is unorganized in nature and primarily dominated by MSMEs, handholding is required from concept to commissioning so role of PMC envisaged	Nodal agencies (KVIC and Coir Board) for holding and disbursement of funds, monitoring etc and Technical agency to provide expert inputs	Provision for appointment of PMS providers
Disbursement	30% advance upon sanction, second and third installment of 30% each, 10% on completion	30% on final approval, divided into installment of 10% as advance and 20% payable on fulfillment of conditions. 2nd and 3 rd installment of 30% each 10% on completion of and Operationalization of CFCs	30% on approval IInd and IIIrd installment of 30% each 10% on commissioning of project	20% on in principle approval to mobilize private sector participation Remaining 80% in two equal installments	Cluster Specific	Funds released in 2-3 installments based on sanction and the nature of the project. Provision of advance for DSR and DPR.

Chapter - 3

Development of the existing and new clusters

3.1 Cluster formation can be both spontaneous or government induced. In cases where clusters emerge spontaneously, the process of cluster formation occurs naturally as new firms form, suppliers develop, infrastructure investments respond to needs, and established firms locate operations in growing cluster concentrations. Cluster formation, on the other hand can be for a number of reasons. Some of them are:

- Proximity to natural resources (Knitwear at Tirupur, Ceramics at Morbi, Sponge Iron at Rourkela etc.),
- Ethnic concentrations (Gujarat Diamond merchants, Moradabad Brassware, Textiles industry in Surat, etc.),
- Spin-outs from a key institution (Hyderabad pharmaceuticals from IDPL, Machine Tools at Bangalore from HMT, Tiruchirappali Heavy Engineering from BHEL etc.)
- Leveraging the existing infrastructure (clusters near port cities for export intensive industries such as Kochi for Coir Industry, Chemical clusters in Gujarat etc.)
- Spin offs from Knowledge cities- Infosys, Wipro promoters from Bangalore)
- Response to Strategy of the Government

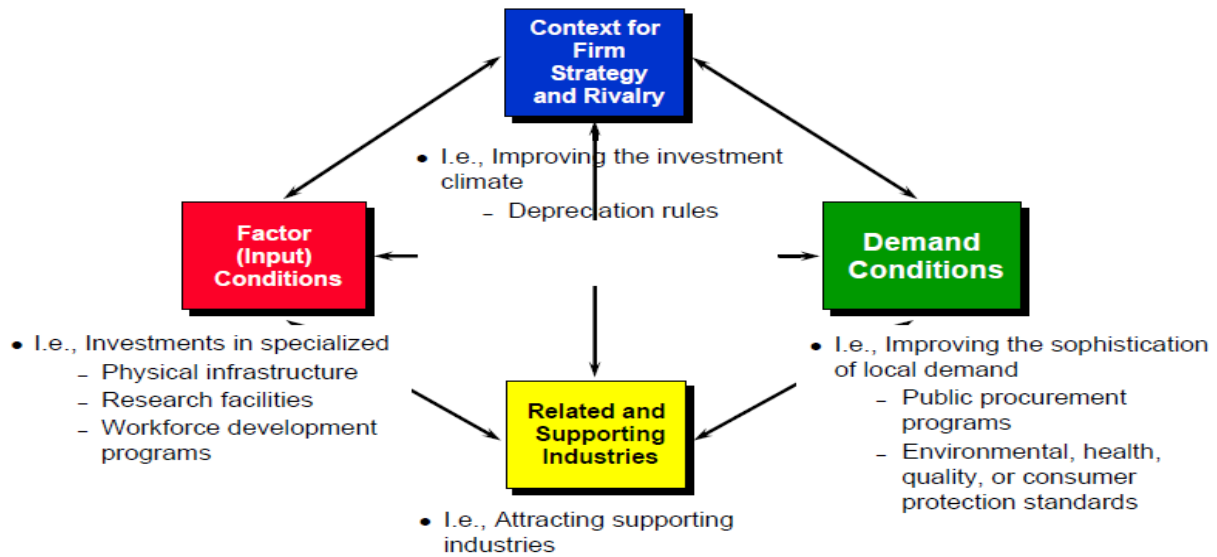
3.2 In the first three cases, the formation of cluster is mostly natural. The location has some natural advantage, which makes it attractive for the industry to grow. It is, however wrong to assume that any cluster can be developed in any geographical area. Notwithstanding the natural growth, cluster development can be facilitated by the Government. There are industries in which the land availability, favorable business climate and good living conditions could be the critical success factors for the industry to succeed. This is true, especially of, capital intensive industries. The pro-active approach of the Government in inviting the large industries as anchor companies may be a key in the development of a cluster. Therefore, cluster development could have a mixed policy encompassing:

- Encourage the natural formation of clusters, where some factor advantage already exists
- Proactively create favorable investment climate and invite industry participation

3.3 Since clusters involve powerful externalities across firms in a location, and associated public goods, there is a strong rationale for public policy. Public policy that provides structure and incentives to capture external economies may improve productivity and enhance growth. Left to them, the cluster formation may take a long time to develop. The support agencies like logistics players, skill enhancement institutions, etc., will not be able to find it attractive to join the cluster till a sufficient number of players enter the industry and the new players may not find the cluster attractive without these supporting agencies. The Government can play the **catalytic role** by investing in common facilities and encouraging the entry of common facility providers as one of the many options. There are three critical factors of cluster success: collaboration (networks and partnerships), skills and abilities (human resources), and organizational capacities to generate and take advantage of innovation - any public policy for clusters, then, needs to aim at spurring these success factors that go beyond just strengthening common infrastructure of brick and mortar. Public policy at the cluster level needs to begin with identifying clusters, providing information of cluster membership and performance, and convening cluster participants if private sector institutions have not arisen to do so. There is also a strong rationale for public investments in assets that benefit cluster participants, and incentives to spur collective investment by cluster participants in such soft and hard assets. Public policy at the cluster level, in contrast to the industry or firm level has to avoid the inefficiencies, moral hazard and potential distortions. The case for a public role in training, for example, is much stronger at the cluster level than at the industry or firm level because training investments will benefit numerous firms with little risk of distorting competition. The characteristics of the cluster policy, therefore, need to be:

- **Neutral** across clusters
- Enhancing productivity of **multiple firms/institutions**
- Facilitating/capturing **linkages and externalities**
- Facilitating the flow of **information/knowledge** across actors
- Engaging the **private sector**, not just government
- Preserving and enhancing market **competition**, not retarding it

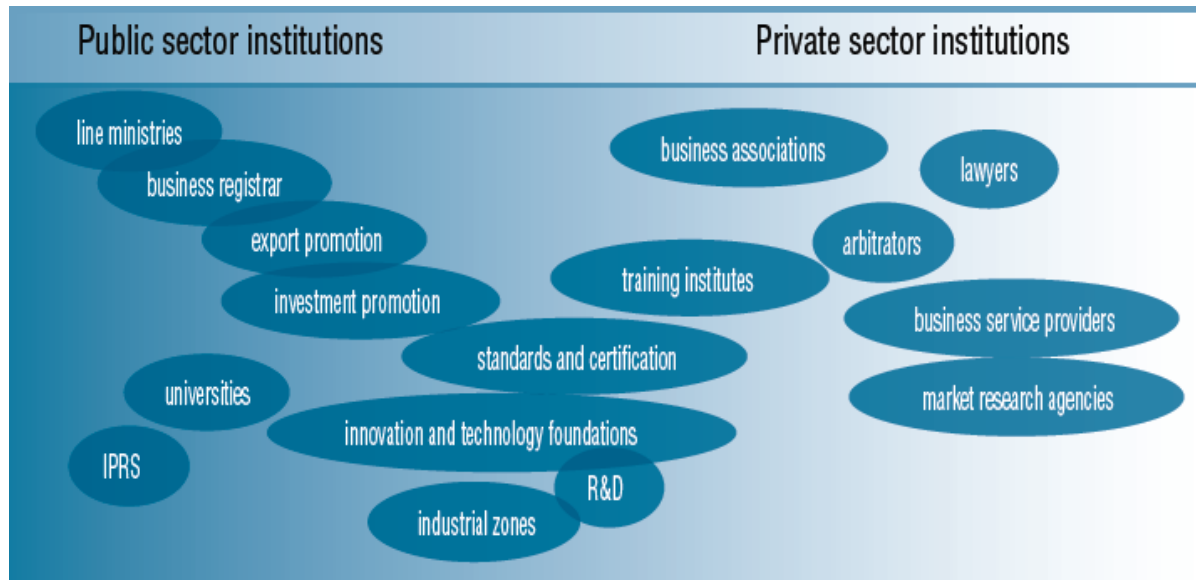
3.4 Porter, using his Diamond framework, represents the possible Government interventions using the following framework.



