

3 Demand Estimation

To assess the feasibility of the Chemical Estate from the point of view of demand assessment, an analysis of Chemical Industries' scenario in Gujarat and at national level has been carried out. This review is based on the secondary data available from sources such as the INDEXTb, GIDC, GIDB, CMIE, Trade bodies, various industry associations and TCS databases. To map the actual perception and the willingness of the investors to invest in the proposed chemical estate in Kutch, eminent industries have been contacted. These even included the companies that have shown interest to government in establishing a facility at Kutch.

Apart from industries in Gujarat, TCS surveyed cluster of industries at Silvassa, Daman, Delhi and Mumbai. Prestigious industry associations have been covered at Delhi and Mumbai to ascertain their view on the proposed chemical estate. Apart from this many questionnaires were sent to industries in other parts of the country and results incorporated in the report.

Some of the associations / trade bodies that were surveyed and interviewed are FICCI, CII, Dyestuff Manufacturers Association of India, Association of Pesticides Manufacturers of India, Gujarat Chamber of Commerce and Industries, Chemical Manufacturers of India etc. The survey thus covered the industry view not just from Gujarat but also across the country. More details on the same have been provided in the annexures.

Over and above this many industrial associations based on the locations were also surveyed. Some of these associations are Naroda Industrial Association, Ankleshwar Industrial Association, Vapi Industrial Association, Silvassa Industrial Association.

3.1 DEMAND ESTIMATION- THE APPROACH

a. Primary Survey

Although the data related to the study has been procured from various authentic sources there was still a necessity to map the first hand perception of the industries. This was carried out through a carefully designed questionnaire. The questionnaire was sent to a list of chemical business entities and associations. Selected organizations were approached by TCS to collect their responses in person. The motive behind this exercise was to obtain a deep insight into the actual requirements within the industrial estate in terms of the infrastructure developments and Government incentives and policies besides trying ascertaining the inclination of the industries to invest in the areas of Kutch.

• *Objectives of the Survey*

The following are the objectives of the survey:

- To find out the investment inclination of the chemical industries in the proposed chemical estate in Kutch.

- To ascertain the segments in the chemical industry that hold growth prospects in the future, from the industries' point of view, so that those very segments can be targeted and encouraged to be set up in the proposed chemical estate.
 - To map the essential requirements in the industrial estate in terms of the expected infrastructure developments.
 - To identify which other Government incentives and policies besides the excise exemption that could be suggested to make the proposal of the chemical estate in Kutch sufficiently appealing and lucrative from the investor's perspective.
 - To find out the reaction of the Government notification of Excise exemption in Kutch amongst the chemical industries and associations.
 - To ascertain the preferred locations in Kutch for the chemical estate from the industries' point of view.
- **Survey Methodology**

Sampling of the industries has been carried on the basis of the data from IndexTb. The following are the various data sources:

1. Industries which have invested more than Rs. Four Crores in Gujarat in last ten years
 - Out of the 680 units in this category around 265 unique organizations have been selected based on the multiple units and segments in which they operate.
2. The industries which contacted various government departments with regards to investment in Kutch after the excise exemptions were announced
 - All the industries (20 with Indextb and 13 with IC i.e. total 33) for whom the contact details were available have been contacted (
3. Selected medium to large scale industries that are members of the Silvassa Industrial Association
 - 31 industries have been selected from Silvassa Industrial Association
4. Selected medium to large scale industries that are members of the Vapi Industrial Association
 - 15 industries have been selected from Vapi Industrial Association
5. Selected medium to large scale industries that are members of the Ankleshwar Industrial Association
 - 33 industries have been selected from Ankleshwar Industrial Association
6. Selected medium to large scale industries that are members of the Naroda Industrial Estate
 - 7 Chemical Industries have been selected from Naroda Industrial Estate
7. Various Chemical Industrial Associations
 - Many associations of the chemical and related product manufacturers associations have been contacted for their response.

The following is the number of industries in major segments of the chemical industry to which the questionnaires were sent.

Table 3- 1 Survey details: Number of industries contacted

Category	Number of Industries
FERTILIZERS	1
CHEMICALS (OTHER THAN FERTILIZER)	181

DYE STUFFS	26
DRUGS AND PHARMACEUTICALS	34
PAPER & PULP INCL. PAPER PRODUCT	22
CEMENT AND GYPSUM PRODUCTS	23
PETROCHEMICAL & REFINERY	12
PLASTICS & PLASTIC PRODUCT	40
OTHERS	42
TOTAL	381

b. Personal Interviews

The survey also includes personal interviews of many industrialists in most of the above-mentioned segments. The personal interviews have been conducted with people representing the companies at the level of Managing Directors / CEOs, Directors, VPs and the GMs.

In all 35 interviews have been conducted amongst the industries and 7 interviews amongst the various associations, the major focus of the interviews has been to find out the views of the investors on the following:

- the current industry scenario
- willingness to invest in the chemical estate in Kutch
- the incentives and policies that should be adopted by the government
- prices that the industry can pay for various services / utilities

c. Secondary Survey

Extensive data available from various sources have been analyzed and this data has also been used for conducting the primary survey. The industries were selected on the basis of information about the sector. The type of infrastructure present and proposed in few of the chemical estates in the world has been studied to prepare the questionnaire. The charges that the estates levy to the user have also been studied. The China Model of industrial estate that also came as frequent discussion item in preliminary meetings with various associations and industrialists has also been studied.

Some of the salient features of world-class industrial estates are as follows:

Basic services:

Electricity network; Roads network; Telecommunications network; Water network; Sanitary network; Sewage Treatment Plant; Labour Office / Ministry of labour

Ancillary services:

Free Zone Area / Free Zone Corporation; Customs Centre / Customs Department; Export Promotion Office; Social Security Office / Corporation; A liaison office for the Armed Forces; A liaison office for Scientific Society; Training Centre / Vocational Training Corporation; Secondary Industrial School / Ministry of Education; Hospital and Emergency Centre; Civil Defence Centre; Police Station; Post Office; Permanent Exhibition - managed by Estate Corporation; Branch office of Chamber of Industry; Insurance services by main insurance companies; Branch for the Industrial Development Bank; Bank branches and Bonded Zones;

Pricing

- Leasing of free developed plots of land: \$1.5 to \$ 2.5 /sq. m/ annum including all services.

- Renting of Standard Factory Buildings: \$15 to \$20 / sq. m/annum including all services.
- Selling price of Land is: \$ 25 to \$30 / sq. m./ annum including all services.

Salient features of the China Industrial Development Strategy:

China has put even the hard-core capitalists to shame at the rate at which it has been stretching its business boundaries. This has been achieved even as the country politically follows the Communist doctrine. Supported by a government that has only one objective, to grow at the fastest rate, the Chinese juggernaut has gained sufficient momentum. It already has a respectable share in the world trade (over \$300bn) and has been the most favoured destination in terms of Foreign Direct Investments (FDI) (\$40.4bn). In contrast, India has a miniscule share of the world's exports (\$33.6bn) and attracts negligible amount of FDI (\$2.2). The Indian government now believes similar Special Economic Zones (SEZ) have the potential of raking in exports worth \$15bn by 2015.

