

WORKING OF INDUSTRIAL ESTATES

IN GOA: AN ANALYTICAL STUDY

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(2015)

DECLARATION

I, **MS Shami Ramchandra Pai**, hereby declare that this thesis for Phd Degree in Commerce titled '**Working of Industrial Estates in Goa : An Analytical Study**' is a bonafide record of independent research work done by me under the guidance and supervision of **Dr. I. Bhanu Murthy** and Co-Guide **Prof. B. Ramesh**. I also declare that this thesis or part thereof has not previously formed the basis for award for any Degree, Diploma, Associateship, Fellowship or any other similar title.

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CERTIFICATE

We hereby certify that this thesis for Phd Degree in Commerce titled '**Working of Industrial Estates in Goa : An Analytical Study**' is a bonafide record of independent research work done by **Ms Shami Ramchandra Pai**, Research Scholar, Department of Commerce, Goa University, under our guidance and supervision. We also certify that this thesis or part thereof has not previously formed the basis for award for any Degree, Diploma, Associateship, Fellowship or any other similar title.

Prof. B. Ramesh
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Place:

Date:

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RESEARCH SCHOLAR

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ABBREVIATIONS USED:

GIDC: Goa Industrial Development Corporation

IE: Industrial Estates

IEP: Industrial Estate Programme

KMO: Kaiser Meyer Olkin

OLS: Ordinary Least Square

ISO: International Standards Organization

NABARD :National Bank for Agriculture and Rural Development

CIBA: Centre for Incubation and Business Acceleration

GSIA: Goa State Industries Association

MSME: Ministry of Micro, Small and Medium Enterprises

GCCI: Goa Chamber of Commerce and Industries

FAR: Floor Area Ratio

SEZ: Special Economic Zone

ITI: Industrial Training Institute

CSIO: Central Small Industries Organization

SIET: State Institute of Educational Technology

SIDCO: Small Industries Development Corporation

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CHAPTER 1 : INTRODUCTION

Pandit Jawaharlal Nehru, India's First Prime Minister said,

“Real progress must ultimately depend upon industrialisation. Without industrial development, there can be no better standard of living to the people”

Industrialisation is a process of social and economic change whereby a human society is transformed from a pre-industrial to an industrial state. Industrialisation is considered to be a sign of a growing economy, and is associated with income growth, urbanisation, and improvements in health, lifespan and standard of living for the population. The development of a country depends mainly on the level of industrialization, as it is a process, which accelerates economic growth and effects structural changes in the economy. Industrialisation refers to creation and expansion of industries and use of modern techniques of production in the industries. It has played a very important role in the process of economic development of all the countries of the world including India. The development of the industrial sector is a pressing need of developing countries like India. Since independence, India has started a massive planned industrial development programme for speedy industrialisation. India's industrial plans lay emphasis on the development of important heavy industries and those in the small scale sector. The small scale sector plays a key role in the industrialisation process as it provides immediate large scale employment and has a comparatively higher labour capital ratio. Small enterprises are also assigned a crucial role in India's Five Year Plans.

The Government of India, in order to protect, support and promote small industries to become self supportive and to facilitate a balanced growth, has taken a number of policy and promotional measures. One of the significant promotional measures of the Government of India in this respect is the 'establishment of industrial estates.

The technique of industrial estates occupies a vital place in promoting and guiding industrialisation both in industrially advanced countries as well as developing countries. The concept of Industrial Estate is a recent addition to the list of industrial techniques that have been applied successfully to the basic problem of initiating and sustaining the development of small and medium scale industries.

1.1 INDUSTRIAL ESTATE : THE CONCEPT

Industrial Estate, an important plank of small industry development programme, is a branch of the social technology of development.

An Industrial Estate is a method of organising, housing and servicing industry for an orderly development. It is a nursery for the new entrepreneurs. The concept of 'Industrial Estate' is as old as the '*Steam Engine*' but its systematic application to the challenge of the times is as new as the '*Super Computer*'.

Industrial Estate is the combination of two words – Industrial and Estate- 'Industrial' means consisting and pertaining similar types of industries or it also concerns to those employed in labour, especially in manual labour, and their wages, duties and rights. 'Estate' means a landed property usually of considerable size to be used and developed for a specific purpose.

In general, the industrial estate is a multipurpose tool taking care of a number of problems viz provision of suitable factory premises, utilities, facilities and services, economy in the investment of social overheads and the increased scope for inter-servicing and inter-trading, developing complementarily in production and creation of the spirit of co-operation,

decentralization of industry for the development of backward areas, rural industrialisation, achieving a specific locational pattern, town planning and removal of slums and so on.

The term 'Industrial Estate' covers the three variants of the concept, namely, *industrial areas*, *industrial estates* and *industrial townships*.