3.5 The typical roles, the Government can play, may, therefore, be:

- Develop/strengthen local governance institutions (BMOs) and other bodies
- Remove entry / exit barriers in industries related to cluster
- Remove avoidable regulatory burdens that prevent firms from functioning efficiently and yet ensuring uniform regulations on environment, labour etc. across all clusters to avoid distortions over different states
- Develop existing institutions that cater to the collective R&D needs of firms in the cluster
- Develop and/or strengthen existing institutions that offer specialized skills for competitiveness
- One-stop shop for dissemination of public information on products and markets
- Facilitate export promotion and attracting FDI
- Develop provisions for basic provisions such as land, labor, and capital as well as advanced factors such as skilled labor, technology and equipment, faster / cheaper transportation, etc.,
- Ensure financing of enterprises by linking up with banks/FIs and support to receive finances

3.6 Though the provisioning for basic facilities such as land, labor and capital is listed as the last in the list, they become the necessary and a very important role played by Government. However, that is not the sufficient condition. The type of institutions required to increase the competitiveness of the cluster are:



3.7 Though the Government has a role to play, that role can only be catalytic role. The cluster initiative will not succeed unless the private participants also play their role well. Some of the roles to be played by the cluster participants are:

- Have a clear cluster mission and identify the goals of the cluster
- Develop strong Cluster Business Association, which will act in the interests of the whole cluster and engage in a constructive dialogue process with the Government
- Develop other semi-private institutions such as research and advisory centers and knowledge transfer centers
- Undertake market studies that will be useful for all the cluster participants
- Have open mind to invest in technology and innovation
- Improve the capacity of specialized input and service providers
- Undertake joint promotion of specific products in the local, regional and international markets

3.8 Different clusters require differentiated role by the Government, based on the participants in the cluster, the technological sophistication of the cluster and the age of the cluster. The following table outlines different roles Government may play based on the type of the cluster:

Report of the Working Group on Clustering and Aggregation

	Participants	Government role	Typical programs
MSME Clusters	Primarily Micro Small and Medium scale players; they may be from one or several industries.	Common facilities, improvement in technology, investment in infrastructure, skill and quality enhancement, ensuring market access financing, value chain linking, etc., support setting up industrial estates and strengthening existing ones	<ul style="list-style-type: none"> . Building common facilities . Seminars, training programs of joint business promotion . Shared facilities like testing, , learning instruments, knowledge linkages etc., . Information dissemination about markets, etc.,
Hub & Spoke clusters	One or several large scale players and many smaller players supporting the larger player; (e.g. automotive cluster in Sriperumbudhur)	Investment in common facilities, identifying missing links and incentivizing such industries, skill development with respect to those industries, facilitating industry-academia interaction	<ul style="list-style-type: none"> . Investment in skill development initiatives . Establishment of industry related govt. research institute . Providing fiscal incentives to develop the missing part of the value chain
New emerging high tech industries	Similar to hub & spoke, but the industry is nascent stage and require government push (e.g. ESDM, civil aviation industry) in the form of incentives and assistance in technology development, absorption and dissemination	Providing fiscal benefits to the prospective players, investing in fundamental and applied research with participation from private sector players, improving the reputation of the location, providing preferential treatment to cluster players in public procurement, etc.,	<ul style="list-style-type: none"> . Identifying the industries to be encouraged . Providing viability gap funding . Providing special fiscal benefits . Kick starting R&D investments through Government funding . Inviting global market leader
Industrial estates ³	Industrial conglomerate with all different industry verticals (like state industrial estates)	Investment in infrastructure - such as roads, power, water, etc., setting up of other common facilities such as banks, courier companies, government administrative departments, etc.,	<ul style="list-style-type: none"> . Building common facilities . Ensuring ease of administrative compliance

3.9. The research institutions have to collaborate with industry to commercialize technologies and industry can introduce them in clusters that they are linked to. Research institutions can also be part of the package of services that is provided to a cluster and these need to be identified by product or service. Particular teams can be created at an identified university for

³ Industrial estates could in a way be the new clusters for industrial development. These could be industry specific, multi industry or driven by a major manufacturing entity.

relevant technology upgradation for product (with industry support). The teams should also be suitably incentivized in case their technology is adopted by the entrepreneurs with better results. Database of new technologies should be available on the internet, maybe ministry-wise as per mandate of each for industry.

3.10. As discussed earlier, clusters develop naturally or through Government initiatives in terms of proactive industrial policies. Normally, MSME clusters develop on their own and Government plays the facilitating role to accelerate the growth of the clusters. However, Government can play a role in developing new and capital intensive industries through its policies – Hub & Spoke clusters and High tech industry clusters. The Central Government can identify the industries that can benefit from cluster approach and formulate the policies to encourage cluster development in these areas. The interested State Governments and private sector developers can be invited to participate in this process of new cluster initiatives particularly in those regions/states which are lagging in industrialisation or have nascent potential clusters.

3.11. The physical distance is an impediment in the form of high transportation cost both for aggregation and reach to market. Under the hub and spoke model, the clusters can be connected to a hub and many such hubs connected to a satellite location. This kind of an approach is possible in clusters where value chain based interventions are envisaged. Interventions aimed at strengthening of the cluster could then be for raw material linkages wherever feasible such as primary processing facilities, enhancing level of organization of raw material suppliers etc. The interventions could be facilitated by the same set of enterprises spearheading other cluster interventions.

Chapter - 4

Recommendations

4.1 The cluster policy should be built around the various key objectives that it intends to achieve using cluster approach. The key objectives of the policy must ensure the overarching aim of achieving **'inclusive growth'**. The 5 key objectives to be achieved should be poverty alleviation, productivity improvement, energy reduction & in particular fossil fuel based ones, financing of enterprises and innovation infusion. While achieving these objectives, the policy must ensure that businesses follow the principles of responsibility to the environment, community and their own workers. These objectives are overlapping across different MSME sectors. A combination of these objectives is necessary to meet the challenges of 3 different types of industries. The character of the industries in these 3 typologies and the challenges they face are very different. These are:

- (i) **Artisan based industries** that are largely skill based viz. Handicrafts, handlooms, khadi, coir and other rural industries (cottage scale food processing, garment stitching etc.) mostly using hand-tools. These enterprises may typically have investments in plant & machinery ranging from Rs. 5,000 to less than Rs. One lakh with work force usually less than 5 and are mostly home based. The major challenges they face are low income levels due to poor market linkages and virtually no or poor access to livelihood finance. In terms of employment, this type of industry has the most dominant share in providing employment that could be more than 60% of the employment in all the three categories.
- (ii) **Traditional manufacturing industrial sectors** that largely use basic low end technologies such as small food processing, leather, textiles, apparel, dyes & chemicals, ceramics, foundries etc. Most of the enterprises in these sectors are micro enterprises as per the MSME Act with an investment of less than Rs. 25 lakh with employment per enterprise ranging from 5-20. These enterprises that may often have local or regional markets to serve, face the challenges of productivity, poor energy efficiency and have poor access to finance. In terms of employment and working conditions, there are major issues to be tackled in this segment, thanks to the fact that most of them are also out of labour laws purview.
- (iii) **Modern manufacturing industrial sectors** use a more advanced manufacturing and higher capital intensive equipment. These may be suppliers linked to demanding buyers or independent product

manufacturers in the areas of automotive sector, electronics, aeronautical suppliers, bulk drugs, pharmaceuticals etc. where the investment size generally needs to be beyond micro enterprise limit of Rs. 25 lakh and they may have workers beyond 20 thus more organized. Some of the higher end of traditional manufacturing industrial enterprises in the areas of leather, shoe making, ceramics, textiles, apparel making, engineering etc. may also fall in this domain. These sectors have challenges to continuously modernize and up-grade themselves to meet the increasingly sophisticated demands of high-end buyers and more stringent regulations as well.

4.2 Currently, cluster development programme is being implemented by sectors specific Ministries/Departments. The coverage of the clusters has been limited. It is, therefore, recommended that classification of clusters is required around their specific character such as energy intensity, environment degradation, employment intensity, export orientation, poverty alleviation etc. so that different ministries can take up cluster initiatives as per their mandate. The identification and mapping of clusters, based on select parameters and past initiatives, should be undertaken across the country and duly disseminated through an open public portal. Once the clusters are selected by different ministries, diagnostic studies should be undertaken around their input requirements to undertake implementation initiatives. While the concerned Ministries/Departments would continue to be associated with the cluster development programme, it may be desirable to constitute an inter-ministerial Empowered Committee for undertaking classification and mapping of clusters along with past interventions. The diagnostic studies should be undertaken by competent institutions based on open bidding process with technical and financial criteria.

The cluster development programme has not made much headway in many critical sectors, such as capital goods, engineering, chemicals, pharmaceuticals, defence, ship building and repairs, printing & publishing. Further, cluster development near or anchored by a mega industrial establishment has also been not fully explored. Besides the traditional sectors, these are the areas which require a renewed focus and therefore the respective departments, ministries and state governments should be mandated to take up initiatives in these unexplored areas.

4.3 Interventions should cover all clusters with a threshold level of output. The programme could therefore, be appropriately phased. While interventions would be cluster specific and highlight uniqueness of respective cluster, such intervention may need to follow a generally common menu of actions to choose from. During the 12th Five Year Plan, cluster interventions may be undertaken in at least half of all the clusters i.e. 3500 out of 7000 documented. Each intervention may cost between Rs.1-5 crore over 3-5 years in addition to infrastructure development with a separate allocation. The DSRs will help to identify the quantum of need for required inputs. DSRs are also very useful to build trust with the implementing agencies but these studies without any implementable plans and resources, may lead to greater mis-trust among the cluster actors on the implementing agencies and the government.

4.4 An unduly high emphasis has been given to common infrastructure development in the existing cluster support schemes while ignoring the fundamentals of building a strong culture of mutual trust and problem solving that can be undertaken with a number of soft inputs. Infrastructure development is one of the several key challenges that clusters may face and the success of the common infrastructure initiatives through SPVs depend on their previous history of cooperation which may not be uniform across clusters. Moreover, since building of common infrastructure usually takes a few years (3 or more), the advantages can be more quickly harnessed among clusters using soft inputs.