- A study of 35 countries by PriceWaterhouseCoopers placed **China last among the world economies in terms of "opacity"**, a measure of unclear legal systems, accounting standards and corruption. Yet China invited oodles of dollars from Non Resident Chinese (NRC) based in Taiwan and Hong Kong. It also **attracted the American businessmen in search of cheap labor to pour dollars** into this communist controlled land, human right abuse notwithstanding.
- Shenzen (one of the largest SEZ) is a very well-planned city. There is hardly any flash of developing economy. **The infrastructure put in place is of global standard. One can travel at a speed of 120 kms/hr, enjoy uninterrupted quality power, have good communication facilities, well-developed ports with no bottlenecks and above all a very large skilled work force.** All these facilities are common in metros like Shenzen and Shanghai.
- Besides, it also has a large amusement park that takes care of the entertainment needs of those staying there. Unlike an industrial township that one sees in India where even a cinema hall is considered a luxury, in terms of entertainment the variety of recreational spots in Shenzen is unlimited.
- The Singapore model, where **the entire infrastructure is provided by state and the user pays for the facilities at an international rate**, inspired it. For example the **Singapore government has invested to the tune of S\$10.2bn over a period of time in setting up infrastructure facility in the city-state. The state earns an annual revenue of S\$1.2bn from the users of this facility and spends \$300mn annually for the upkeep of this infrastructure.**
- The Chinese have given the SEZs, extra-territorial rights to function as a foreign land for all financial purposes, despite being a part of the country. Another important aspect was the attention paid to infrastructure. The quality of infrastructure ensures that there is no stoppage of work, no delays and no loss due to bottlenecks.
- All the SEZs, which China has developed, are on virgin land where there was no trade or commerce earlier. This has helped in devising the right quantum of infrastructure required to sustain a defined quantum of population. This ensures that there is no unnecessary load on the infrastructure, as the population grows unbounded.

The problem with the strategy employed by the Indian SEZs and EPZs

- The tragedy with Indian cities has been its inability to cap the number of people residing there and lack of sufficient infrastructure being developed on time. This has led to squatters' colony coming up all over the town, to infrastructure being stretched beyond a point and quality of life deteriorating rapidly.
- Though similar models like China have been experimented in India in past, in a limited way. India has Export Promotion Zones (EPZ), Export Oriented Units (EOU) and a pot-full of incentives for the exporter to earn more dollars. However, there has been no concerted and concentrated effort. The efforts are all dispersed and there is no follow-up. For example while the central government might introduce a set of directives, the state government would normally take its own sweet time to ensure that policies are carried through.
- When EPZs and EOUs failed, the government instead of finding out the real reason for failure and remedying it (lack of good quality infrastructure and proper facilities), diluted the concept of EPZ and EOU by permitting them to sell in the Domestic Tariff Area (DTA). Thus against the high hopes that they had raised, eight EPZs in India contributed a meager Rs85.52bn in exports (4.3% of country's exports) in FY01. The reason for poor quality of infrastructure is not too far to find - the government invests only Rs170mn annually in the seven of the government-owned EOUs. The government has already cleared seven green-field proposals and has permitted four of the existing EPZ to upgrade to SEZ. The state governments who are involving the private sector to develop and maintain the SEZ are filling in the new proposals. The proposals have come for SEZs in Positra in Gujarat, Kakinada in Andhra Pradesh, Navi Mumbai in Maharashtra, Bhadohi, Greater Noida and Kanpur in Uttar Pradesh. The Tatas are also planing to set up a SEZ at Gopalpur in Orissa.
- The government is committing a similar mistake by allowing the EPZs to be converted into SEZs. It is proposing to upgrade four EPZs to SEZ. Since the EPZs are a part of the existing industrial set up and they use the existing infrastructure, SEZs are carved out with dedicated infrastructure to provide uninterrupted supply and no blockages.

3.2 DEMAND ESTIMATION MODEL

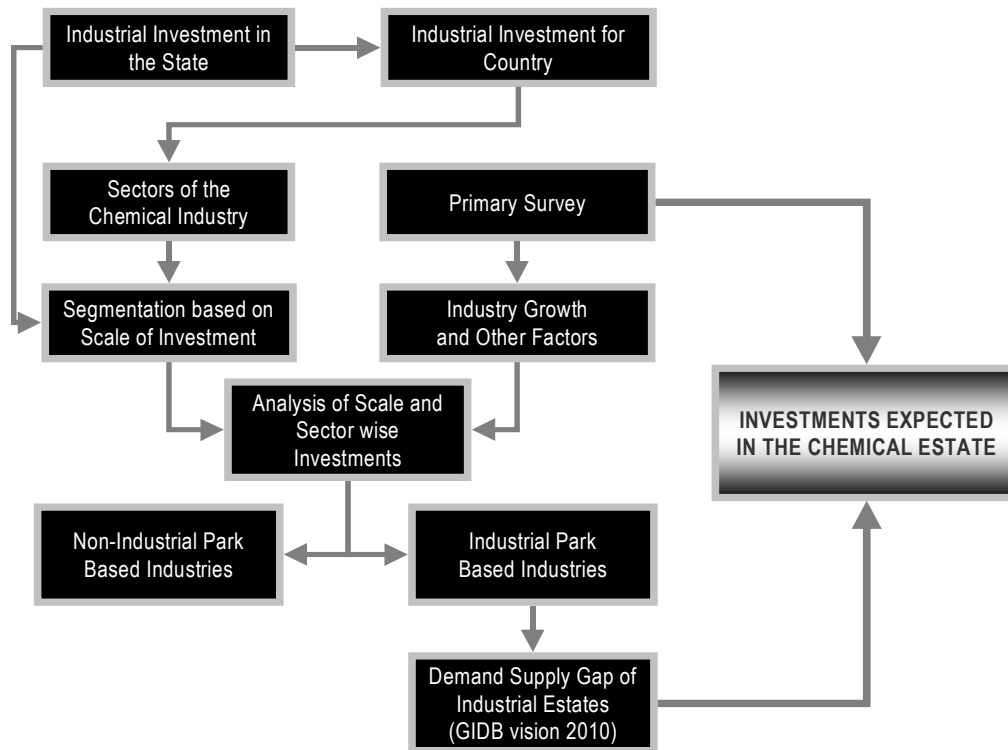


Figure 3- 1 Demand Estimation Model

The demand estimation is the most crucial part for establishing the feasibility of the chemical estate in Kutch. The proposed chemical estate would largely cater to the large and medium scale chemical industry. Here, the demand of the industrial estate is basically driven by the expected investments. The demand estimation model takes these investments into consideration for further analysis. The chemical industry sectors are then analyzed separately for large scale and medium scale industries. Various factors like the excise exemption, geographical location of Kutch, proposed sales tax exemption, are also considered for the investment prospects.

The industries are then identified as those that can generally move into an industrial estate and those that may not go into an industrial estate. The results of the survey are projected; the primary data and secondary data both have been considered to arrive at the expected investments.

3.3 PRIMARY SURVEY ANALYSIS

To derive a true picture of the feasibility of the chemical estate in Kutch a survey of existing chemical industries has been conducted. The survey results are based on the following details:

Table 3- 2 Survey Details: Number of responses

Details	Targeted	Actual Responses
Number of industries to whom the questionnaire was dispatched	351	46
Number of industries that have shown inclination to government in setting up the unit in Kutch (to whom questionnaire was dispatched)	33	3
Number of associations to whom the questionnaire was sent	15	4
Number of industry people interviewed	35	35
Number of personal interviews with Associations	20	20

Status as on March 31st, 2001

Apart from the above responses the following is the status of other industries:

Table 3- 3 Survey Details: Status of other industries

Industries that have Shut down	15
Industries that have Shifted	33
Industries which can't respond (Still Evaluating)	16
Industries which are in the process of responding	27
Industries which are Not interested (no reason given)	8

a. Industry Growth and Preference to Chemical Estate

The growth rate expected vis-à-vis the expansion plans of various chemical segments is shown as under:

Table 3- 4 Survey Results: Preference of respondents

Product Range	Growth Rate Expected	Respondents		
		Having expansion plans	Prefer a Chemical Estate	Would come to the estate
Cement	13%	75%	100%	0%
Drugs & Pharmaceuticals	15%	20%	20%	20%
Dyes	10%	15%	15%	15%
Fine & Specialty Chemicals	40%	50%	33%	33%
Other Inorganic	11%	0%	0%	0%
Other Organic	7%	33%	25%	0%
Paper	6%	0%	0%	0%
Pesticides	8%	40%	20%	20%
Petrochemical & Refinery	14%	25%	0%	0%
Plastics	9%	0%	0%	0%
TOTAL	13.5%	42%	36%	18%

As per the Survey only a few of the sectors namely Drugs & Pharmaceutical, Dyes, Fine & Speciality chemicals and Pesticides have a good potential to invest in the chemical estate in Kutch.