An Industrial Area is one wherein the infrastructural facilities and services are provided but factory accommodation is constructed by the entrepreneurs. In an industrial estate, both infrastructural facilities and factory accommodation are provided by the sponsoring authority. In an industrial township, besides the infrastructural facilities and factory sheds, housing accommodation and other civic amenities associated with a town are also provided.

The Industrial Estate is a generic term. The terminology is different in different countries, and they are simply variants of the central idea behind the Industrial Estate.

TABLE 1

NAME OF THE COUNTRY	TERM USED
England	Trading Estate
America	Industrial Park
Italy	Industrial Zone
Canada	Industrial Plaza
Soviet Russia	Industrial Regions
Puerto Rico	Industrial Sub-division
Mexico	Industrial City
India & most of the other countries	Industrial Estates

Source: William Bredo, Industrial Estates-tool for industrialisation

The above terms differ in meaning and content since they are organised in many ways to provide a variety of services. However, the central idea is the same in all the terms.

❖ **William Bredo** is probably the first who attempted to define the term ‘industrial estate’ in a most scientific but general way.

“An Industrial Estate is defined as a track of land which is sub-divided and developed according to a comprehensive plan for the use of a community of industrial enterprises.”

❖ **The United Nations Industrial Development Organisation (UNIDO)** defines an industrial estate as, “a planned clustering of industrial enterprises offering standard factory building erected in advance of demand and variety of services and facilities to the occupants.”

❖ In the opinion of **P.C. Alexander**, “industrial estate is a group of factories constructed on economic scale in a suitable site with facilities of water, transport, electricity, steam, bank, post office, canteen, watch and ward, and first aid. It is provided with special arrangement for technical guidance and common service facilities. The estate combines in itself some of the important schemes of assistance to small industries and provides a total outlay for integrated development.”

❖ According to **Economic Community of Asia and Far East (ECAFE)**, “industrial estates are an effective means of promoting industrial development, modernizing

industrial enterprises, raising their productivity and thus reducing costs and improving the quality of their products.”

- ❖ According to **Takashi Kato**, “Industrial Estate can be defined as a body of factories and facilities systematically organised in order to enable each participating enterprise to gain collective benefits.”

- ❖ According to the **Report of Japanese Delegation on Small Scale Industries**, “an industrial estate is an industrial area where factories, industrial water, electricity and transportation are appropriately arranged under direct or indirect Government assistance.”

All the above definitions of Industrial Estate define important aspects of the concept. These are as follows:

- ❖ Planned and group character of industrial enterprises
- ❖ Construction of industrial building in advance
- ❖ Standardization in the construction of industrial buildings and
- ❖ Provision of a variety of services and facilities to the occupants.

1.2 OBJECTIVES OF INDUSTRIAL ESTATES

The principal objective of the programme of industrial estates is to provide factory accommodations to small scale industries at suitable sites with facilities of water, electricity, steam, transport, banks, post offices, canteens, watch and ward, first aid, etc. and thus create a

healthy atmosphere for the development of industries. The industrial estates bring a number of industrial units together and facilitate establishment of common facility centers, introduction of modern techniques, and collective purchase of raw materials and sale of finished goods, besides fostering a co-operative spirit of interdependence between them.

Following are the main *objectives* of industrial estates in India:

- Promotion of small scale industries by providing facilities, assistance and guidance in establishing, operating and managing their units.
- Decentralisation of industries from big cities, urban areas and highly industrialised centres to other places.
- Development of industries and provision of employment opportunities in backward regions.
- Provision of facilities of all types at one place for the smooth functioning of industry.
- Provision of built – up factory accommodation to the small entrepreneurs so as to make them ready to start their industries without any inconvenience or delay.
- Rapid industrialisation of the country through the development of small industries.
- Savings and capital formation in the industrial sector, and
- Development of entrepreneurial skills among people belonging to different social groups and communities

To sum up, the primary objective of the industrial estate has been the development of small scale industries. The secondary objective is the promotion of regional economic growth.

1.3 ADVANTAGES OF INDUSTRIAL ESTATES:

- An industrial estate offers land and sheds to new units at a reasonable cost. This facility is particularly important in rapidly growing urban areas, where land may be costly or otherwise not available.
- There are economies in the provision of such infrastructural facilities as power and transport to a cluster of units.
- There are other external economies, if a number of units are located in a planned industrial estate, such as the availability of common facilities like a repair shop or a testing laboratory, etc.
- The offer of readymade sheds on rental basis enables a small entrepreneur to keep down his initial capital investment to the minimum.
- The process of setting up an industrial unit is expedited because individual entrepreneurs are able to avoid the delays and vexatious procedures involved in complying with the various rules and regulations governing the location of factory sheds and in obtaining infrastructural facilities. In fact, the offer of readymade sheds to prospective entrepreneurs expedites the setting up of industrial units in 3 years.