The wide range of possible interventions that the clusters may have to choose from are given below for a quick reference. Common infrastructure is one among the many listed below:

Soft intervention - Menu of solution of problems

Problem	Solution
Lack of Marketing linkages	<ul style="list-style-type: none"> • Joint participation in dealing with local traders/municipal markets players • Joint participation in exploring international business opportunities • Training in marketing • Exposure to marketing outlets/markets • Diversification in products/selection of product mix through common expert (service provider) • Creation of a common brand • Buyer Seller meet • Common web site • Common advertisement • Joint exploration of new international markets

Report of the Working Group on Clustering and Aggregation

Poor Quality of product	<ul style="list-style-type: none"> • Joint hiring of consultant for quality improvement • Common testing laboratory • Common training for workers on quality issues • Common access to Quality Certifications
Credit availability is a problem	<ul style="list-style-type: none"> • Mutual credit Guarantee • Sensitization of bankers • Suggesting new financial products through experts/experiences from other countries • Customers give order security to Banks
Poor Technology	<ul style="list-style-type: none"> • Exposure to right technology • Joint negotiation for buying machinery • Arranging technology exhibition for technology sellers
High cost of production	<ul style="list-style-type: none"> • Common procurement of raw/input material • Common consultant for redesigning / improving process of production • Common consultant on feed production/layers rearing/providing veterinary services • Common consultant on cost auditing
Lack of diversification in product	<ul style="list-style-type: none"> • Hiring a common consultant for introduction of right product mix for agro based products (Maize, Mushroom, egg layers, cattle rearing and vegetable cultivation / product development • Exposure to other benchmark enterprises/networks/clusters • Networking with potential new customers (Pick &Pay)
Poor skills	<ul style="list-style-type: none"> • Common training • Starting a new training programme with a training institute and institutionalizing the programme • Introducing a common service provider for hands on training for production of a particular product (Mushroom, poultry, feed production etc.)
Poor infrastructure in the cluster	<ul style="list-style-type: none"> • Common infrastructure • Common facility center for use of capital intensive tools (Tractors, tillers), providing feed, transportation, packaging, processing plants etc. • Executing projects through Public private Partnership mode •
Lack of innovation in the cluster	<ul style="list-style-type: none"> • Promotion of direct intervention between producer and consumer / customer • Networking with a local technical institute for inputs in innovation • Removing isolation of the cluster as a whole (People traveling outside ; outside customers approaching cluster ; Sharpening competition amongst groups : large number of BDS etc)
Poor social capital	<ul style="list-style-type: none"> • Strengthening existing association • Forming new associations • Forming apex associations • Forming small groups – consortia

4.5 Not only the coverage of the current strategies of cluster development is inadequate, there is no uniformity in the design and implementation at sectoral level. While it is true that each cluster needs to develop its unique development

strategy, it is nonetheless important that there is some convergence. The studies by ILFS and NMCC have indicated the need for a common template for different types of sectors. Certain areas such as creation of a cluster specific implementation agency, sanction and release of funds, the proportion of grant and other funds, monitoring mechanism, performance assessment, broad range with in which the soft interventions and common infrastructure funding to be earmarked, association of each cluster to a recognized CSIR or an accredited lab, training institute etc. could be based on a standard template for every sector. Harmonization of cluster schemes under different sectors may be necessary for cross sectoral inputs such as infrastructure depending on the scale, size and scope of the cluster.

4.6 It is important to allocate the responsibility of overseeing/ monitoring implementation to different institutions based on some threshold of the assistance. This is considered important in view of a wider role being considered for the cluster development programme. It is proposed that for clusters upto an investment of Rs 20 crore, the overseeing responsibility may rest with the respective States. For investment upto Rs 100 crore, the overseeing responsibilities may be with the respective sector specific Department. Mega Clusters or clusters which envisage an investment exceeding Rs 100 crore, the monitoring and implementation overseeing may be entrusted to a Coordinating or Apex Committee. Since the cluster development interventions have a defined time frame, the assistance provided should be sufficient enough for its viability. Inadequate funding could result in clusters shifting back to their pre assistance stage.

4.7 Cluster development has not fully integrated the marginal players and has not been generally inclusive. Different strategies need to be evolved for extending the coverage to these marginal groups. Their requirements may in fact be different compared to the dominant players or even the average ones. They need a greater hand holding and support in getting credit and marketing support. For a cluster SPV to get these units integrated would be a challenge. Micro enterprises have less bargaining capacity with their buyers, suppliers, service providers and also the SPVs. For cluster predominantly of small artisan groups, a differentiated approach would be necessary which would have their concerns listen to and factored in the operational plan. Perhaps a credit/marketing support through SHGs could be an option. The diagnostic study should identify such support and appropriate agency for hand holding.

In earlier cluster development strategies, the role of an aggregator, who could play an important role in integrating all stakeholders, was either not considered or it was in periphery. Industry associations or even NGOs could play an important role in this process of integration and involvement. The aggregator should be integral part of SPV or the implementation team in a cluster.

4.8 Embedding inclusivity dimensions in cluster development initiatives is necessary to ensure that the productivity gains are not at the expense of workers, environment and communities. Moreover, the hotspot clusters that have affected environment through pollution of different kinds, working conditions, led to special problems of the communities around these clusters should be separately identified and monitored regularly. Special programmes of assistance must be designed for such clusters to ensure alleviation of the relevant problems through improved technology infusion, strengthening of community development initiatives, building linkages of industry with relevant institutions to develop innovative ways to tackle the identified problems.

4.9. Cluster development, particularly the clusters of the micro and household enterprises have been constrained because of lack of availability of institutional channels of financing or a credit flow for productive purposes. While it is true that institutional funding is generally unit specific, for the clusters predominately comprising artisans, household enterprises or micro units, alternate institutional mechanism of funding needs to be evolved. It could be through the Self Help Group (SHG) route or any innovative scheme that the SPV could devise. There is a need for cluster based financing and piloting such models in collaboration with banks and financial institutions. Institutional financing for working capital against firm orders merits consideration. Mutual credit guarantee schemes can help to meet increasing financing needs through public private partnerships where the beneficiary groups themselves become co-guarantors on collective basis.

4.10 Each cluster should be linked to a financial institution, a training institution and an accredited institution for testing, product innovation and research (CSIR is an option wherever available and relevant). They should be associated with the diagnostic studies, nature of intervention and designing innovative support systems. Such linkages will not only ensure financing to the

cluster units but will also facilitate technology upgradation and improvement in their competitive position.

4.11 A common brand protection through Geographical Certification system should be developed in all those clusters that are famous for their uniqueness. These types of clusters include Chanderi Saree, Bikaneri bhujia, Agra ka petha, etc. There are already more than 126 such geographical identification registered by law and many more are possible. Fortunately the law provides way to protect their brand identify if they are duly registered. Most of such clusters will need a good testing and R&D laboratory and several other soft inputs to help them formalise their quality aspects.

4.12 It may be desirable to set up a Central Cluster Cell (CCC) at apex level (to be located in DIPP or Planning Commission) to monitor the performance of clusters and share best practices across the clusters. The CCC should also develop a cluster manual which may define clusters, development strategies adopted across the clusters, share best practices and develop a communication channel. The constitution of a CCC will considerably reduce the coordination problems across the clusters and clusters across different sectors. The cluster manager could be nodal person of repute to CCC. The CCC should:

- a. Maintain information about all the clusters along with the cluster participant profile, employment generated, etc.,
- b. Evaluate the performance of these clusters on pre-determined range of various performance parameters
- c. Identify best-practices and ensure sharing best practices across clusters
 - i. Building trust among participants
 - ii. Cluster Branding
 - iii. Building innovation at cluster level
 - iv. Suggesting fiscal incentives to provide to clusters
 - v. Ensuring increasing competitiveness of cluster players
 - vi. Effectively leveraging the common facilities
- d. Identify gaps and assist the relevant ministries in bridging these gaps
- e. Provide assistance to State Governments in the cluster formation through strengthened DICs at district level besides NGOs and reputed institutions that have capacity to undertake this type of work.

4.13 For improving the performance of existing clusters, CCC should be responsible for:

- a. Evaluating the performance of the existing cluster schemes and produce strategic inputs for developing plans to identify the common gaps in clusters
- b. Providing common parameters for assisting the cluster in bridging the gaps, through launching of appropriate cluster initiatives
- c. Strengthening the role of Associations in the existing clusters; some of the typical roles that the association should be playing are:
 - i. facilitating market development through joint market assessment, marketing, and brand-building
 - ii. encouraging relationship-building (networking) within the cluster, within the region, and with clusters in other locations
 - iii. promoting collaborative innovation – research, product and process development, and commercialization
 - iv. aiding the innovation diffusion, the adoption of innovative products, processes, and practices
 - v. supporting the cluster expansion through attracting firms to the area and supporting new business development
 - vi. sponsoring education and training activities
 - vii. representing cluster interests before external organizations such as regional development partnerships, national trade associations, and local, state, and central government
- d. Building the implementation capacities of institutions responsible for execution
- e. Strengthening the output/outcome and process oriented monitoring and evaluation framework suitable for cluster based initiatives.

4.14 The periodic performance assessment, over time and relative to others in the same sector but located differently, should form integral part of cluster development strategy. Some of the parameters that can be used to measure the performance of clusters could be the following.

- Growth in turnover (annual)
- Value Addition in the cluster
- Percentage of exports increased
- New employment generated in the cluster
- Labor productivity

Report of the Working Group on Clustering and Aggregation

- Increase in wages per employee
- Growth in investments by cluster participants and outside
- Funding availability to cluster participants
- Revenue from Innovation
- Certain cluster level parameters should also be used to measure the success of cluster initiatives such as
 - ✓ Associations strengthened
 - ✓ Institutions that take up service activities by themselves
 - ✓ BDS market strengthened
 - ✓ New linkages formed between public and private institutions and public private partnerships created
 - ✓ New markets created
 - ✓ Networks of business delivery created
 - ✓ Linking to new value change partners

4.15 If the decision of constituting an empowered committee (having adequate representation of all stakeholders) is considered, approvals could be ratified by the empowered committee duly assisted by competent professional management agencies. Plan funds could be passed on to respective ministries for execution as grants. The CCC can ensure better oversight of the implementation and initially targets could also be set in terms of the separate industries or sectors. A plan allocation of Rs. 15,000 crore may be considered for the cluster development programme (at an average annual phasing of Rs 2000 crore, Rs 2000 crore, Rs 3000 crore, Rs 4000 crore and Rs 4000 crore) in addition to the funds separately being sought for the development of Delhi Mumbai Industrial Corridor (DMIC) and Integrated Industrial Townships proposed to be developed. The cluster development plan allocation must have adequate provision for coordination of inputs and sufficient budget for activity undertaking considering the proposal to undertake implementation in 3500 cluster out of about 7000, a provision of Rs.7000 crores for coordination and soft inputs should be made at a rate of Rs. 2 crore (average) per cluster. A provision of Rs.8000 crores should also be made for hard inputs.