The information collected in so far suggests that the major chemical segments that tend to show a northward trend in terms of growth and expansions in the forthcoming years are: Chemicals (other than fertilizers), Cement and Gypsum products, Drugs and Pharmaceuticals, Dyestuffs and Specialty Chemicals.

b. Investors perception regarding the Estate Location:

Table 3- 5 Survey Results: Preference for Location

Location	Responses
Gandhidham	39%
Any	17%
Mundra	17%
Abdasa	11%
Mandvi	6%
Naliya	6%
Don't know/can't say	6%

As many as 40% of the industries have shown preference for Gandhidham or surrounding regions while 17% of the respondents have no preference for a location as long as it is near a port with major infrastructure facilities in place. So the feedback suggests that Gandhidham or Kandla are the most preferred locations for the Chemical estate from the industries perspective.

c. Investors Perception regarding prices for utilities in Chemical Estate:

Table 3- 6 Survey Results: Perception for prices

FEATURES	% OF RESPONDENT	MAX. PRICE
DESALINATION PLANT	67%	8-10 Rs./KL
EFFLUENT DISPOSAL FACILITY	67%	5Rs. /KL
CETP	76%	5Rs. /KL
CAPTIVE POWER PLANT	81%	3-5 Rs. /Unit
WAREHOUSE	52%	-
HAZARDOUS WASTE DISPOSAL	62%	-
PETROLEUM PIPELINES	10%	-
CLEAN PRODUCTION CENTER	24%	-
TESTING LABORATORIES	47%	-
APPROACH ROADS	86%	-
COMMUNICATION	81%	-
SECURITY ARRANGEMENTS	57%	-
FIRE FIGHTING ARRANGEMENTS	81%	-
FACILITATIVE EXPORT FORMALITIES	62%	-
EXCISE DEPT. OFFICE	76%	-
SALES DEPT. OFFICE	71%	-
PUBLIC TRANSPORT FACILITY	86%	-
RESIDENTIAL FACILITIES	81%	-
HOTELS AND CAFETERIA	86%	-
OTHER SOCIAL INFRASTRUCTURE	76%	-
POST OFFICE	86%	-
BANK	86%	-
MEDICAL FACILITIES	86%	-

Most of the chemical industries have continuous production so they demand a continuous supply of water and power.

The other requirements that have been expressed by relatively lesser number of industries are Educational Facilities, Solid Waste Disposal Facility and Gas Pipeline.

d. Investors perception regarding the land price:**Table 3- 7 Survey Results: Perception for land prices**

Range of Price in Rs./Sq. mt	Response
> 1000	7%
600-1000	7%
400-600	0%
200-400	14%
50-200	43%
< 50	29%

Based on the survey, the price of the land in the estate with all the expected facilities are as follows:

- The average price that the investors are willing to pay is around Rs. 220 / Sq.mt
- The highest frequency of the price in the entire sample is of Rs. 250/Sq.mt

e. Raw material sources and Markets

The survey also focussed upon analyzing the raw material of the various chemical industries and their main sources. Markets served by the various industries have also been analyzed herewith. Following is the synopsis of the same:

- Around 42 % of all industries are importing raw material from US, Europe and other countries
- About 62% of the industries are exporting to US, Europe, UAE, South East Asia, Russia, China, and Japan etc.
- About 81% of the industries have their markets across all the states in India.
- About 8% of industries have their major markets only in the state of Gujarat

This analysis emphasizes on how the transportation facilities are of dire significance at the proposed industrial estate. Port and approach roads to national highway constitute the major components for the same.

f. Factors that have influenced the investments in Kutch:

For the Potential investors in Kutch, who preferred to have a chemical estate:

Table 3- 8 Survey Results: Factors for preference to chemical estate in Kutch

Factor	Rank
Excise Exemption	1
Sales Tax Exemption	2
Nearness to ports	3
Raw Material Availability	4
Others	-

As expected, the excise exemption and the sales tax exemptions are on top of mind of the investors who are willing to invest in Kutch. This may affect the long-term viability of the estate when industries may shift again for new pastures where more benefits are available.

For non-potential investors in Kutch who did not preferred to have a chemical estate

Table 3- 9 Survey Results: Factors for not preferring to invest in Kutch

Factor	Rank
Level FIVE seismic zone	1
High cost of transportation of final product and raw materials	1
Non availability of Water	1
Non-availability of skilled manpower	2

Non availability of Power	2
Others (no demand and plans to expand)	2
Lack of Sources of Raw Material	3
Time frame available is not adequate	-

FOR MANY INDUSTRIES THE HIGH COST OF TRANSPORTATION OWING TO THE REMOTENESS OF KUTCH AND THE PERCEPTION THAT IT IS A WATER SCARCE REGION ARE THE MAJOR FACTORS THAT DETER THEM FROM INVESTING IN KUTCH. THE OTHER FACTORS THAT HAVE ALSO BEEN GIVEN HIGH WEIGHTAGES ARE EARTHQUAKE, LACK OF POWER AND MANPOWER.

g. Appeal of the Excise Exemption

Table 3- 10 Survey Results: Appeal of Excise Exemptions

Appeal	Respondents
Excellent	17%
Good	28%
Average	45%
No use	10%

Most of the respondents consider the excise exemption to be of average significance. This is obvious because many chemical products go through various stages of value additions and thus the benefits of CENVAT / MODVAT, which already exist, are not outweighed by means of the excise exemption. Though sales tax have been mentioned as factor which will influence the industries.

h. Facilities and Support expected from Government

- Decongestion of the corridor in South Gujarat is necessary and this attempt would facilitate the same
- The overall planning should be long term so that the whole area grows up naturally
- The major effort of the Government should be on providing a first class infrastructure. Only when some basic infrastructure is in place, the industries develop sufficient confidence to invest in the newly proposed estate. These predominantly include:
 - Adequate water supply
 - Sufficient Power
 - Proper Effluent treatment and disposal
- Approachability of the estate from other parts of the state
- A strict disciplinary regime should be followed regarding the operation and usage of the CETP
- The capital and operational costs should be declared well in advance so that the industries can carry out a cost benefit analysis on their ends
- A single window clearance related to all Government approvals should be in place more importantly because the time frame involved in the notification is less
- The overall scenario in the estate should be such that the fiscal benefits, the cost of production and the payback period fall in line with each other
- Clustering of industries
- Private party development and marketing of the estate.
- The estate should be atleast 1500 ha and may preferably be 2000 ha
- Testing Laboratories, Grid pipelines, Weigh bridges are required
- Waste recovery and exchange or a perfect chemical industrial symbiosis based on the clustering of the industries.
- Energy depot: (JIT power and fuel availability)

- CPP of 200 -300 MW should be there to cater to a continuous and smooth power supply.
- A Desalination plant of at least 15MGD capacity to meet the industrial and domestic water requirements in the estate.
- The price of the utilities should be of the tune of the existing rates in other industrial estates like Ankleshwar and Vapi.
- Proper transportation facilities
- Proper communication facilities

3.4 CRITICAL EVALUATION OF THE INCENTIVES

a. Excise notification

The study reveals that the current excise exemption under the notification is not tempting enough for the industries to relocate themselves in a chemical estate in Kutch. To add to this, there are two basic reasons that seem to be of major concern in this regard:

- Most of the **items having high excise duty have been excluded** from the notification.
- Many chemical products are used as intermediates in other products and the benefits of MODVAT/ CENVAT are applicable to them. The excise exemption thus may not provide the anticipated benefits to the investors.

- Overall the excise exemption is not quite appealing.
- High excise duty items have been generally excluded from the notification.
- The exemptions need to be in accordance with the forthcoming VAT schemes.

b. Sales tax

The sales tax exemption was actually supposed to be complementary to the excise notification, imparting thereby, a full meaning to overall exemptions in the region. After these exemptions have been declared a feedback from the industries suggest that this exemption had to be of at least this amount. The industries have now shown major concern over the accordence of the exemptions with the new VAT scheme scheduled to be declared in the year 2003 only. Besides, the importance of adequate and sufficient infrastructure well in place within the estate still subdues the importance of exemptions.