- A rapid growth of industrial units is made possible by the fostering of complementary relationships among them. For example, some units may obtain raw materials and semi-finished goods as inputs from other units in the same estate, or offload a part of the production to ancillary units in the same area.

1.4 OBJECTIVES OF INDUSTRIAL ESTATES IN DIFFERENT COUNTRIES:

TABLE 2

Name of the Country	Objectives of Industrial Estates
U.K.	making profit by earning rents for the building & services provided
US.A.	area planning, providing factory accommodation to reduce congestion
Italy	area & regional development, raising economic standards of the people
Japan	help small businesses to improve its productivity and operations
Pakistan	economic development of backward areas
Jamaica, Ireland, Taiwan	attraction of industries from abroad
Srilanka, Thailand, Singapore	economic development
Nigeria, Indonesia, Iran	promotion of small and medium industries
India	industrialisation of economically backward and rural areas and promotion and rapid development of small scale industries

Source: Alexander P.C. Industrial Estates in India

1.5 HISTORICAL BACKGROUND OF INDUSTRIAL ESTATES:

The term 'industrial estate' has been used as a mechanism to stimulate the growth and efficiency of small industries in the U.K., U.S.A., Holland and elsewhere. But the origin of the industrial estate was in the United Kingdom a century ago. Though the industrial estates or the trading estates were first started in the U.K. before World War II to divert industry into what were called "depressed" or "distressed" areas, i.e. areas of heavy unemployment, the concept of industrial estates is much older there, and over the years has grown in dimension and scope. The trading estates of the United Kingdom were not Government financed or Government controlled until much later. In fact, the *Trafford Park Estate* at Manchester, England, which was started in 1896, has been called the "Mother of Industrial Estates." The next country to adopt the philosophy of industrial estates was the United States. In 1899, in Chicago, USA, the pioneer industrial estate, known as '*Clearing Industrial District*' was founded by a private corporation. In Europe, the concept of industrial estate has been slower in spreading. But the industrial zoning in many countries, especially Germany, Austria, the Netherlands, and the Scandinavia has tended to go far beyond the scope of the original concept in the two pioneering countries. In 1904, the industrial estate was established in Italy at Naples as the '*Industrial Zone*' and was formed by a special law of the city. After the Second World War, everywhere throughout the world, industrial estates were established in large numbers.

The success of the industrial estates in other countries particularly in the U.K. influenced some countries of the commonwealth, particularly India which is using industrial estates both for industrialising and for decentralising industries. Towards the end of the First Plan, the Small Scale Industries Board suggested to the Government of India to use the industrial estate

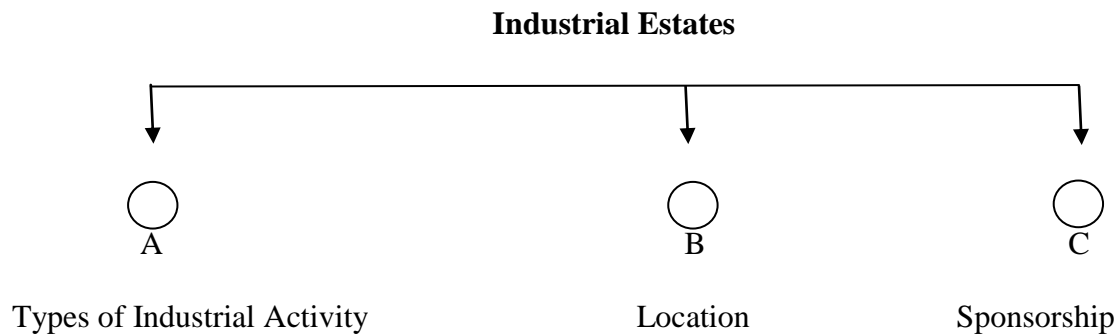
as a means of promoting the planned growth of small industries and the programme got under way during the Second Plan. Small Scale Industries Board at its meeting in January 1955 adopted the resolution to form industrial estates in India. Towards the close of First Five Year Plan (1951-56), in 1955, the Government of India set up the first industrial estate in India.

The first industrial estate was started in Sourashtra (now Gujarat) on a 20 acre plot near the Bhaktinagar railway station in Rajkot. The work of construction commenced in September 1955 and the first shed was allotted to a small industrial unit in December 1955. *The Rajkot Industrial Estate* may be described as the fore founder of the industrial estates programme in India. It was so significant that it was preceded by the adoption of the industrial estates programme by the Government of India and was followed by a sanction of dozen more estates. The total industrial estates as on 31st March 1975 were 656.