4.16 The Central Government can identify the industries for which cluster approach will be useful from the overall industrial mission of the country (to be developed) – indicating, which industries would we want to focus on at the national level. An indicative template for developing this list is provided below:

Report of the Working Group on Clustering and Aggregation

Classification	Objectives of Cluster initiatives	Likely industries
MSME clusters - based on existing factor strength (raw-material availability, existing for several years, etc.,)	Maximizing employment, improving their technological skills, increasing labor productivity, improving their competitiveness, developing market linkages for poverty alleviation and strengthening local governance institutions	Leather, Gem & Jewellery, Brassware, small diesel engines, apparel manufacturers, bamboo industry, etc.,
Hub & Spoke clusters	Enabling competitiveness through investment in skill building and innovation, improving the value addition, technology upgradation and strengthening local governance institutions especially industry associations	Automobile, Engineering goods, Gem & Jewellery, Software, pharmaceuticals, etc., Handlooms and Handicraft products
High-tech industry clusters	Kick-starting the growth of high-tech industries by investment through public-private partnerships, creating the eco-system required for the industry development through support to start ups, linking with R&D institutions, promoting innovations and inventions	Semi-conductor industry, aerospace industry, Engineering goods, Capital Equipment, etc.,
Industrial Estates	Providing common facilities to take facilitate carrying out business	Industries which are adjacent to nearby clusters

4.17 Cluster development could make greater national impact through industry-agri linkages. India is today the second largest producer of food in the world. Agriculture production has shown a growth of about three per cent per annum, and today, India is the number one producer of milk, and second largest producer of fruits and vegetables in the world, with a buffer stock of over 60 million tonnes of wheat and rice. Due to poor handling of the produce, post-harvest losses have been high, resulting in a significant gap between gross production and the net availability to the consumer. At national level at least 30-35 agri based clusters should be selected for intervention as a pilot to create impact. Some of these can be of fruit and vegetable processing, meat and meat products and dairy product clusters.

Chapter – 5

Clusters to Industrial Corridor- A natural extension

5.1 In order to sustain a GDP growth rate of 9-10%, the manufacturing sector needs to grow at 13-14% per annum. To achieve this, India needs to rapidly attract global investors through the creation of world class infrastructure and reduced logistics costs, supported by an enabling policy framework. The issue of industrialization is also closely related to urbanization. According to recent studies, by 2030, 40% of India's population will be living in urban areas, 68 cities will have a population of more than 1 million, and 70% of net new employment will be generated in cities⁴. It is estimated that, on average, about 75% of the global economic production takes place in cities⁵, and Indian urban areas will also follow the trend and account for nearly 70% of the country's GDP by 2030⁶. By 2020, housing shortage will reach about 30 million dwelling units, 200 million new water connections will be required, 250 million people will have to be given access to sewage, 160 GW of power generating capacity will have to be added and the number of vehicles on our urban roads will increase by 5 times⁷. The late Prof. C.K. Prahalad opined that "India needs to build 500 new cities urgently to provide better quality of life to its migrating people; otherwise every existing city will become a slum when Independent India becomes 75 in 2022"⁸.

5.2 The Government of India (GoI) is taking the lead in developing the Delhi Mumbai Industrial Corridor (DMIC), as a global manufacturing and investment destination utilizing the high capacity 1483 km long western Dedicated railway Freight Corridor (DFC), as the backbone. In essence, the DMIC project is aimed at the development of futuristic industrial cities in India which can compete with the best manufacturing and investment destinations in the world. The iconic DMIC project was conceived as a symbol of Indo-Japan strategic partnership. Four Japanese Consortia are working in partnership with

⁴Source: India's Urban Awakening: Building inclusive cities, sustaining economic growth, prepared by McKinsey Global Institute, April 2010

⁵Source: ECO² Cities: Ecological Cities As Economic Cities, The World Bank, 2009

⁶Source: India's Urban Awakening: Building inclusive cities, sustaining economic growth, prepared by McKinsey Global Institute, April 2010

⁷Source: A Report on Intelligent Urbanization – Roadmap for India, prepared by Booz&co. in association with Cisco for the Confederation of Indian Industry, May, 2010

⁸Source: C.K. Prahalad speaking at the first annual united world college lecture series – "The United Wheels of change".

DMICDC to develop and implement Smart City practices. The Cabinet, in its meeting held on 16th August 2007 approved the development of the Delhi Mumbai Industrial Corridor (DMIC).

5.3 The Perspective Plan for the entire Corridor has since been completed. The following investment regions/ industrial areas have been taken up for development as industrial cities in the first phase. These are both brown field and greenfield areas identified by the respective State Governments based on the availability of land and water:

- i. Ahmedabad-Dholera Investment Region, Gujarat (900 sqkm);
- ii. Shendra-Bidkin Industrial Park city near Aurangabad, Maharashtra (84 sqkm);
- iii. Manesar-Bawal Investment Region, Haryana (380 sqkm);
- iv. Khushkhera-Bhiwadi-Neemrana Investment Region, Rajasthan (150 sqkm);
- v. Pithampur-Dhar-Mhow Investment Region, Madhya Pradesh (370 sqkm);
- vi. Dadri-Noida-Ghaziabad Investment Region, Uttar Pradesh (250 sqkm); and
- vii. Dighi Port Industrial Area, Maharashtra (230 sqkm)

5.4 Out of these, the Ahmedabad-Dholera Investment Region in Gujarat and the Shendra-Bidkin Industrial Park city near Aurangabad in Maharashtra were taken up subsequent to the approval of the Cabinet on 16th August, 2007 on the recommendation of the respective State Governments, in place of Bharuch-Dahej Investment Region and Igatpuri-Nashik-Sinnar Investment Region. The list of Investment Regions, Industrial Areas and Early Bird Projects that have been or proposed to be taken up by DMICDC on the recommendation of the State Governments is enclosed at **Annexure 1**.

5.5 The project has made significant strides in the last one year. To state in brief, master planning has been completed for the first 7 industrial cities. Land procurement/ land pooling by State Governments for Phase I has also been initiated in all the States, except Uttar Pradesh. For specific early bird projects like gas based power plants, water supply and multi-modal logistic hubs, Detailed Project Reports (DPRs) have been prepared and necessary pre-project clearances are being taken. The detailed status of the various initiatives of DMICDC is attached at **Annexure 2**.

Funding & Institutional Strategies- Need for a Change in Traditional Approach

5.6 The industrial cities in the DMIC region are proposed to be benchmarked against the recently established industrial cities in other parts of the world which have demonstrated that creation of infrastructure of very high standard ahead of demand can successfully attract large scale global investments in industry and services. Depending on the geographical location and size, the development of each city in DMIC as per world standards is estimated to require an investment of the order of Rs 50,000 - 75,000 crore at 2010 prices, including cost of land procurement and development.

5.7 The development of industrial cities is planned in 3 phases. While the geographical size of cities in DMIC region varies from 84 sq Km to 900 sq Km, development of the first phase of each city will be carried out in an area of about 25-50 sq km. State Governments are acquiring / making available the land for each city. Considering the scale of development, the investment on procurement/ pooling of land would be substantial.

5.8 It has been observed world over that new industrial cities have traditionally been built and funded by the Government. However, in the case of new DMIC industrial cities, a radical departure is proposed and 60-65% of the infrastructure projects are proposed for being structured on Private-Public-Partnership (PPP) basis. The balance 35-40% of the project relates to non PPP-able trunk infrastructure, namely, internal infrastructure like flood management measures, land improvement, solid waste disposal, arterial roads, storm water drainage & sewerage, bus or rail based public transport system and landscaping, which will not be amenable to private sector participation in the initial stages.

5.9 As per the preliminary financial analysis carried out by DMICDC, the new industrial cities are commercially viable over a thirty year period, but face a large expenditure-revenue mismatch for the first 15-16 years. For creation of trunk infrastructure, financial assistance from the Government of India will be essential to enable these new industrial cities to take off. An illustrative business model with financial details, projected year-wise cash flows and

estimates of the Internal Rate of Return (IRR) for a typical city over a period of thirty years has been prepared by DMICDC and is enclosed at **Annexure 3**.

5.10 It is therefore considered that a corpus known as the **DMIC Project Implementation Fund** (hereinafter called the **“Fund”**) be created by the Government of India, based on an average requirement of Rs 2500 crore per city, for the development of the industrial cities. The figure of Rs 2500 crore per city is only an indicative figure and the entire fund of Rs 17,500 crore for the industrial cities will be utilized based on the progress made for each city, subject to a ceiling of Rs. 3000 crore per city from GoI grant. The actual requirement may vary for each city depending on the cost of land and infrastructure development and the ability of the respective State Governments to mobilize financial resources for land procurement/ land pooling. While the total requirement per city for non-PPP projects would be much larger and would vary from city to city, the barest minimum amount is being sought from the Government of India to trigger the first phase of development of these industrial cities. Once Phase 1 is efficiently executed, monetisation of developed land will enable the second and third phases to be undertaken on a self-sustainable basis.

5.11 Each DMIC industrial city is envisaged to be implemented by a Special Purpose Vehicle (SPV) set up as a joint venture with the Central Government represented through the Fund/Trust and the respective State Government. The share of Fund/Trust in the equity of a node/city level SPV will be limited to a ceiling of 50%. The node/ city level SPV may have suitable representation from private sector wherever the State Government decides to involve the private sector. The powers of a Planning Authority and a Development Authority will be delegated to the node/ city level SPV by the State Government. An industrial city may also be notified as an industrial township under Article 243Q of the Constitution of India to enable the node/ city level SPV to discharge municipal functions in the city. In such cases, the private equity participation in a node/ city level SPV will be limited to 49% since the node/ city level SPV will discharge the dual role of a municipal body and a development authority. The State Government will contribute the land and/ or funds based on the financial structure as the case may be while the financial assistance from the Central Government will be as detailed below.