Effect of the incentives

Products like cosmetics and related preparations etc., which do pay high excise and also have fairly better growth rates have been excluded from the exemptions. Petrochemicals, and related products like polyesters etc. have also been excluded from the notification. Chemicals like Special Boiling Point Spirits have also been excluded. In chemical sector, it would be very difficult to quantify the exact benefits since the real benefit comes to those manufacturers who sell directly to the consumers, because otherwise they get MODVAT etc. There were also apprehensions about the excise benefit once the VAT is implemented.

3.5 CURRENT SCENARIO OF CHEMICAL ESTATES IN GUJARAT

Gujarat has been at the forefront of the industrial development and the flourishing industries in a large number of industrial estates across the length and breadth of the state is a witness to the same. An understanding of the working environs and present state of industries in other chemical estates can be categorically incorporated in the development of the proposed estate in Kutch. The major factors related to the other chemical estates in Gujarat are highlighted below:

a. Competitiveness

- **Approachability**
The industrial estates like Ankleshwar and Vapi have a very good approachability, and connectivity through the NH 8 facilitates the same.
- **Synergy**
A number of industries operate in a particular region like Silvassa this results in a synergy, an effect owing to the competition that prevails amongst them.
- **Existing Infrastructure**
Many of the industrial estates have well-developed infrastructure and it is more likely that an industry may setup in existing estates rather than in the proposed estate in Kutch.

b. Occupancy

- **Many estates are not yet fully occupied**
Some of the major industrial estates like Dahej and Jhagadia are not fully occupied. The main reason behind the fact is that some of the important infrastructure facilities that were promised initially have not been set up on place till date or are in very bad shape. E.g. a competent effluent treatment & disposal and a relatively continuous power supply. The most important agenda for the proposed estate should be not only to carefully plan out the deliverables to the investors but also to ensure that they reach them in a prescribed time frame.
- **Public Interest Litigation**
Public Interest Litigation has surfaced in some estates that have forced many industries to close down their operations. The effluent disposal concerns in Ankleshwar industrial estate is a living example. So a very well planned environmental and ecological study before hand is a must to ensure a long term smooth and hassle free operation of the industries in the proposed estate.

At some places the important infrastructure facilities that were promised initially have not been set up on place till date or are in very bad shape.

What is required?

First Class Infrastructure
Nominal Price Structure

3.6 BENEFITS AND INCENTIVES

a. Effect of incentives on setting up industry in Kutch:

Here, it needs to be reiterated that the excise and sales tax exemption alone cannot be the sole reason for an industry to setup operations in Kutch.

Besides the excise and sales tax exemption, the best benefit that the Government can offer to the investors is in the form of a First Class Infrastructure.

The past experience of industrial development in other industrial estates depicts that a guaranteed basic infrastructure viz. Water, power, fuel, effluent treatment & disposal and transportation, only, would build confidence of the investors in the proposed estate.

Definitely, there will be a price for these, which can be charged to the industry. But in current market conditions the industry has to be provided with incentives so as to facilitate the investments.

In support of the above-said benefits, there should be some incentives in place. These should be in terms of the price structure of the various services and utilities available to the investors. It is to be noted that once a standardized service is ensured and made available to the industries, the investors will be ready to pay even slightly higher prices. But the bottomline stands that if a set of standard infrastructure facilities are provided within the industrial estate and the prices of the same are subsidized to scale them down to the operational and capital costs in other industrial estates like Silvassa and Vapi, then a sustained, natural and long term development of Kutch can be attained.

- The remoteness of Kutch is the biggest adversary, which can be overcome by having proper transportation network in place.
- The deliverables in the chemical estate should be planned beforehand & ensured to reach the investors in time.
- The possible public interest litigation should be thought over for avoiding any hindrance from them in industrial development.

Some more important points that the agency responsible for the development of the estate and the Government should try to ensure are:

- Change the image of Kutch to destination for industrial development and tourism destination
- Export related incentives
- Advance license system to be boosted
- Special capital incentive in form of cash in grant
- Refund of electricity duty and other duties levied
- Liberal labour law
- No cascading taxes should be there
- Land loan and any local provisions from local bodies
- Turnover upto Rs. One crore should be income tax free

There is another school of thought that suggests that there should be no cash subsidies at all because such short duration subsidies tend to make the industries heavily dependent upon them. Such subsidies can even be misused, while the industries have to justify their existence and grow even after the subsidies are called off. So it is essential that the whole development of the estate be carefully planned well in advance and the commitments in terms of facilities or the charges of various utilities, once made to the investors are met with in the future.

b. Influence of SEZs and EPZs

Any Special Economic Zone or Export Processing Zone will affect the viability of the chemical estate. It is obvious that the industries that would be involved in imports and exports would definitely prefer these special zones to the chemical estate.

These special zones offer a lot of benefits that are generally not given to the industries in an industrial estate. Some of these benefits are relaxed labour laws, duty free imports and exports, faster clearances etc.

3.7 KUTCH AS A LOCATION FOR CHEMICAL ESTATE: A SWOT ANALYSIS

It is utmost important to undermine the factors that affect the feasibility of the chemical estate in Kutch. The firsthand feedback from the industry has also been utilized to develop a SWOT analysis of Kutch as a location for developing the chemical estate.

- **Strengths**
 - **Excise and Sales Tax Exemptions** to the new units setup in Kutch subject to certain terms and conditions as per the notifications
 - **Proximity to various developed and modern ports** that could facilitate the import of raw materials and export of finished products
 - **Proximity to raw materials** for certain segments for example, limestone for cement industry, lignite for power plants
 - **Excellent Infrastructure** for transportation from Kutch to North India
 - **Huge waste lands readily available** which can be used for setting up various facilities
 - **Disposal of effluents can be managed** in a hassle free manner through deep-sea.

- **Weaknesses**

The industry feedback suggests that there are some practical problems related to this whole proposal of setting up a chemical industrial estate in Kutch. These are either due to some obvious drawbacks within the Government notification regarding the excise exemption or due to the nature of the industries that have been targeted with regard to the