Thus, the industrial estate is, historically a British concept and because this term is quite comprehensive, it is used in most of the countries. India has preferred to use the British concept in planning the built- up form of industrial infrastructure, inclusive of industrial sites and buildings.

1.6 TYPES OF INDUSTRIAL ESTATES:

An industrial estate is a multipurpose tool for achieving several ends. For achieving these ends, industrial estates have to be different types, as no single type of industrial estate could possibly be therapeutic in all situations.



Ⓐ On the basis of type of industrial activity:

1) Industrial Estate for general purposes

These are estates where all types of industries are encouraged for admission which is made possible by the provision of standard factory buildings and common service facilities. Hardly any restrictions are imposed on the type of industries for admission in these estates. The facilities in a general purpose estate include maintenance and repair shops, machine shops, tool room, foundry, forge, electroplating, laboratory for testing and quality control, and other services. The provision of these facilities is made in such a way that they correspond to the requirements of industrial units

2) Ancillary Industrial Estates:

These are estates in which different small scale units manufacture components, parts and stores which are required by a large industrial undertaking on a subcontracting basis. These are located generally in close proximity to the large industrial unit to facilitate technical supervision and assistance, and economic transport.

There can be two forms of ancillary industrial estates: one formed with the initiative and assistance of individual large industrial undertakings essentially to meet their needs for manufactured components, parts and stores at lower costs; and the other formed by the small industrialists themselves, engaged primarily in the execution of firm orders of a number of large undertakings.

3) Single trade industrial estates:

These are industrial estates providing factory accommodation to industrial units belonging to the same trade. The chief merit of single trade industrial estate is that technical common service facilities can be planned according to the needs and put to efficient use by the unit tenants. Again, there are special economies in collective purchases of raw materials and sales of finished products.

4) Functional Industrial Estates:

These are estates in which the functions of one industry are sub- divided among a number of small scale units located in one place, each functioning according to a co-ordinated manufacturing programme. The main advantage of a functional estate is that it can provide the economies and efficiencies of specialisation and large scale production to small scale units.

Ⓑ On the basis of Location:

1) Industrial Estates in or around big cities and metropolitan areas:

The establishment of industrial estates in big cities is extremely potent for several reasons, and it is because of these that there are a much larger number of industrial estates in metropolitan areas compared to small towns and rural centres. The big cities

and the metropolitan cities have the advantage of “external economies” making the environment viable for small industries to grow and prosper.

2) Industrial Estates in small towns:

Industrial Estates in small towns are best set up when the priorities of development are related to the dispersal of industries from metropolitan centres and to the diffusion of economic activities for redressing the regional inequalities. One of the pre-conditions for the establishment of industrial estates in small towns is that they should possess a certain minimum development of infrastructure: water, power, communication, transport and the like.

3) Industrial Estates in rural areas:

The main objectives of industrial estates in rural areas are rural industrialisation and provision of alternative employment opportunities to seasonally unemployed agricultural workers. In some cases, the rural industrial estates may also be set up to support a traditional craft or skill by providing such assistance as may be necessary. Selections of rural areas have to be done carefully with proper consideration after understanding the rural economy.

C) On the basis of Sponsorship:

1) Government Industrial Estates:

The government sponsored industrial estates are the norm in most developing countries. It is so because the picture of uncertainty, weak enterprise and absence of capital resources can be counteracted in such countries only by the intervention of government agencies and organisations. Again, government has the necessary risk

bearing capacity which makes possible the demonstration of the utility of industrial estates in a concrete form to the prospective entrepreneurs.

2) Private Industrial Estates

A private industrial estate is promoted by a private agency or an individual who may own the estate, the entrepreneurs being tenants. The owner performs the managerial and proprietary functions in most cases. The merits of private industrial estates are little known outside the western sphere. In the developing countries, private sponsorship of industrial estates has little active role to play.

3) Private assisted industrial estates:

A private assisted estate is operated by a private corporation. It is a compromise between the desire of the government that industrialists should construct estates on their own initiative, and the desire of the industrialists that the government should provide them with the necessary facilities to enable them to construct such estates. Co-operative Societies of small entrepreneurs called co-operative industrial estates will join hands to provide for themselves developed industrial plots, factory sheds and basic facilities such as water, drainage, roads, electricity, etc. at suitable sites and at economic costs. The reason for promoting industrial estates in the co-operative sector is to help individuals develop a co-operative institution by pooling their own resources. The intention is also to develop a sense of responsibility amongst the small entrepreneurs rather than dependency on the government for all purposes.