Proposed Modalities of Establishment, Operation and Funding of the Trust

5.12 The Fund will be established as a Trust. The Fund/Trust will be administered by a **Board of Trustees** chaired by Secretary, Department of Economic Affairs and will comprise the Secretary, Department of Industrial Policy and Promotion (DIPP), Financial Advisor (DIPP), representatives of the Department of Expenditure, Planning Commission, and Chief Executive Officer (CEO) & Managing Director (MD), DMICDC, who will also be the CEO of the Fund/Trust. Central Government will provide a grant-in-aid of Rs 17,500 crore to the Fund/Trust over the next 5 years beginning 2011-12, for the development of industrial cities @ Rs 2500 crore per city on an average, subject to a ceiling of Rs 3000 crore per city. An additional grant of Rs 1000 crore would be given to the Fund/Trust for passing on to DMICDC as grant-in-aid over the next five years to carry out project development activities and to form project specific SPVs and sectoral holding companies consisting of project specific SPVs in a range of infrastructure areas. The equity in node/ city level SPVs and in these project specific SPVs and holding companies will be held by the Fund/ Trust subject to limits specified.

5.13 The Fund/ Trust will regularly monitor the projects being implemented and the utilisation of funds sanctioned. The Fund/ Trust would leverage the resources provided by the Government of India to raise long term funding from financial institutions and also, after obtaining due approvals, raise Tax Free Bonds, Capital Gains Bonds, Credit Enhancement, etc. for supporting the development of these cities in and around the Delhi Mumbai Industrial Corridor. The Government of India's contribution to the Fund/Trust would be used as a **Revolving Corpus**.

5.14 The nodal/ city level Special Purpose Vehicles (SPVs) will be further able to raise long term debt finance through credit enhancement by appropriate guarantees from the Fund/Trust, so that it becomes viable for investment by insurance and pension funds. The nodal/ city level SPVs will seek to lever innovative infrastructure funding and delivery tools such as user fee funding, pricing innovations, and delivery through various PPP arrangements. The Corpus of the Trust would be used for:

- (a) Providing equity and/ or debt to the nodal/ city level SPVs for development of non-PPP infrastructure and for investment in project specific SPVs that may be set up by a node/ city level SPV;
- (b) Providing equity and/or debt to other project specific SPVs and sectoral holding companies consisting of project specific SPVs for; and
- (c) Providing grant to DMICDC for project development.

5.15 The Board of Trustees will be empowered to appraise all proposals placed before it with the recommendations of DMICDC and approve and sanction equity and/ or debt to SPVs and grant to DMICDC for project development up to a ceiling of Rs 300 crore. The Trust may utilise the services of experts/ external advisers for assistance in appraisal of projects and investment proposals, for all treasury related operations and professional fund management of the Trust/Fund. The Trust will be empowered to take up new nodes and Early Bird Projects on the recommendation of the State Governments. The Early Bird Projects are among the first set of stand-alone projects as “model initiatives” which enable a node to take off. In case progress at any node is delayed due to problems of land procurement, alternative sites as recommended by the State Government may be approved by the Trust.

5.16 The first phase of the first seven nodes listed above is expected to be implemented by 2019. Development Plans for these nodes are underway and are expected to be finalized, approved and notified by the State Governments by 2012. The industrial cities will be launched with the development of townships of 25-50 sq. km area which are proposed to be completed by the end of 2019. Certain early bird projects like water supply project for Pithampur and Nashik, exhibition cum convention centres at Aurangabad & Manesar/Delhi, multimodal logistic hubs near Pune, Dighi, Pithampur, Rewari and Dadri, and power plants are likely to be implemented on PPP basis in the next five to seven years subject to all Central/ State Government approvals. DMICDC is already pursuing with the States for early completion of the land procurement process.

List of Investment Regions, Industrial Areas and Early Bird Projects to be taken up by DMICDC on the recommendation of the State Governments.

Investment regions

1. Ahmedabad-Dholera Investment Region, Gujarat
Early Bird Project at this node
 - i. Mega Industrial Park at Dholera
2. Nashik-Sinnar-Igatpuri Investment Region, Maharashtra
Early Bird Projects at this node
 - i. Shendra- Bidkin Mega Industrial Park, near Aurangabad
 - ii. Mega Industrial Park at Dhule
3. Manesar-Bawal Investment Region, Haryana
Early Bird Projects at this node
 - i. Integrated Multi-Modal Logistics Hub at Rewari
 - ii. Exhibition Cum Convention Centres in the NCR
 - iii. Mass Rapid Transport System connecting IGI-Gurgaon –Manesar-Bawal-
Rewari-Neemrana is also being studied by DMICDC
4. Khushkhhera-Bhiwadi-Neemrana Investment Region, Rajasthan
Early Bird Projects at this node
 - i. Development of Aerotropolis between Jaipur & Neemrana
 - ii. Road Link Connecting Bhiwadi and Neemrana
 - iii. Development of Knowledge City
5. Pithampur-Dhar-Mhow Investment Region, Madhya Pradesh including Betma Cluster
Early Bird Projects at this node
 - i. Water Supply to Pithampur from Mahi Dam
 - ii. Economic Corridor between Indore Airport & Pithampur
 - iii. Integrated Multi-Modal Logistics Hub
 - iv. Knowledge City near Ujjain
6. Dadri-Noida-Ghaziabad Investment Region, Uttar Pradesh (250 sqkm)
Early Bird Projects at this node
 - i. Development of Boraki Railway Station as Passenger and Commercial Cargo Hub
 - ii. Multi Modal Logistics Hub at Dadri
 - iii. Power Project at Greater Noida
 - iv. International Airport at Greater Noida

Industrial Areas

1. Dighi Port Industrial Area, Maharashtra
Early Bird Projects at this node

Report of the Working Group on Clustering and Aggregation

- i. MMLP and ICD at Karla near Pune
- ii. Transportation and Tele-communication network in adjoining region with reference to Pune - Nashik and Pune- Aurangabad highways
- iii. Convention cum Exhibition Center at Aurangabad

At all these nodes pre-feasibility studies are also being conducted for projects emerging out of the Planning exercise, on the recommendation of the State Governments.

Besides the above, as part of the Perspective Plan exercise, the following Pre-feasibility studies were conducted.

1. Green Field Mega township at Ahmednagar
2. Pre-Feasibility Studies for Expressway projects
 - a. NH – 60 (Pune to Nashik)
 - b. Indore to Ahmedabad (NH-59,113,79)

Gas Based Power Projects:

1. Vaghel, Distt. Patan, Gujarat
2. Rajpur – Shahpur, Distt. Mehsana, Gujarat
3. Indapur in Distt. Pune in Maharashtra
4. Ville Bhagad, Dist. Raigad in Maharashtra
5. Chainpura Industrial Area, Distt. Guna, Madhya Pradesh
6. 6th Site being finalised at Saag-Doongri, Dist. Banswara in Rajasthan

Solar Power Project

1. Village Bhadla near Jodhpur, in Rajasthan
2. Another site being finalised in Gujarat

Smart Community projects

1. Changodar -Sanand, Gujarat
2. Dahej PCPIR, Gujarat
3. Manesar Bawal region, Haryana
4. Shendra Industrial Region, Maharashtra

Progress and Current Status of the DMIC project

- (i) **Perspective Plan for Overall DMIC Region:** Overall Perspective Plan for the entire DMIC region by M/s. Scot Wilson has been completed.
- (ii) The **Master Planning** for the following Investment Regions / Industrial Areas along with their geographical sizes and Early Bird Projects are given below:-

Name of the Node and State	Area (in Sq.km)	Project Consultants	Early Bird Projects
Dadri-Noida-Ghaziabad Investment Region, Uttar Pradesh	300	Halcrow, UK, Synoate and Knight Frank	<ul style="list-style-type: none"> • Development of Greater Noida (Boraki) Railway Station as a passenger and commercial cargo hub • Development of Integrated Multi-modal Logistic Hub at Greater Noida near Dadri
Manesar-Bawal Investment Region, Haryana	380	Jurong, KPMG and DTZ	<ul style="list-style-type: none"> • Multi Modal Logistic hub near Rewari • Exhibition cum convention center at Panchgaon Chowk.
Khushkhera-Bhiwadi-Neemrana Investment Region, Rajasthan	160	Kuiper Compagnons, DHV, Cushman & Wakefield and ECORYS	<ul style="list-style-type: none"> • Development of Aerotropolis in Rajasthan • Road link connecting Bhiwadi and Neemrana • Development of Knowledge City near Neemrana
Pithampur-Dhar-Mhow Investment Region, Madhya Pradesh	372	Lea Associates South Asia Pvt Ltd in association with Development and Research Service Pvt Ltd.	<ul style="list-style-type: none"> • Economic Corridor between Indore Airport to Pithampur Industrial Area • Knowledge City, Ujjain • Multi-Modal Logistics Hub, Pithampur • Water Supply for Pithampur Industrial Area

Report of the Working Group on Clustering and Aggregation

Name of the Node and State	Area (in Sq.km .)	Project Consultants	Early Bird Projects
Ahmedabad-Dholera Investment Region, Gujarat	903	Halcrow, UK, Synoate and Knight Frank	<ul style="list-style-type: none"> • Mega Industrial Park at Dholera SIR • Greenfield International aviation hub near Ahmedabad • Six laning of Ahmedabad-Vataman-Pipli-Bhavnagar road link with specific economic activities (207 km) • Regional MRTS link between Gandhinagar - Ahmedabad & Ahmedabad-Dholera
Igatpuri-Nashik-Sinnar Investment Region, Maharashtra	50	AECOM Asia Company Ltd, RMSI, Colliers International and AECOM India.	<ul style="list-style-type: none"> • Mega Industrial Park at Shendra (Aurangabad) • Mega Industrial Park at Dhule (Ahmed nagar)
Dighi Port Industrial Area, Maharashtra	253	AECOM Asia Company Ltd, RMSI, Colliers International and AECOM India.	<ul style="list-style-type: none"> • Multi-Modal Logistics Park at Karla • Exhibition and Convention Centre at Aurangabad • Transport and telecommunication corridor in region with reference to Pune – Nashik and Pune – Aurangabad Highways.

(iii) **Environmental Impact Assessment Study:**

The Terms of Reference for the following Investment Regions / Industrial Areas has been approved by the Ministry of Environment & Forests:

- Dighi Port Industrial Area, Maharashtra
- Manesar-Bawal Investment Region, Haryana
- Khushkhera-Bhiwadi-Neemrana Investment Region, Rajasthan
- Pithampur-Dhar-Mhow Investment Region, Madhya Pradesh
- Nashik- Sinnar – Igatpuri Investment Region in Maharashtra

The Environment Impact Assessment study for these Nodes is being undertaken.