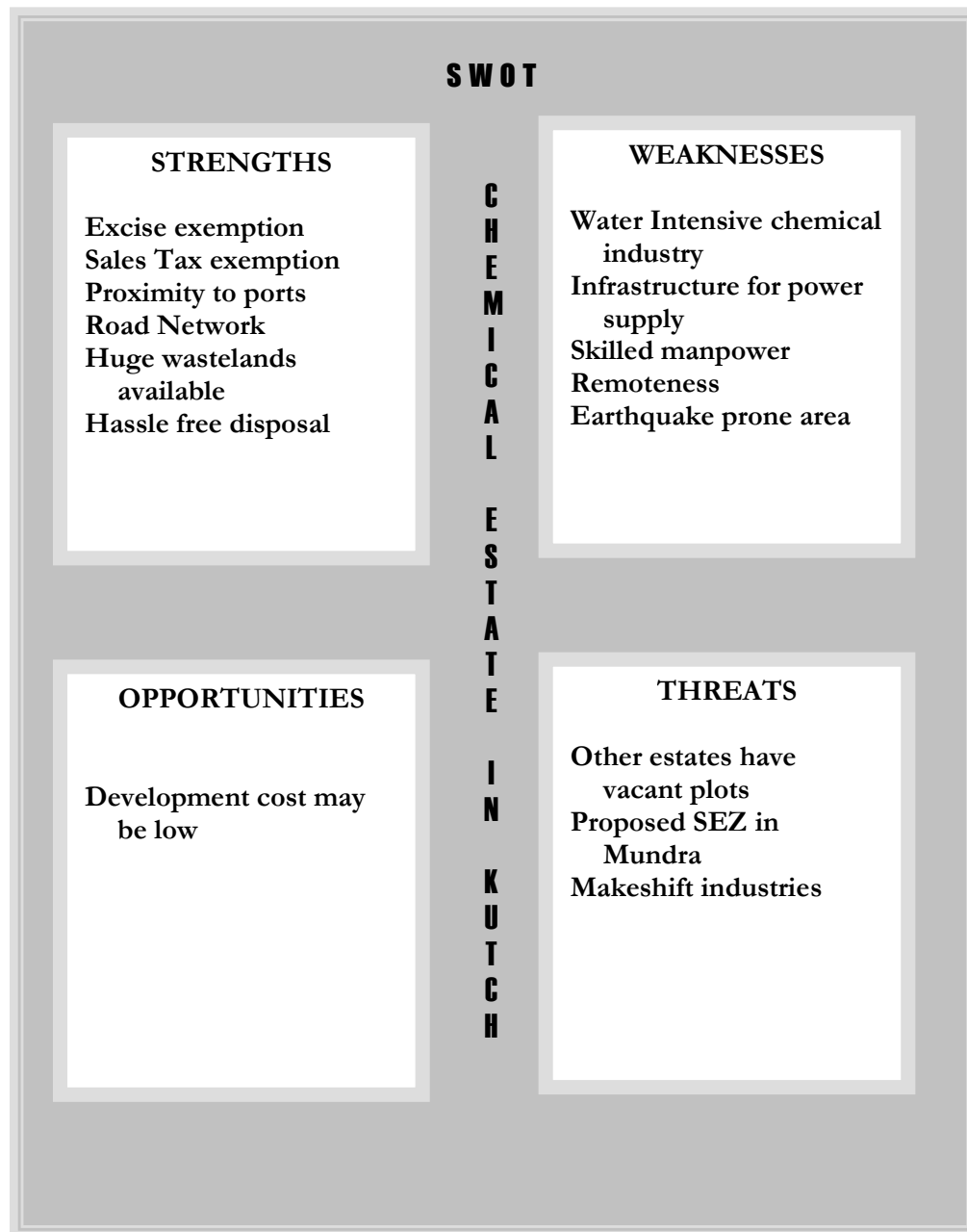
physical characteristics of the region where the estate is proposed. These problems become the obvious weaknesses for the chemical estate to be set up in Kutch.

- **Chemical industry is water intensive:** will not be able to find a cheap source of water in Kutch
- There is **limited social and other infrastructure** in place.
- **Infrastructure for adequate power supply** is not in place.
- The excise exemption doesn't seem to be tempting enough to the chemical industry. Besides, most of the heavy excise duty items have been excluded from the notification.
- The excise exemption for the units to start operations before July 31st, 2003 in Kutch practically leaves the industries with very less time to set up and start operating.
- The scarcely populated regions of Kutch might not be able to cater to the **manpower requirement** of the industry, especially for the skilled manpower.
- The **remoteness** and the natural characteristics of the region make it out of reach of easy bounds for most of the raw materials of the chemical industry.
- Since the Government of Gujarat has proposed this estate, the past experience of the industry plays a major deciding factor.
- **Many promises were made when other estates were allotted to the industries and till date, industry and government are in argument over one thing or another.**
- Connectivity through railway is very poor in many parts of Kutch
- Kutch is a **high-risk earthquake prone area**. It may be more costly for the industries to setup their plants in the seismic level five zone.

- **Opportunities**
 - According to some experts, industries with turnover of at least Rs. 150 crores and more can come up in the estate in Kutch.
 - **Infrastructure development cost may be less** due to many cement plants in the area and plenty of raw material availability of limestone
 - Major sector and Industries that should prove to be chief gainers in Kutch are:
 - » Sulphur / phosphorous based compounds.
 - » Castor oil and related products
 - » Petrochemicals
 - » Bulk drugs and Pharmaceuticals
 - » Fertilizer
 - » Dye stuffs
 - » Chlor alkali
 - » Agro processing industries
 - » Horticulture
 - » Animal husbandry group

- » Handloom / artisan work
- » Tourism
- » Lignite
- » Biotechnology
- » Fisheries
- These industries can further be motivated to come up in Kutch by having **suitable clusters**
- Ferrous-based Products that are mostly imported and have a good demand too hold a fairly good chance to bloom in this region owing to the port facilities.
- **Threats**
 - The major threat to the proposed estate comes from the other estates which are already there
 - The majority of the investors and industrialists have given **poor feedback on the past performance of the government agencies** with regard to the industrial estates. There is a major question mark for: how potential investors can be expected to invest in a new estate. Some examples:
 - » Government had promised sufficient supply of water and efficient effluent treatment in Bharuch but it couldn't provide it. Today there are **queues of Trucks outside the Ankleshwar industrial estate**. These trucks are meant for waste disposal of the industries.
 - » **Jhagadia Industrial Estate**- another Government estate is **occupied in a very limited manner** with existing industries given no support.
 - » **Public litigation** has to be taken care of for the area of the chemical estate– the living example is that of Saurashtra paper mills that were forced to close down on account of public litigation.
 - » **Clearances** have also been talked about a lot, be it environment clearance or something else; according to the industry, associations, it takes a lot of time for the *“files to move from desk to another”* and *“the single window concept is just a misnomer”*
 - The **proposed SEZ by Adani** near Mundra Port may absorb some of the demand of the proposed chemical estate and thus poses a threat to the estate.
 - **Basic chemical industry scenario is bleak**
 - Chlor alkalis though have good potential in Kutch, have a long gestation period due to which they will prove to be unsuccessful in Kutch under the current notification scenario.
 - According to the industrialists *“the policy of shifting the industries is no good to the country”* and *“the whole concept is very doubtful because this step was taken as a reactionary measure in the wake of the earthquake and not a proactive measure of the Government”*
 - The small-scale industries may make investments for **short-term benefits** and actually set up a unit in such a excise exempted region. These **make-shift** kind of industries generally do no-good for any region

- With the guidelines of the WTO, the chemical industry may also be affected by **cheap imports**
- Many industrialists have the **perception that the infrastructure in Kutch is very poor**. This perception will have to be changed for getting better investments in Kutch.



3.8 ANALYSIS

a. Who benefits the most

The industries that can benefit most out of a chemical estate in Kutch are:

Industries who are selling to the end user	May get the benefit of the excise exemption so as to improve their payback period and possibly the margins also
Industries who export most of their final products	Will be able to export quickly from one of the ports which are situated in Kutch
Industries who import a lot of raw material	Will be able to import from one of the ports which are situated in Kutch, and save on transportation cost
Chemical industries that are highly Polluting	May get benefit of easy, efficient and economical disposal into sea after treatment
Industries who have major markets in Kutch and Gujarat	Industries like cement block manufacturers have good potential in Kutch
Industries that need huge area of land at much cheaper prices	Industries such as petrochemical or refineries need large chunks of land for development which is plenty and not-so-expensive in Kutch

b. Import of Raw materials in Various Sectors

Table 3- 11 Import of raw materials

Sector	Imports (1997-98) (Rs. Crores)	Number of companies	% of raw material imported
Chemicals and plastics	12163.5	830	25.77
Drugs and pharmaceuticals	2361.1	223	23.53
Other chemicals	450.3	58	28.30
Pesticides	387.1	39	24.29
Dyes and pigments	226.9	41	13.89
Inorganic chemicals	218.6	55	18.46
Paints and Varnishes	195.7	18	13.65
Phosphatic Fertilizers	120.7	15	33.34

Source: CMIE

The import of the raw materials is an important factor, considering the high cost of transportation of raw materials from the ports to factory premises. The imports are high in the plastic segment because of the few polymer manufacturers in the country. Looking at the high import volume in the Drugs & Pharmaceuticals industry the number of industries that may come to the estate could increase owing to the nearness to ports and also due to the Excise exemption.

The import component is also very high in Pesticides, other specialty chemicals, inorganic chemicals and phosphatic fertilizers. These industries could also gain from coming to the estate in Kutch as far as the easiness in carrying out the import of raw materials is concerned.

3.9 CLUSTERING

Industry Clusters are geographic concentrations of

- Competing
- Complementary or
- Interdependent firms
- And industries that do business with each other and/or have common needs for talent, technology and infrastructure.