1.7 CRITERIA FOR SELECTION OF INDUSTRIAL ESTATES:

Industrial Estate is an important technique for the rapid industrialization. It has been a means of creating new opportunities, employment generation, increase in productivity, quality management, reducing regional imbalance and encouragement of small scale industries. Therefore, industrial estates have to be selected carefully. The main **criteria** for the selection of industrial estates are as under:

- ❖ Proximity to highway / railway Station / airport / sea port
- ❖ Proximity to city / town
- ❖ Proximity to adequate and dependable source of water
- ❖ Proximity to source of power
- ❖ Entrepreneurial qualities and resources of the people in and around the location
- ❖ Availability of skilled labour
- ❖ Access to telecommunication facilities
- ❖ Availability of social infrastructure like educational institutions, hospitals, etc.
- ❖ Proximity to market
- ❖ Proximity to the sources of raw materials

1.8 GUIDELINES FOR PLANNING THE INDUSTRIAL ESTATES:

The manual of Industrial Planning published by SIET Institute, Hyderabad offers the following *guidelines* for the planners and administrators in the developing countries in industrial estate planning:

❖ **Selection of Objectives:**

Careful selection of objectives of industrial estates is the first step in planning an industrial estate programme. In order to determine the objectives of industrial estates it is essential to understand first the socio-economic problems confronted by a region, and second, the planning goals and priorities which may be subsequently set up. The social and economic situation relevant for this purpose may be related to employment trends, per capita incomes, manufacturing components in a regional economy, balance of payments, resource utilisation etc. If the objectives are laid out independent of the main trends and needs of the community, the role of industrial estates in the total development efforts can neither be appreciated nor can their contribution and impact be felt. In such a case, the result is far from satisfactory for the growth of industrial estates.

In developing countries like India, the industrial estates are now being employed for fostering a healthy relationship between large and small industries; dispersing the industrial activities to backward, rural and semi-urban communities; and realising the economies of functional specialization in contrast with the initial objectives of promoting the small industries.

❖ **Pre-investment planning:**

After defining the objectives, the foremost question that needs careful examination is related to the location of industrial estates. Where should an industrial estate be located- in a place where it is likely to generate faster industrial growth or in a place where it may achieve economies in construction and land costs for the public

agencies? Locational aspects are the crux of success of industrial estates in any situation. An equally crucial question is in regard to the size of the industrial estates.

Similarly, there is the problem of infrastructure planning as related to the prospective industries for the industrial estates. The type of infrastructure that should be planned for an industrial estate (water supply, power, roads, etc) is largely governed by the nature of industries likely to be admitted and encouraged there. A great deal of attention is needed in the pre-investment stage in establishing a proper relationship between the availability of infrastructure and the industrial requirements of infrastructure.

❖ **Location of Industrial Estates:**

In any given region, the problem of location should be examined from the point of view of the-

- a) Prospective entrepreneurs or occupants of the worksheds in the industrial estate and
- b) Organisation sponsoring the estate

The former is mainly concerned with a place city, town or village which can offer basic infrastructure facilities essential for starting a unit, fulfill the human and material resource requirements, and provide adequate market opportunities. On the other hand, the interest of the sponsoring agency will be focused in a place where the prospects of effecting economies on public investments in infrastructure are greater, and it can expect to speedily attract enterprises for the industrial estate. Furthermore, it should be a place with minimal possibility of the investment remaining sluggish.

Thus, the place selected for locating an industrial estate should potentially be a 'growing place' i.e. a focal point for sub-regional growth and development where the combined tests of prospective entrepreneurs and sponsoring agencies can be met. The factors to be considered are:

- a) Population size of the centres and their growth rates
- b) Economic base covering employment and income aspects, and structural changes over a period
- c) Infrastructure base with particular reference to transportation, communication, power and water
- d) Regional setting

❖ **Size of industrial estate & identification of prospective industries:**

The determination of the physical size of the industrial estates is one the most difficult decisions to be taken by the sponsoring agency. The size of the industrial estates should be large enough to give advantage of the economies of development and construction to the sponsoring organisations without imposing undue strains on housing, commuting and traffic movement. Sometimes, size is determined on the probable optimum costs for infrastructure development. Similarly, identification of industries which are potentially suitable for an industrial estate is equally important. Without having an indication of the nature of industries that may be drawn to the industrial estate, the sponsoring organisations will neither find it possible to accurately estimate the size of the estate, nor feasible to take steps to properly plan the infrastructure base there.

There are two main complementary approaches viz demand and supply, which constitute the crux of the problem of determining the size and potential industrial structure of the industrial estates.

a) Demand approach:

The size of an industrial estate is basically a function of the demand for organised industrial space. This relates to the existing demand for industrial space as well as future demand estimated to materialise within a reasonable time period. The demand for space in the industrial estate can originate from two main sources:

- a) re-location of existing industries in the industrial estate with their expansion programmes and possibilities; and
- b) new industries likely to be drawn to the industrial estate in course of time.