Report of the Working Group on Clustering and Aggregation

(iv) **DMIC Region – Gujarat:**

1. 69,000 hectares of land have been transferred for project.
2. Entire Town Planning Scheme will be finalized by December 2011.
3. Micro Planning for Phase I – 105 Sq. kms. is being undertaken.
4. Detailed Engineering of Internal & Trunk Infrastructure for Phase I is being undertaken.
5. Central Spine Road (Gandhinagar – Ahmedabad-Dholera) being developed by Government of Gujarat.
6. International Airport at Dholera
 - a. Airport Authority of India clearance obtained;
 - b. 9200 hectares of Government land earmarked.
7. Technical study for linking Railways from Botad to Dholera commissioned by Indian Railways.

(v) **DMIC Region – Maharashtra:**

1. Maharashtra Industrial Development Corporation (MIDC) has notified 72% of the land required for Phase I and acquired 12% of the notified land.
2. Master Plan for both the nodes completed.
3. Institutional structure for DMIC Projects given to Government of Maharashtra.
4. Land for Phase I of Aurangabad taken over.
5. Additional staff for speeding land procurement posted.
6. Complete project development for two gas based projects at Ville Bhagad and Indapur completed.
7. Prefeasibility studies initiated at Nashik and Dighi Port for the following projects:
 - a. Industrial Park for heavy industries;
 - b. Affordable Housing;
 - c. Integrated Water Supply Sewerage & drainage;
 - d. Integrated solid waste management and
 - e. Power transmission and distribution network

(vi) **DMIC Region – Madhya Pradesh:**

1. Final Development Plan for Pithampur-Dhar-Mhow submitted to Government of Madhya Pradesh.
2. Government of Madhya Pradesh issued Section 4(i) notification for procurement of 804.6 hectares.
3. State Government borrowing resources from HUDCO for land procurement.
4. Project for water supply from Mahi Dam to Pithampur structured on PPP basis.
5. Land procurement for knowledge city to be completed in 3 months.

(vii) **DMIC Region – Rajasthan:**

1. Master Plan of Khuskhera-Bhiwadi-Neemrana Investment Region submitted to State Government.
2. Feasibility studies for Aerotropolis and Bhiwadi-Tapakara-Neemrana Road Link submitted to State Government.
3. Land procurement process started.

Report of the Working Group on Clustering and Aggregation

4. Aerotropolis application for site clearance submitted to Ministry of Civil Aviation for approval.
5. For water, an innovative pilot project with AARR technology (Artificial Aquifer Recharge & Recovery) being undertaken.

(viii) **DMIC Region – Haryana:**

1. Project recently reviewed by Haryana Chief Minister.
2. Concept Master Plan of Manesar-Rewari-Bawal approved in principle.
3. Early Bird Projects—Exhibition-cum-Convention Centre at Panchgaon Chowk and Multi-Modal Logistics Hub at Rewari approved.
4. Land procurement for Logistics Hub launched and completed for ECC.
5. Alignment of Mass Rapid Transport system approved by Government of Haryana.

(ix) **DMIC Region – Uttar Pradesh:**

1. Site Delineation for Dadri-Noida-Ghaziabad Investment Region in consultation with State Government completed by DMICDC.
2. No decision by State Government on site or on Institutional Framework.
3. Boraki Railway Station and Logistics Hub near Dadri—Techno-Economic feasibility studies completed.
4. Final Decision of Government of Uttar Pradesh pending.

(x) **Power Projects in DMIC Region:**

The peak power demand for the DMIC Region is expected to reach 27,200 MW by the year 2013-14 and further rise to 71, 000 MW by 2039. Manufacturing in this region can take off only if DMICDC is able to provide quality power. The following five gas based power projects are being established by DMICDC:-

- Chainpura Industrial Area, Distt. Guna, Madhya Pradesh.
- MIDC Indapur in Dist. Pune in Maharashtra
- MIDC Ville Bhagad, Dist. Raigad in Maharashtra
- Vaghel, Distt. Patan, Gujarat
- Rajpur-Shahpur, Distt. Mehsana, Gujarat

The entire project development including land, water, environmental clearances have been completed for three of these projects.

Ministry of Power through their OM No.4/3/2010-TH.I dated 27th July 2010 has recommended allocation of 8 mmscmd of gas for 1000 MW capacity plant at 70% PLF to DMICDC.

(xi) **Critical Railway Links:**

1. **Dholera:** Spur from Dholera to Bhimnath to Botad: MoR has agreed to conduct the technical studies.
2. **Dighi:** Spur to Dighi Port from Central / Konkan Railway

Report of the Working Group on Clustering and Aggregation

3. **Logistics Park at Karla, Maharashtra:** Spur from Malwali (8km)
4. **Pithampur:** Early completion of ongoing Indore Dahod BG & Indore Chhota Udaipur Gauge Conversion projects
5. **Rewari- Palwal** passenger link

(xii) **Critical National Highways:**

1. **Dighi:** Widening NH -17, Mumbai Goa Highway
2. **Aurangabad :** Widening NH -211

3. **Nashik:** Widening of NH-50
4. **UP:** 6 laning of the National Highway from Ghaziabad to Moradabad
5. **Delhi-Jaipur Expressway**

(xiii) **Environment Clearance** - Approval has been obtained on TOR for EIA studies for 6 Investment Nodes (except UP) from MoEF. DMICDC is undertaking Environmental Impact Assessment studies for these Nodes.

(xiv) **Other initiatives:**

- Presentations have been made to Shri Arun Maira, Member, Planning Commission on the urbanization and sustainable development proposals being undertaken by DMICDC.
- The first meeting of the Water Committee was held on 16th September 2010 under the Chairmanship of the Secretary (Water Resources), along with representatives from the Water Resources Departments of various States where the issues of water availability at all the DMIC nodes being taken up in Phase I were discussed and deliberated.
- Discussions have also being held with Ministry of Railways on the development of spur lines, logistics parks at the DMIC nodes.

Illustration of the Business Model of Dholera Special Investment Region, Gujarat

In general, the financial structuring of the DMIC cities has been based on the following broad principles:

- The development of DMIC nodes is proposed to be undertaken in a partnership framework between the Central and respective State Governments where the States are expected to make available the land while the Central Government provides financial assistance for the development of non-PPPable trunk and internal infrastructure in the first phase to catalyse/trigger early growth of these nodes. Each new DMIC Industrial city is envisaged to be implemented by a Special Purpose vehicle (SPV) – a joint venture between the Central and respective State Governments, which will function both as the Planning & Development Authority as well as discharge the municipal functions at each Industrial City.
- The Financial assistance from GoI has been assumed as Rs. 2500 Crores per city (Rs.3000 crores in the case of Dholera and Manesar-Bawal) to be made available over the first 5-6 years. For the time being it has been assumed that the entire contribution of GoI will be in the form of equity. This will be utilised for incurring capital expenditure of non PPP-able trunk external and internal infrastructure projects in Phase 1.
- Land procurement cost will be borne by State Government and it will be treated as the corresponding equity contribution from the State. In states where land costs are substantially higher, the additional requirement over and above the matching contribution of Rs. 2500 Cr. (Rs.3000 crores in the case of Dholera and Manesar-Bawal) will be considered as Debt from the State Government to the SPV.
- Stamp Duty has been considered to be waived when land from the State Government is vested with the SPV.
- The cities are expected to be developed over 3 phases, each spanning over a period of about 10 years. The areas to be developed in Phase 1 vary from city to city. A major part of the land procurement for each phase will be completed within the first 5 years and major construction activity will be completed in the first 5-6 years of each phase.
- All realisations from the disposal of developed land for various urban uses will accrue to the SPV and be redeployed by it to undertake the development of subsequent phases of the city/node. This is the only way the cities can be made self-sustainable after the development of the first phase is undertaken with Government support.

As an illustration, the financial feasibility analysis of the Dholera node along with the basic assumptions is explained in the following sections.

Report of the Working Group on Clustering and Aggregation

Case of Dholera SIR

Project Implementation Period and Phasing

The total urbanisable area of the city (excluding areas reserved for agriculture, areas under Coastal Regulation Zone (CRZ), forests, sanctuaries, etc.) is about 277 sqkm, the development of which will be spread over 3 phases as shown in the following table.

Land Use	Proposed Area (in sq.km.)			
	Phase I (2011-21)	Phase II (2021-31)	Phase III (2031-41)	Total
Industrial (incl. Logistics) Zone	26.70	37.60	28.90	93.20
Residential Zone	16.00	30.45	16.10	62.55
High Access Corridor Zone	5.90	11.20	6.60	23.70
City Centre Zone	4.36	2.40	1.94	8.70
Recreation & Sports Zone	3.25	3.80	2.25	9.30
Knowledge Zone	4.60	0.00	5.55	10.15
Entertainment Zone	11.70	0.00	0.00	11.70
Solar Energy Park Zone	12.90	0.00	0.00	12.90
Roads	14.24	17.94	12.72	44.90
Total Developable Area of the City	99.65	103.39	74.06	277.10

Cost Assumptions

The total cost of development at Dholera has been estimated to be about Rs. 70,000 Crores at 2010-11 prices. The component wise break-up of the same is shown in the following table. These cost estimates have been worked out for world class infrastructure that has been planned in line with global benchmarks, based on national and international experiences.