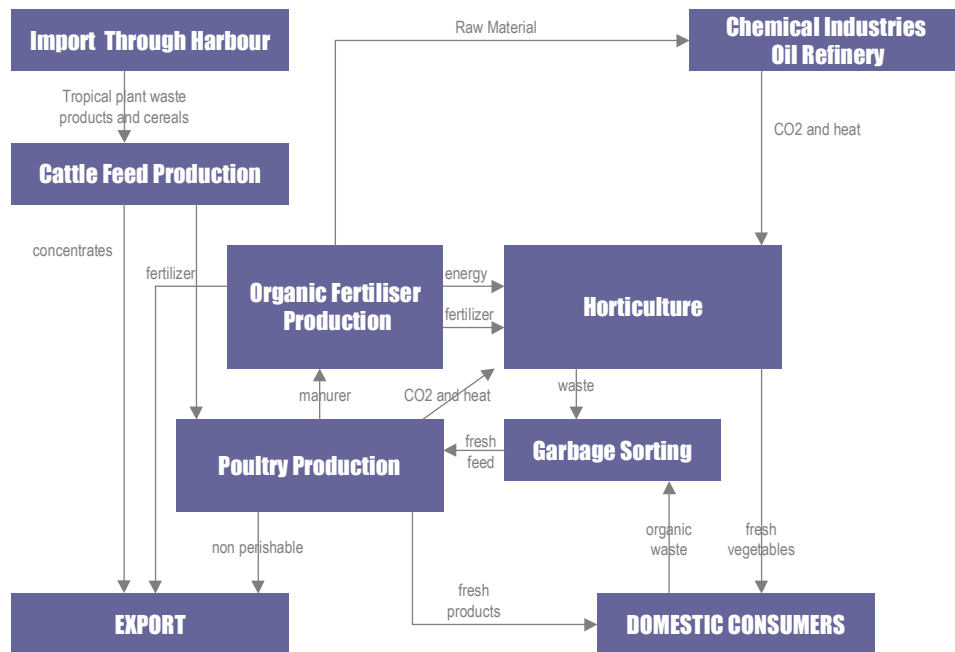
Clusters are based on certain criteria:

- The firms included in the cluster may be both competitive and co-operative.
- Cluster could be centred on key exporting industries.
- Common factors like:
 - Sectors
 - Employment
 - Growth potential
 - Operating margins

Requirements of Clustering:

- Government's facilitative leadership
- Cluster strategy is not about picking winners and losers
- Cluster strategy must address regional and local community needs

Figure 3- 2 Industrial Symbiosis

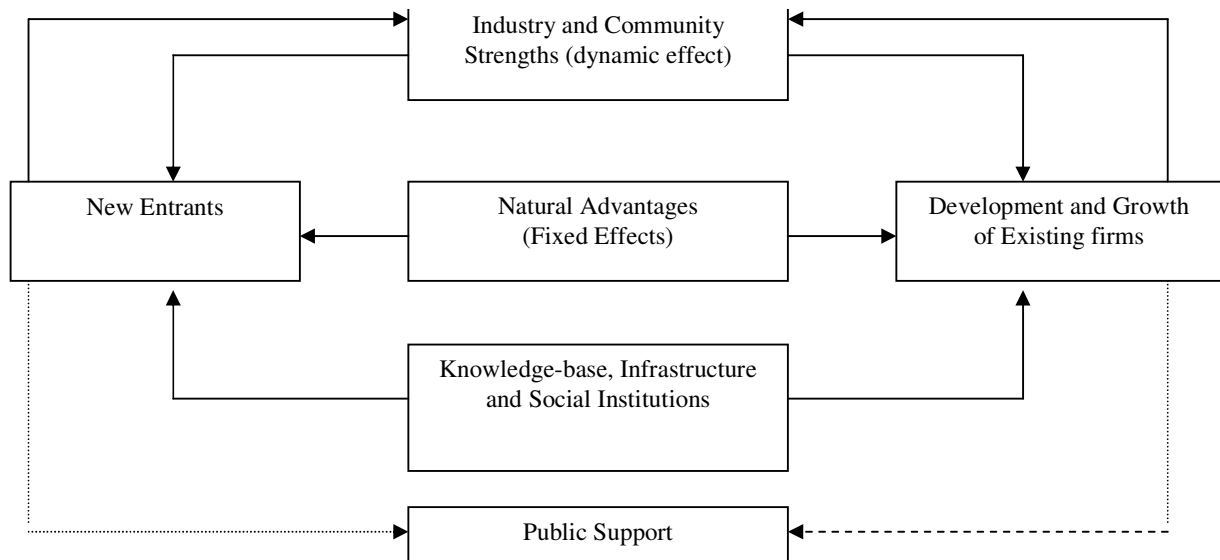


The above diagram depicts the industrial symbiosis that can be setup in the chemical estate, provided industries like fertilizer and refinery are also setup in the estate.

According to Michael Porter, a cluster is a geographically proximate system of interconnected companies and associated institutions linked by common as well as complementary interests. Due to the emergence of external economies, its value, as a whole, is greater than the sum of its parts. For this reason, clustering has been extolled as an almost universal cure for ailing economies, be they national or regional. A growing number of governments have begun to develop a clustering approach to economic development, believing they can maximize their resources by focusing on their "core competencies"- key sectors in specific places.

The importance of clusters stems from:

- *Collaboration*: A process, which might start with an initial natural advantage or the use of a location, leading to collaboration among several firms.
- *Network Externalities*: These firms might attract common suppliers or prove to be a magnet for the attraction of customers who can go to one location to identify a group of firms offering similar products.
- *Relational Capital*: Over time the firms within a cluster develop relationships which depend on close proximity and trust. This improves productivity and innovation and serves as a further attraction to new entrants.
- Research and training facilities develop around the cluster which serve to enhance the inventiveness and productivity of existing firms.
- Eventually a cluster may stop growing or decline as the customer and knowledge base changes.

Figure 3- 3 Clustering Approach

• *Clusters and Public Policy*

Outside the confines of interventionist approaches to clusters (where economic development might seek to "build" clusters), the only approach that commands significant support in modern market economies is one, which helps to support and upgrade clusters. Extending support for clusters in a local economic context might involve:

- Complementary assets: help create training programs, research institutes, roads and infrastructure
- Technology transfer: link SMEs with technology providers at home and overseas
- Linking with seed capital and venture finance
- Lobbying: work collaboratively with firms and other institutions to build local facilities and attract government funded research
- Fostering networks: provide information and forums
- Attract investors: prioritise key investors, develop investor recruitment marketing plans
- Map, benchmark and encourage: maintain a data base on the cluster
- Rates relief
- Develop reputation and image of the cluster.

Clusters are central to economic development but their impact is greater in some areas than others. In brief, clusters seem to attract capital (new investment) and lead to knowledge spillovers. These twin effects help promote productivity and innovation which, in the long term, has a direct impact on economic development and growth of jobs.