Relocation of existing industries in the industrial estate is a widespread need because industries in cities and towns operate under extremely congested conditions. As a result, these industries cannot grow or expand. Their relocation constitutes a major source of demand for industrial space in any situation.

Identification of new industries for purposes of estimating the demand for space is another issue to be considered. The sponsoring organisations must recognise the special role of new industries in areas where the sector of existing industries is small or non-existent.

In order to estimate the demand for space resulting from the relocation and expansion of existing industries, a comprehensive survey and analysis of these industries in a

region is to be undertaken by the sponsoring organisation. The Survey should cover the following aspects:

- a) Identification of the industrial establishments, present location, name of principal products manufactured
- b) Land and buildings – area, floor space, space used for different purposes, condition or age of buildings
- c) Employment
- d) Capacity and production
- e) Utilities and services – present consumption levels of water, electricity, gas and other fuels, disposal of effluents, intra – transportation, adequacy or otherwise of utilities and services
- f) Future plans of expansion.

This Survey will serve the purpose of:

- a) determination of the approximate distribution of industries by size and type
- b) assessment of the extent of interest in relocation to the industrial estate by the existing industries
- c) aid in estimating demand for space from existing industrial establishments desirous of relocation
- d) assessment of existing and future standards of infrastructure use
- e) determination of the condition of buildings and need for replacement
- f) determination of the need for and nature of special facilities in the industrial estate
- g) gain knowledge on the future production plans of industries intending to relocate in the industrial estate.

The next major source of demand for space related to identifying new industries for the industrial estates is more difficult, which is possible by two methods. The first method is by interviewing the 'prospective entrepreneurs' who show interest in starting industries, and as evidence of their interest, formally register with the Local Planning and Industries department for some form of assistance for starting industries. The second method for identifying new industries is to make a study of the industrial potential in the area/region. This involves complete inventory of human as well as material resources available in the area and assessment of resources which can be brought from outside. Again, an analysis should be made of existing and potential demand for manufactured goods within and outside the region that might be met competitively from industrial enterprises to be located in the area. Based on the analysis of resources, demand and infrastructure equipment of the region, recommendations on industries which are found feasible and desirable, should be made.

The pre-investment phase of investigation holds the key for important decisions on the prospective industries and size of industrial estates.

'Resource Analysis' and *'Analysis of Demand'* are the two methods which will help the sponsoring organization. Resource Analysis is a detailed analysis of resources useful in manufacturing which are available in the area or which can be imported at reasonable cost. The purpose is to determine the presence or absence of specific kinds of resources required in different lines of manufacturing and to ascertain their quality, quantity and probable costs. The main thrust of the investigation should be to find out what the resources are, the extent to which they are being utilised at present and what are the probable future trends in the development and utilisation of these resources.

Analysis of material resources as well as human resources is required. The information should be in respect of the following material resources:

- a) Agriculture resources – production, utilisation and prospective availability
- b) Livestock resources – present and potential availability and utilisation
- c) Marine resources – present supply and utilisation, and future prospects
- d) Forest resources – present production, utilisation and development
- e) Mineral resources – present utilisation and development schemes

Analysis of human resources is equally important in this investigation. One important step in analysing human resources is to study the supply of labour, noting specially the different kinds of skills that are available. It will also be useful to record the availability of special management and entrepreneurial ability.

Analysis of the demand trends is as important as the analysis of resources for an intelligent assessment of the scope of industrial development in an area. There are two main types of demand – internal and external – which will have to be investigated by the sponsoring organisations for getting a total picture

Broadly speaking, the sectors that should be contacted for gaining leads on internal demand are individuals, industry and trade, and government or public agencies. Information on current purchases with quantities and prices, extent of unsatisfied demand, and the competitive situation will be most instructive in assessing the existing demand. Exports should be analysed to ascertain what types of manufactured goods are now being exported from the area, to what outside markets, in what quantities and, at what prices.

From an analysis of the data of existing demands and past trends, it will be possible to ascertain the future trends in the purchase of manufactured products. The principal tools for obtaining information on the current state of demand for various kinds of manufactured goods are studies and reports made by different agencies, direct observations and interviews.

When the analyses of resources and demand patterns in an area have been completed and a list of candidate industries drawn up, there are three main tasks for the sponsoring organisations:

- to screen the list of candidate industries and remove those which will be clearly disadvantageous for location in the industrial estate
- to roughly estimate the space and infrastructure requirements of the candidate industries suitable for the industrial estate
- to estimate the gross size of the industrial estate based upon the ratios of manufacturing to non-manufacturing uses.