All Costs in Rs. Crores, at 2010-11 prices

Component	Phase I	Phase II	Phase III	Total
a) Land Procurement	2233	0	0	2,233
Sub-Total - Land	2,233	0	0	2,233
b) Trunk Infrastructure Costs				
Water sourcing & transmission	911	1,389	711	3,011
Transport Infrastructure				0
<i>Railway Line</i>	580	0	0	580
<i>Ahmedabad Dholera MRTS</i>	0	0	12,000	12,000
<i>Airport</i>	0	8,000	0	8,000
<i>Highway</i>	2000	0	0	2,000
Power supply	1,191	2,093	976	4,260
Captive power plant	405	405	405	1,215
Sub-Total - Trunk Infrastructure	5,087	11,887	14,092	31,066
c) Internal Infrastructure Costs				
Land improvements	640	336	280	1,256
Earthworks	763	900	675	2,338

Report of the Working Group on Clustering and Aggregation

Component	Phase I	Phase II	Phase III	Total
Roadworks	2,769	3,905	1,851	8,525
Water distribution	1028	1566	801	3,395
Sewerage	732	1038	501	2,271
Solid waste management	37	72	39	147
Storm water drainage	704	855	321	1,879
Renewable energy plant	300	480	612	1,392
Flood management	225	239	20	484
Telecommunications	66	122	60	249
Gas grid	28	22	17	67
LRT	0	4540	1650	6,190
Landscaping & signage	200	325	175	700
Street lighting	106	181	88	375
Building works	174	395	369	938
Sub-Total - Internal Infrastructure	7,772	14,976	7,459	30,206
TOTAL (a+b+c)	15,092	26,863	21,551	63,506
Contingencies & other costs (for all items except land) @ 10%	1,286	2,686	2,155	6,127
Total Cost of Project	16,378	29,549	23,706	69,633

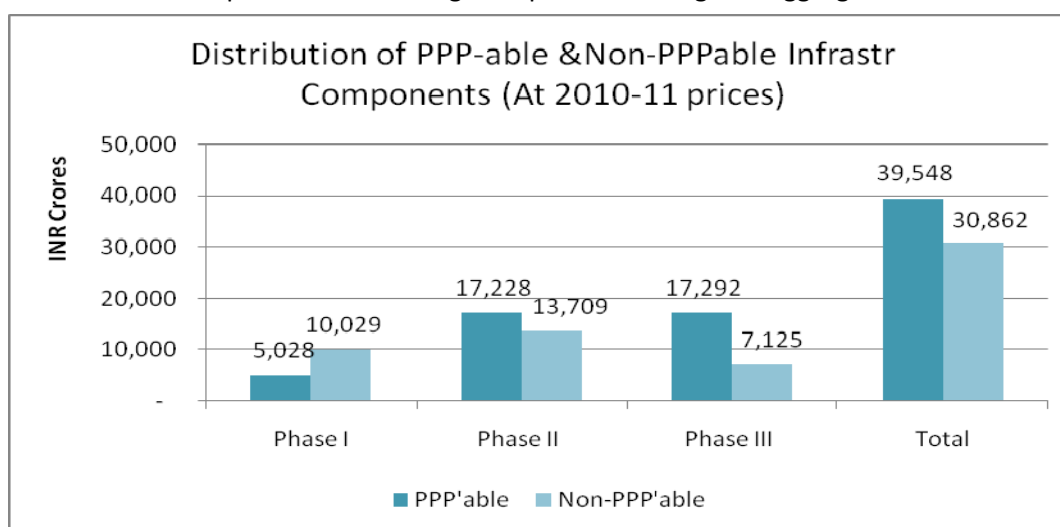
Government of Gujarat has already transferred about 69,000 acres of Government land to the Dholera Special Investment Region Development Authority. Additional land is being made available for the Greenfield airport and also being acquired for the expressway between Gandhinagar-Ahmedabad and Dholera. For private land, the Government of Gujarat will follow their Town Planning Scheme approach whereby, instead of outright acquisition against monetary compensation, the unorganised/irregular land-holdings are pooled together, consolidated for the purposes of evolving organised planned layouts, and the owners are returned developed land upto 50% of the area their original, raw land holding. After the city level Master Planning, further micro-level planning / detailing of each component and DPR/ detailed engineering of the infrastructure services will be carried out wherever necessary and accordingly, the cost estimates are likely to get refined further.

PPP-able and Non PPP-able Infrastructure Components

Since these are largely greenfield cities it will not be realistic to expect significant private sector interest in the development of infrastructure on PPP basis in the initial stages, ahead of demand. Even then, amongst the infrastructure components listed above, projects like power generation, transmission and distribution, highways, LRT/BRT within Dholera city, MRTS, telecom and gas grid within Dholera city have the potential to be undertaken on PPP format.

The rest of the projects have been assumed as non-PPPable and have to be funded initially by the Government and later through internal accruals. The phase-wise distribution of the PPP-able and Non PPP-able Infrastructure Components at 2010-11 prices is shown in the following graph.

Report of the Working Group on Clustering and Aggregation



The PPPable projects, worth about Rs. 40,000 Crores at 2010-11 prices, are expected to be self-financed and have been excluded from further financial analysis, except for land procurement costs which are being contributed by the State Government. The land procurement/ pooling and the development of infrastructure in each phase is expected to take about 8 years. For the analysis carried out at current prices, assuming average long-term inflation of 5% p.a., the above estimate of infrastructure costs have been accordingly escalated in all three phases. Operation & Maintenance costs have been assumed at 2% of the total capital expenditure.

Revenue Assumptions

Disposal of land has been assumed to start from year 5. Since a land pooling approach is being followed (where part of the original land will revert to the original landowners), as per the Master Plan, the DSIR SPV is estimated to be left with the following distribution of developed land which it can dispose on its own.

Categories of Saleable Area	PH I	PH II	PH III	Total
Anchor Industrial	8.00	12.00	9.19	29.19
Medium density residential	6.71	10.74	4.92	22.37
Low density residential	4.46	7.13	3.27	14.86
Industrial worker residential	0.37	0.58	0.27	1.22
Commercial	2.73	1.33	2.94	7.00
Knowledge city	0.71	0.00	1.06	1.77
Total	22.98	31.78	21.65	76.41

All realisations from the disposal of these areas uses will accrue to the SPV while the landowners will be free to dispose the areas given back to them on their own. For the success of the Industrial City it is critical that the DSIR SPV itself attracts large industrial units as 'anchors' which can encourage the establishment of several ancillary units that would be either upstream or downstream in the value chain.

Report of the Working Group on Clustering and Aggregation

Further, since demand is expected to be slow in the initial period, it has been assumed that only 50% of the saleable land developed in Phase 1 will get sold within the phase itself i.e. within first ten year period, and the balance will get sold in the first few years of the next phase. The sales distribution has been assumed as in the following table.

Long Term Lease Phasing for all categories		Ph I	Ph II	Ph III
Proportion land disposed under Ph I		50%	50%	0%
Proportion land disposed under Ph 2			75%	25%
Proportion land disposed under Ph 3				100%

The saleable land rates have been adopted as under:

Land Use	Rs/ sqm
Anchor Industrial	300
Medium density residential	6000
Low density residential	8000
Housing for Industrial workers	269
Commercial	10000
Knowledge city	4000

The above prices have been worked out with a cost plus 10% consideration on overall basis. A conservative approach has been followed for escalation in the above land rates. In real terms (constant prices) 3% real increase per annum has been assumed while in nominal terms 8% increase per annum has been considered (assuming long term average inflation as 5% p.a.). It is further assumed that all O&M expenses will be recovered through user charges.

Project Funding

Given the uncertainties in the initial period, the project has been geared at a modest Debt: Equity Ratio of 2:1. A large equity base will be required to enable the SPV at each node to leverage the same and raise adequate debt from the market. Since private investors will not be willing to take such huge risks in the initial period, as explained in the opening section, the project has been structured on the basis of equity contributions of Rs. 3000 Crores each from the Government of India and the State Government. Govt's contribution will be utilized towards the development of Non-PPPable infrastructure assets in the first phase while the State Government's contribution is being treated as the value of Government land transferred / made available by them and infrastructure development.

Once more detailed planning and DPR studies are undertaken, and the extent of State Government contributions are firmed up, the optimal mix (of debt & equity) will be examined once again and placed before the DMIC Project Implementation Fund's appraisal committee.

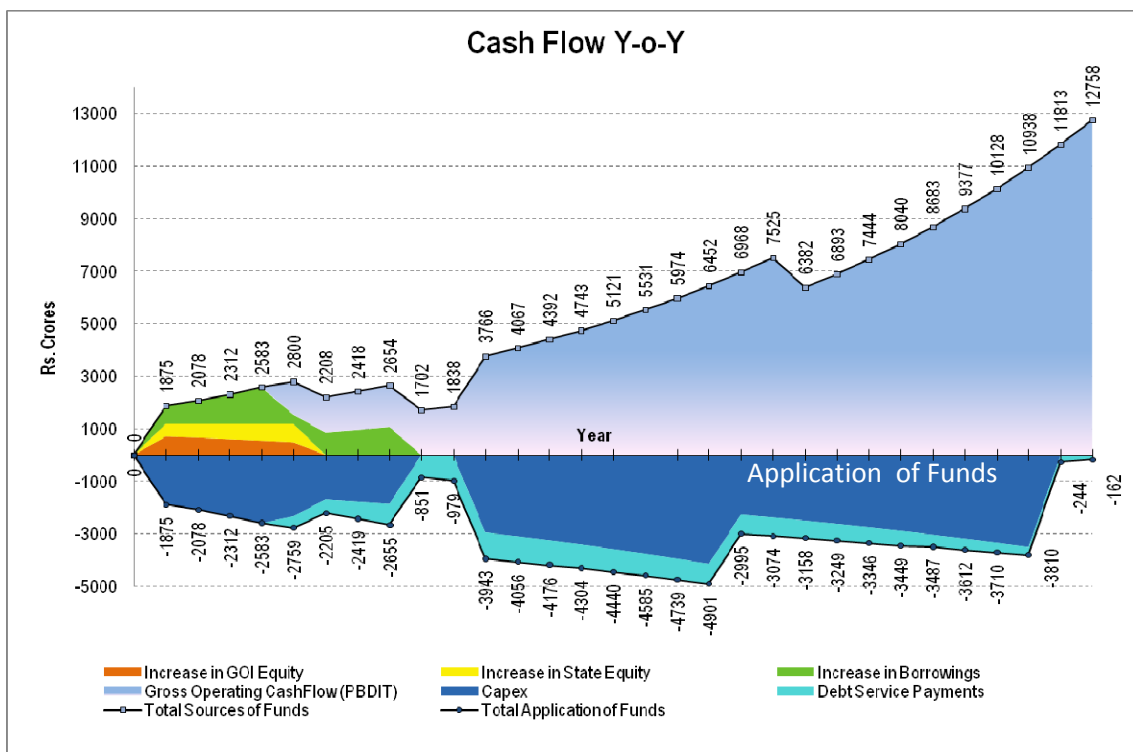
Debt to the SPV will be in the nature of long-term commercial borrowings with interest rates of 10% and loan tenors of 20 years for Tranche 1 and 15 years for Tranche 2. Moratorium period on principal repayment has been taken at 4 years in each case.