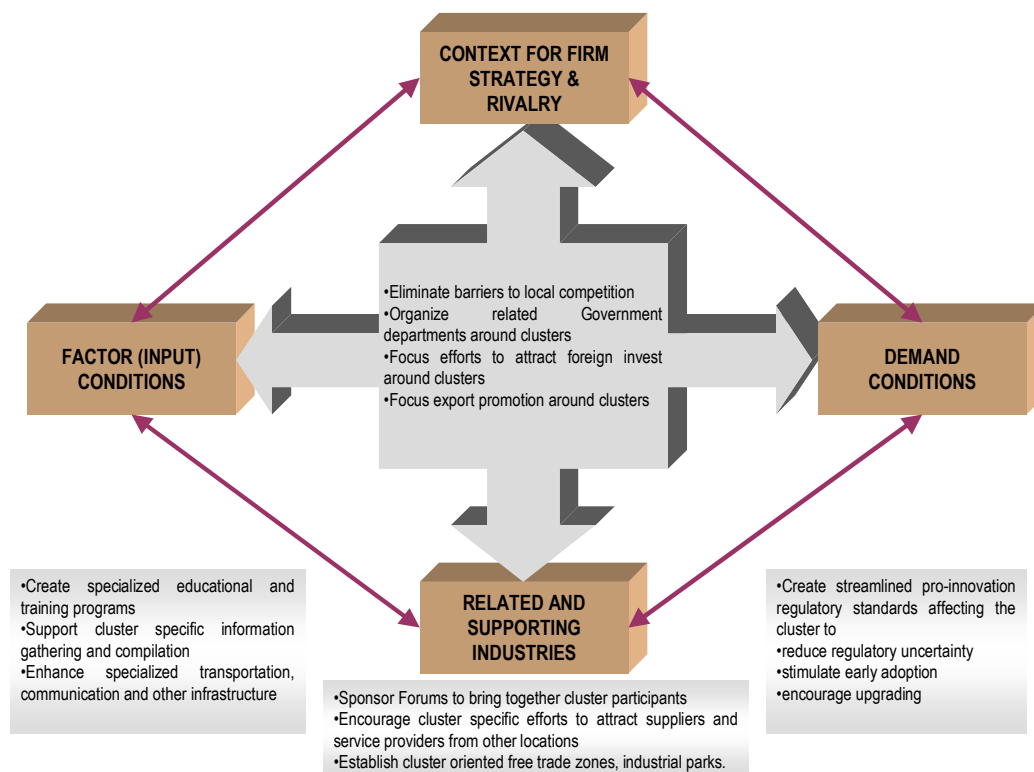
There is a role for government in cluster development, however it is not the same role as that seen in interventionist public policy. Instead, it is to support and upgrade all clusters and to lobby for a particular region.

- ***The Role of Government in clusters***

The "governments should avoid both extremes of coercing a desired outcome and keeping strict hands off, and instead seek to push the system gently toward favoured structures that can grow and emerge naturally." And this is perhaps the key point. Rigidity is the bane of cluster development. The role of governments should be to maximize the dynamics of related industries and to ensure that blockages do not occur.

Government's role in economic development has moved from selective intervention and "spotting winners" to the promotion of traditional macro-stability and the achievement of micro efficiency. Specifically, in the context of cluster development, one can observe what this means through Porter's competitive diamond (see figure below).

Figure 3- 4 Clustering: Porter's competitive diamond



The essence of a cluster based economic development policy is not the selection of specific areas for upgrade but rather upgrading across the board. Government policy must be directed at:

- Ensuring public sector investment relates to and supports local clusters
- Through its own policies and practices, motivate and facilitate collective action by the private sector
- Identify and support training and research and development initiatives
- Encourage and target new investment with complementary cluster characteristics
- Facilitate information networks between cluster organizations.

- **Industrial Clustering and Zero Emissions**

Cement companies supply flue gas desulfurizer to Power plant. This is basically calcium, and on reacting with sulfur it becomes calcium sulfate, so-called gypsum. So calcium carbonate is used by the power plants and emerges as waste in the form of gypsum. This is then either returned to the cement companies as raw material for cement or turned into plasterboard at plasterboard companies. Thus three types of company i.e. building materials, cement and power generation can form a cluster here. Moreover, discharged coal ashes can also be used as raw material by cement factories and by building material manufacturers. Waste produced at the power plants is reused to produce cement, plasterboards, building materials and construction works. This is a typical example of how industrial clustering can achieve zero emissions.

Table 3- 12 Example of Clustering

Output														
Input	Cement	Iron & Steel	Non Ferrous Metals	Paper	Petroleum	Chemicals	Construction	Home Appliances	Electricity	Automobiles	Electronics Communications	Building Materials	Urban Infrastructure	
Cement														
Iron & Steel														
Non Ferrous Metals														
Paper														
Petroleum														
Chemicals														
Construction														
Home Appliances														
Electricity														
Automobiles														
Electronics Communications														
Building Materials														
Urban Infrastructure														

An Industrial Matrix

In order to achieve zero emissions, an industrial matrix (as shown in the figure above) would be very useful. For instance, the cement, or iron and steel industries can reuse waste produced by the chemical industry. This provides better understanding on source of waste and where it can go. If we could fill the matrix fully, then we could form an industrial ecosystem consisting of a symbiotic clustering of industries.

The same idea should be adapted to ODA projects in order to protect the environment. When establishing business in developing countries, companies should also stand on the idea of industrial clustering: they should not build just a single power plant in isolation, but should consider a package consisting of a power plant, cement factory and plasterboard factory.

- **Conclusion**

An analysis of the recent literature on clustering shows that there is a lack of consensus as to the existence of clear causative links between clustering and economic development. There is considerable dispute as to what policies are best suited to achieving desired

results, and even whether they can-especially as globalization becomes more intense. It seems unlikely that this dispute will be resolved for some time.

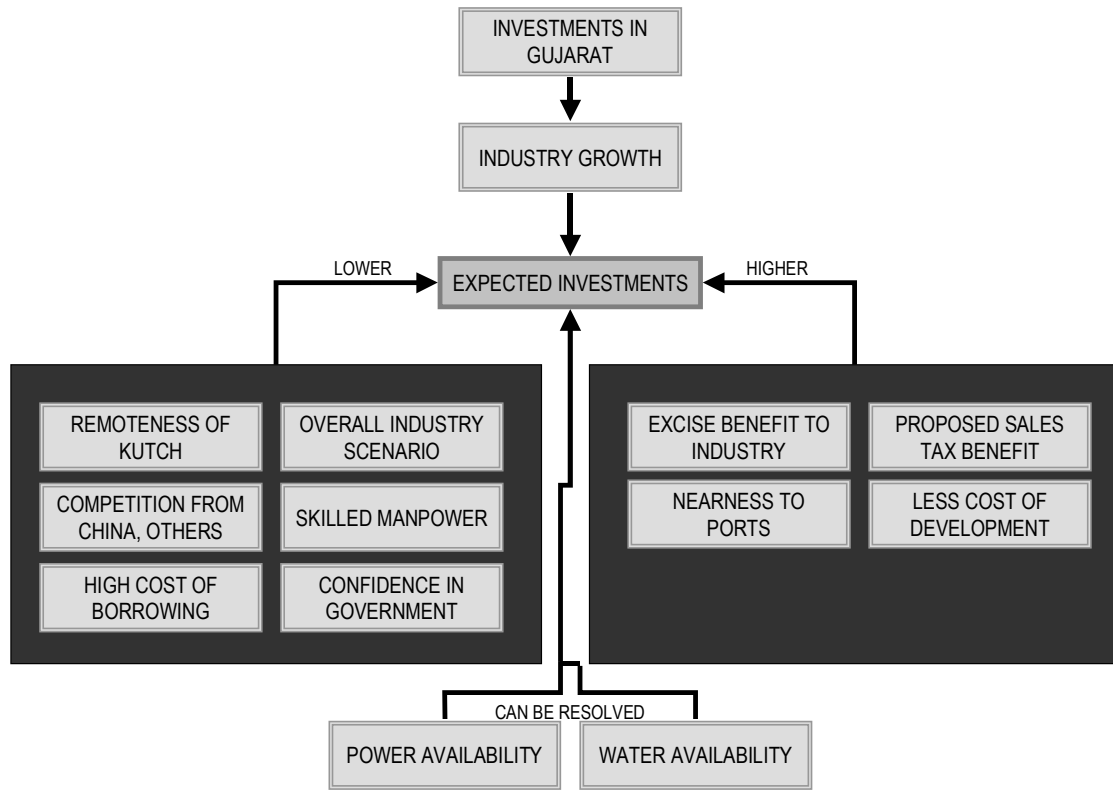
As with all success stories, cluster development is a propitious combination of many forces. "The right place" is only one element in a complex formulation that economic models can not hope to describe nor discursive Case Studies¹ hope to explain. Given that "location" lies at the heart of theories of cluster dynamics, and given that no two locations are identical, descriptions of how clustering occurs in one location is perhaps of little value in assisting the development of clusters in other.

Bottomline is that if a well planned and an efficient industrial development has to take place within the estate leading to maximum social and economic benefits accruing to the entire region, then an Industrial Symbiosis should be the basic building block of the entire development activity.