The first task can be achieved by applying several tests and particularly the criterion of performance characteristics; while for the second task; the sponsoring organisations will have to form judgements on the basis of available information from the existing industries. The third task needs an elaboration; - the analysis of existing and prospective industries will provide to the sponsoring organizations, estimates of demand for manufacturing space. To this will have to be added non-manufacturing space which includes management properties and on property infrastructure. The ratios between the manufacturing space and management properties differ from situation to situation but it is now believed that management properties including the

infrastructure property should vary between 30 and 35 percent of the total area of the estate. By applying this ratio, gross size of the estate can be determined.

c) Supply approach:

This approach is complementary to the demand approach. The essence of this approach is that the developing countries will hardly attain a stage, at least within a short period, when the basic ingredients required for setting up an industrial estate, or for that matter any development project, will become available in adequate quantities. So, even when the size of a industrial estate has been systematically determined after analysing the demand for space in a particular time-frame, this will be subjected to close scrutiny from the supply angle. In any location or place that may have been chosen for putting up an industrial estate, there will be limitations such as the capacity of infrastructure development to expand beyond a certain point or restricted workers' housing (physical), non- availability of certain items of building materials (material) and limitations of capital or higher costs of land development and construction (financial). The danger which the sponsoring organisations should avoid is the total reliance on the supply approach for determining the size of the industrial estate. There should be a relationship between demand and supply of space, infrastructure, etc. otherwise the sponsoring organisations will find it difficult to restore any balance between the two at a later date.

The compromise perhaps is in striking a balance between what may be desirable (demand) and what is feasible (supply)

❖ **Physical planning considerations:**

Physical planning refers to a positive, forward looking approach to the development of an industrial estate. It is synonymous with a comprehensive plan of development whose basic canons are efficiency, economy, flexibility and attractiveness.

The physical plan does not end up with resolving the different issues of economy, efficiency and flexibility. There is an even greater challenge for the sponsoring organisations in incorporating the various interests and influences-particularly of the future occupants of the estate, sponsoring organisations and the community – in a single physical plan of an estate.

The physical planning requires a close synchronisation of time and phase, absence of which would result in waste of time and money. Such precautions are part of the work of the sponsoring agencies.

There are several aspects in physical planning and development of an industrial estate.

The **five** main elements which form the crux of physical planning are as under:

- a) Criteria for Site Selection
- b) Land Use Planning Considerations
- c) Design Criteria and Architectural Controls
- d) Zoning and Performance Standards
- e) Utilities Planning and Engineering Considerations

a) Criteria for Site Selection:

The pursuit for an appropriate site for establishing an industrial estate starts immediately after its location within a particular region has been determined in

accordance with the broader considerations of area and regional planning. In order to select the best site from a number of choices, it is necessary to establish criteria from the standpoint of, industrial benefit and physical and spatial attributes. Industrial benefits accruing from sites are broadly understood in terms of accessibility and availability of community services, while physical and spatial attributes are related to the land costs, expansion potentialities, soil bearing capacities, gradient, etc. It is necessary for the sponsoring organisations to come to grips with these criteria.

Industrial benefit is discussed under the heads of accessibility and availability of community services. Proximity to labour supply, business and marketing centres and availability of public transportation are the main factors to be considered by the sponsoring organisations for determining the appropriateness of the site from the accessibility point of view.

Information on the following points is useful for the sponsoring organisations:

- ❖ Location and distances of residential areas (particularly low income group) from the candidate sites for industrial estate
- ❖ Location and distances of marketing and commercial centres from the candidate sites for industrial estate
- ❖ Main transport media for workers, and goods and services, approximate expenses and time involved, transport bottlenecks, etc
- ❖ Possibilities of construction of housing colonies close to the site.

Information on these points will help the sponsoring organisations in ranking the sites from the point of view of accessibility.

The availability of services such as electricity, water and sewerage is equally basic to the siting of an industrial estate. Availability of services has to be judged in terms of distance and adequacy of existing service lines. Evaluating the sites on the basis of this criterion opens up possibilities of either making use of the existing service lines, or laying the new ones to meet the demands of the industrial estate. While making a fuller use of the existing power transmission lines, water or sewer pipelines is an economic proposition, care should be taken to see that these service lines have adequate capacity to meet the demands of the industrial estate. While making a fuller use of the existing power transmission lines, water or sewer pipelines is an economic proposition, care should be taken to see that these service lines have adequate capacity to meet the demands of the industrial estate for a reasonable period of time. It is also necessary for the sponsoring organisations to watch the operating costs of the existing service lines which, because of age and depreciation, may become prohibitive and uneconomical for further operation. The laying of new service lines has the advantage of satisfactorily meeting the present and future needs of the industrial estate. The initial investments, however, are very high which, in several cases, may not be possible for the sponsoring organisations to provide.