Report of the Working Group on Clustering and Aggregation

These cities have a very long gestation period, and hence such long tenor funds are absolutely necessary.

The financial planning has been done in a manner such that land procurement/ land pooling and infrastructure development for Phase 2 & 3 can be achieved through internal accruals or reserves generated from sale of land, supported by commercial borrowings wherever necessary, without requiring any fresh infusion of equity from the Government. Thus from each year's closing cash balance, 5% has been kept aside for meeting the administrative expenses, O&M requirements and contingencies, while the balance is redeployed for the capital investments in the next year.

The projected Cash Flow Statement for the project period (taking into account only the Non-PPPable components and land) of 30 years is given in the **Annexure6A**. The Profit & Loss account analysis has been done on Pre tax basis. The annual cash flow under major heads summarized in the following graph illustrates the Sources of Funds (Government contributions, Borrowings and internal accruals) vis-a-vis the Application of funds (Capital Expenditure and Debt Servicing).

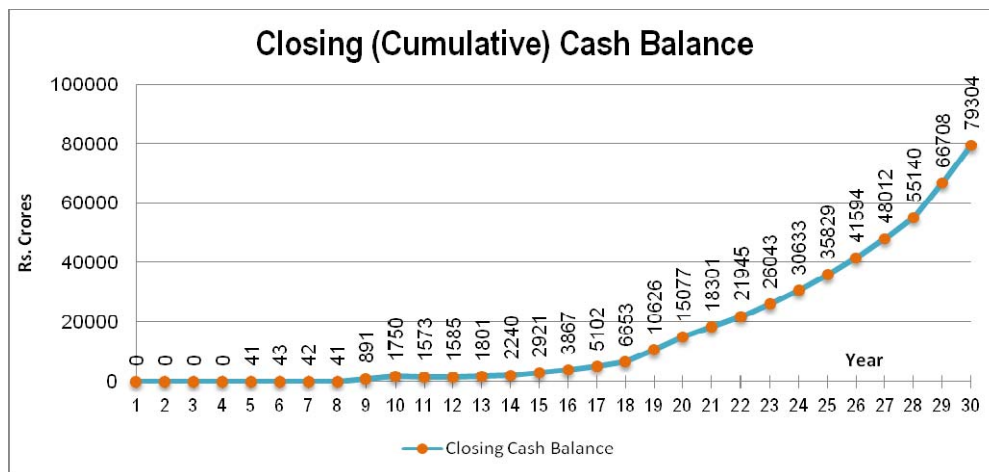
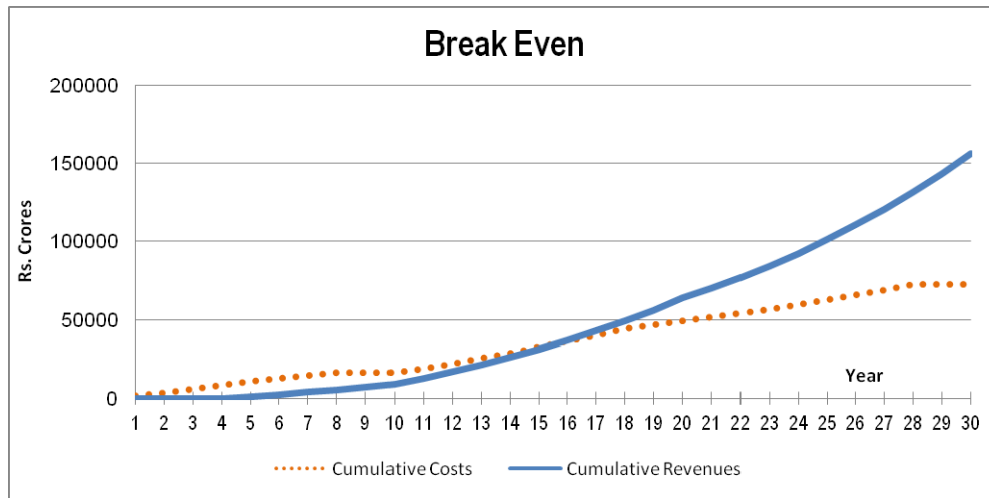


It is observed from the analysis and the following graphs that, in the case of Dholera SIR,

- no cash deficits are expected; temporary shortfalls, if any, can be met from short term borrowings.

Report of the Working Group on Clustering and Aggregation

- the project breaks even by the 16th year.
- beyond this, the project is expected to generate huge cash flows to the SPV.



With the assumptions mentioned earlier, the pre-tax Project IRR is expected to be about 12.37% and pre-tax Equity IRR is expected to about 15.4%, which is quite reasonable for a project of this nature and magnitude.

No.I&M-3(1)8/2011-SC
Planning Commission
(Industries Division)

Yojana Bhavan, Sansad Marg,
New Delhi, the 10th May, 2011

OFFICE MEMORANDUM

Subject: Constitution of Working Group on "Clustering and Aggregation" for the Twelfth Five Year Plan (2012-2017)

In the context of preparation of Twelfth Five Year Plan (2012-2017), it has been decided to set up a Working Group on "Clustering and Aggregation". The Composition and Terms of Reference of the Working Group would be as follows:

I. Composition

1. Secretary, Department of Industrial Policy and Promotion	
2. Member Secretary, National Manufacturing Competitiveness Council (NMCC)	Chairman
3. Secretary, Ministry of Micro, Small and Medium Enterprises or Nominee	Member
4. Secretary, Ministry of Textiles or Nominee	
5. Secretary, Department of Food Processing Industries or Nominee	Member
6. Secretary, Ministry of Rural Development or Nominee	Member
7. Secretary, Ministry of Labour and Employment or Nominee	Member
8. Principal Secretary (Industries), Andhra Pradesh	Member
9. Principal Secretary (Industries), Gujarat	Member
10. Principal Secretary (Industries), Rajasthan	Member
11. Principal Secretary (Industries), Assam	Member
12. President, Confederation of Indian-Industry (CII)	Member
13. President, Federation of Indian Chambers of Commerce & Industry	Member
14. President, Associated Chambers of Commerce & Industry	Member
15. President, Federation of Indian Micro and Small & Medium Enterprises	Member
16. Chief Executive Officer, Udyogini (NGO), New Delhi	Member
17. Director, Institute of Economic Growth, University of Delhi, Delhi	Member
18. CMD, Small Industries Development Bank of India	Member
19. Director, Institute for Studies in Industrial Development (ISID) -	Member
20. Shri Mukesh Gulati, Executive Director, Foundation for MSME Clusters	Member
21. Sr. Economic Adviser, Department of Industrial Policy and Promotion	Member
22. Adviser (I& VSE), Planning Commission	Member
23. Joint Secretary (Shri Talleen Kumar), Department of Industrial Policy and Promotion*	Member -Secretary

II. Terms of Reference

(i) To assess the current models of clustering across various industrial sectors both formal and informal) with a view to ascertaining whether industry has benefitted from economies of aggregation.

(ii) To examine whether cluster development has helped in enhancing livelihoods and reducing poverty.

Report of the Working Group on Clustering and Aggregation

- (iii) Based on the above, to review and refine the goals to be achieved in terms of cluster development in the long term, keeping in mind the overall goals for manufacturing.
 - (iv) To look at successes and failures of existing clusters, identify best practices and suggest improvements in policies, processes, institutions, etc. that may be required to make the clusters more effective in achieving the above mentioned goals.
 - (v) To suggest ways of enhancing innovation and R&D within clusters to promote their competitiveness, e.g. through better linkages with universities and research institutions.
 - (vi) To specify the milestones to be achieved within the 12th Plan period.
 - (vii) To suggest/recommend programmes/ schemes that are to be terminated in the 11th Plan or initiated or continued in the 12th Plan period, together with the broad budgetary implications, if any.
 - (viii) Any other matter considered integral to the above issue.
2. The Chairman may constitute Sub-Groups/Task Forces as considered necessary and co-opt other members to the Working Group for specific inputs.
 3. The Working Group would submit its report to the Chairman of the Steering Committee on Industry by 30th August, 2011. The Working Group will be serviced by Department of Industrial Policy and Promotion
 4. The expenditure towards Travelling Allowance (TA)/DA in connection with the meetings of the Working Group/Steering Committee in respect of the official members will be borne by their respective Ministry/Department. In case of non- official Members of the Working Group, expenditure towards their T AIDA would be met by the Planning Commission as admissible to the class I officers of the Government of India. As per extant Guidelines, air travel required for attending the meeting may be undertaken by Air India.
 5. Shri Anshuman Mohanty.: Senior Research Officer, Planning Commission, New Delhi (Room No 439, Yojana Bhavan - Tel: 011- 23042455, anshuman.m@nic.in) will act as Nodal Officer for this Working Group and any further query/ communication in this regard may be made with the Nodal Officer.

(Dr. Renu S. Parmar)
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To

The Chairman and all Members of the Working Group

(as per list enclosed)

- Ms. Shubhra Singh, DIPP was notified as Member-Secretary of the Working Group vide Planning Commission's OM No. I&M-3(1)8/2011-SC dated 3rd June, 2011 in place of Shri Talleen Kumar, JS, who was originally notified as the Member-Secretary.
- Dr. A.K. Krishna Kumar, Executive Director, IL&FS CDI, Ltd. was also included as a Member of the Working Group vide Planning Commission's OM No. I&M-3(1)8/2011-SC dated 3rd June, 2011.