3.10 SECONDARY ANALYSIS

The secondary analysis is based on the data of investment in Gujarat in the past decade. The data has been taken for only those industries whose investment is more than Rs. 5 Crores. The investments in major segments have been segregated into two slots of 5 years duration each for the decade. These investments have been assigned weightage of 70% and 30% for the duration 1996-2000 and 1991-1995 respectively. The weighted-average figures have been extrapolated for country assuming Gujarat share of the overall industry to be around 30%.

¹ Discussed in the Annexure

Figure 3- 5 Demand Estimation Methodology

Based on the interviews and the result of the primary survey, the percentage of industry that can go for further investments has been assigned. These percentages vary from 5% for fertilizer industry to 12% for Bulk Drugs and Pharmaceuticals.

Since a specialized Chemical Estate is being proposed, the chances of the chemical industries for expansion in such an estate increase although just by a fraction. These fractions have been taken into consideration separately for each industrial sector. For example, Dyes pigment industry, a highly polluting industry, would invariably have an inclination to set up in a special chemical zone which can take care of its specific needs.

Similarly, the probability of the chemical industries for expansion in such an estate increases by some fraction owing to the excise exemption. These figures of percentage increase are based on the feedback of various representatives in the industry. Finally, the net percentages for each sector to have an inclination of investment in Kutch have been calculated for the next 1½ years.

Table 3- 13 Secondary Analysis for demand for large scale industry

LARGE SCALE SEGMENT	INVESTMENT	1991-1995	1995-2001	WEIGHTED INDIA FIGURES	PERCENTAGE OF INVESTMENT EXPECTED	ADDITIONAL FACTOR DUE TO KUTCH ESTATE	ADDITIONAL FACTOR DUE TO EXCISE	NET PROBABILITY	WEIGHTED	OUR ESTIMATE
FERTILIZERS	660093	15000	645093	228033	5%	10%	0%	6%	12542	0
CHEMICALS (OTHER THAN FERTILIZER)	989954	632554	357400	219973	10%	25%	10%	14%	30246	30246
DRUGS AND PHARMACEUTICALS	32200	32200		4830	12%	20%	20%	17%	835	0
PAPER & PULP INCL. PAPER PRODUCT	123500	123500		18525	5%	-50%	10%	3%	509	0
CEMENT AND GYPSUM PRODUCTS	1054589	397238	657351	289659	8%	0%	30%	10%	30124	5000
PETROCHEMICAL.& REFINERY	3731332	2181632	1549700	869640	10%	40%	10%	15%	133925	0
PLASTICS & PLASTIC.PRODUCT	460586	257386	203200	109728	6%	30%	25%	10%	10698	10698
Large Scale Total (>100 crores)										45945

All Figures in Rs. lacs unless otherwise stated

Table 3- 14 Secondary analysis for medium scale industry

MEDIUM SCALE SEGMENT	INVESTMENT	1991-95	1995-2001	WEIGHTED INDIA FIGURES	PROBABILITY	ADDITIONAL FACTOR DUE TO KUTCH ESTATE	ADDITIONAL FACTOR DUE TO EXCISE	NET PROBABILITY	WEIGHTED	ESTIMATE
FERTILIZERS	10103	730	9373	3390	5%	10%	0%	6%	186	0
CHEMICALS(OTHER THAN FERT.)	385509	222392	163117	90450	10%	25%	10%	14%	12437	12437
PHOTOGRAPHIC RAW FILM AND PAPER	1800	1800		270	10%	5%	25%	13%	35	0
DYE STUFFS	143517	119055	24462	26420	8%	20%	15%	11%	2917	2917
DRUGS AND PHARMACEUTICALS	182056	80562	101494	47607	12%	20%	20%	17%	8227	8227
PAPER & PULP INCL. PAPER PRODUCT	77237	35917	41320	19850	5%	-50%	10%	3%	546	0
SOAPS,COSMETICS & TOILET	16140	14703	1437	2708	10%	10%	25%	14%	372	372
CEMENT AND GYPSUM PRODUCTS	33725	19669	14056	7870	8%	0%	30%	10%	818	1000
PETROCHEM.& REFINERY	43889	20710	23179	11219	12%	40%	10%	18%	2073	2073
PLASTICS & PLAST.PRODUCT	165618	86656	78962	40635	5%	30%	25%	8%	3302	3302
Medium Scale Total (4-100 crores)										30327

All Figures in Rs. lacs unless otherwise stated

The total investment that is expected based on the secondary analysis considering most of the factors comes to around Rs. 760 crores (Rs. 460 crores in Large scale and Rs. 300 crores in Medium scale sector). The investment can go up if a large-scale player with huge investment in refinery or petrochemical plant establishes itself in Kutch.

In the above mentioned analysis, a break-up of expected investments is exhibited in terms of the large scale and medium scale segments of the chemical industry. Finally, a weighted investment figure has been calculated for each segment taking into consideration the increased probability due to the excise exemption and the specialised

chemical estate in Kutch. These investment figures are a true representation of the expected investment from these very segments in the Chemical Estate. The figures from the segments that fall below the average investment required for establishing a basic facility of that segment has been scaled down to zero. For the remaining segments whose investment figures justify their existence, a detail summary of the expected capacity, water requirements and the wastes generated are enumerated, which are as under.

Table 3- 15 Project sizing details for chemical estate

Chemical industries expected in the estate			Water requirement	Waste waster generation	Hazardous waste generation
Industry	Capacity TPA	Tonnes/day	m3/day	m3/day	TPA
Chemicals other than fertilizers	163358	495	0	0	8331
Dye stuffs	48533	147	3922	2941	72800
Drugs and pharmaceuticals	127649	387	6447	4835	25530
Soaps, cosmetics & Toilet	20571	62	0	0	0
Cement and gypsum products	211445	641	0	-	0
Speciality chemicals (pesticides)	452360	1371	960	720	28499
Petrochemicals	339057	1027	5754	4315	6781
Plastic & plastic products	599057	1815		0	0
			17082	12812	141940

3.11 TARGET SEGMENTS AND INVESTMENT EXPECTATIONS

The chemical industry is going through the worst of its cyclical business. Not too many investors are thinking about any new investment plans. The past experience of the investors of dealing with the government doesn't seem to be satisfactory. These experiences are on varied fronts generally from routine clearances. In many cases the industries could not anticipate that the utilities assured initially might not be fulfilled. According to the industries, many problems could have been solved with the help of the government.

Thus, any further decisions from the investors regarding making investments in a chemical estate would be under a high scrutiny by them but then if the sufficiently requisite infrastructure is well in place within time, then they are ready to pay for the services (whatever be the *service level agreements*). Only large scale and medium scale investments can be expected for a long-term sustainable chemical estate.

As mentioned above, the target segment shall be the one that gets maximum benefit considering the overall situation in Kutch. Industries, which are in the segments of the polymer, drugs & pharmaceuticals, dyes stuff & pigments, specialty & fine chemicals, petrochemical can be targeted.

The industries will have to be persuaded to come into the chemical estate. Aggressive marketing and real work on the field for the development of the infrastructure will also be required.

The primary survey has brought out a possibility of total investments of Rs. 800 crores to Rs. 900 crores. Most of the investments in the survey have been on the condition that the required infrastructure facilities are in place and a facilitative, single window and fast clearance system is incorporated.

An increased investment and more capacity utilization within the estate can materialise if a large petrochemical complex can be motivated to be set up in the estate; a fertilizer plant would also be an advantage to the industrial cluster that could then be set up.

The above-mentioned investment figures have been projected for the next 1½-year. On the other hand the demand estimation of the investment in chemical estates for the next five years and ten years are of the tune of Rs. 1800 Crores and Rs. 3500 Crores respectively across Gujarat. Keeping these investment figures in mind the estate sizing has to be planned very strategically. A sizing of the estate as 900 to 1000 Ha for example will ensure a phased creation of additional capacity to cater to demand only as and when the latter materialises.

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