The sponsoring organisation should follow the following *steps*:

- ❖ Find out the existing loads, demands and capacities of the service lines mainly of water, power and sewerage
- ❖ Estimate the annual operating costs and other annual charges
- ❖ Estimate the existing and future requirements of different services as a consequence of the industrial estate
- ❖ Estimate the annual charges and operating costs of the new lines and

- ❖ Determine the suitability of sites on their capacity to meet the existing and potential demand of services, and on the basis of annual costs involved. Thus, the above steps involve engineering cost considerations.

The two major considerations as a part of the physical and spatial criteria for site selection are:

- Cost of Land
- Cost of Land development.

As a rule, a site entailing prohibitive costs should not be selected. Load bearing capacity of the soil has an impact on the foundations cost. The sponsoring organisations considered that the advantages of location near the city were far greater as against the disadvantages of setting up the industrial estate away from the city. It has been the experience that the cost of land in an outlying area is generally low, but if the site, even though inexpensive, is inaccessible for workers and industrial firms, there is practically no justification for selecting it for the industrial estate.

The second consideration is the cost of land development which directly refers to the physical attributes of the site. In general, a potential site should be level or capable of being leveled at reasonable cost. This means that the gradient of the land should not exceed a reasonable percentage. Further, the lands should have reasonable load bearing capacities to permit machine foundations without committing extra expenditure. The lands should not be subject to inundation. The relative costs of development imposed by these physical conditions are important to be evaluated by the sponsoring agencies.

The sponsoring organisations should equip themselves with the following technical details on the different candidate sites:

- ❖ Expansion possibilities of the site
- ❖ Extent of land alteration necessary for achieving homogeneous development
- ❖ Gradient of the land
- ❖ Soil bearing capacity
- ❖ Drainage system

❖ **Wind directions**

Each of these elements is important in its own way. Preference should always be given to sites where the expansion of activities related to the industrial estate becomes possible at a later date. Preference should always be given to sites where the expansion of activities related to industrial estate becomes possible at a later date. In view of capital scarcities in the developing countries, sites with higher grades or low load-bearing capacities, or requiring extensive land alterations will involve large financial outlays and, therefore, should not be given preference. Likewise, wind directions are important to know in order to protect the city from smoke, noxious odours, etc

Thus, site for an industrial estate should be selected on the basis of industrial benefit and physical and spatial attributes. Industrial benefit can be judged by,

- accessibility of the site to the sources of market centres, and the supply of labour, raw materials, etc. and
- availability of community services. Physical and spatial attributes are related to the cost of land and cost of land development. General principles are that

the lands should not be very expensive and they should possess such attributes which will make their development easy and cheap.

❖ **Land Use Planning:**

After the selection of the site for an industrial estate, the next task for the sponsoring organisation is to prepare a land use plan or a layout for the proposed site of the industrial estate. The preparation of a layout involves sub-division of land for different uses according to their requirements. It also implies physical arrangement of different uses so that there is efficiency in space use planning.

The main purpose of land use planning for an industrial estate is to achieve maximum efficiency in the use of space. This can be achieved when there is a proper physical disposition of the various land uses, and when the space requirements of the prospective occupants and management are met as fully as possible. The requirements of prospective occupants and management are related not only to the amount of space and utilities, but also to the circulation system, loading and unloading facilities, parking, etc.

Thus, a layout for an industrial estate includes the total physical arrangement of the various uses viz road system and the areas under work sheds, community facilities, open spaces, parking, loading and unloading amenities, garages, etc.

Layout planning should be based on the following *principles*:

- Layout should permit prospective tenants a choice of size and type of sites to meet their specific requirements
- Layout should provide for an economic land use, the basis of which should be the ratio of area under factory plots to the total area of the estate.

- Layout should provide for maximum flexibility within the framework of an orderly development.
- Layout should permit development and construction in progressive stages, keeping in mind future needs and expansion.

Thus, the layout is primarily dependent on the needs of the prospective tenants and the types of products they will be manufacturing in the industrial estate. It includes,

❖ Space requirements

- i) Production purposes: open and covered
- ii) Storage purposes: open and covered

❖ Major production processes

- i) Infrastructure characteristics
- ii) Performance characteristics

❖ Size of labour force

When the sponsoring organisations have obtained information on the above points, there will be three alternatives open to them for grouping the industrial activities in the estate. These alternatives are:

- Grouping according to space requirements i.e. industries having similar spatial characteristics should be sited as a group or in a block,
- Grouping according to infrastructure requirements i.e. industries having identical infrastructure characteristics could be grouped so that there is economy in extending service lines or in providing loading and unloading facilities on the premises of the estate, and

- Grouping according to performance characteristics i.e. industries having similar performance can be clustered so that there are no conflicts in the different industries.

The final decision of the sponsoring organisations should rest on the classification of industries and how their clustering can result in efficiency and economy. This is the first basis for preparing the layout of an industrial estate. What different sizes of plots should be made available in an industrial estate will depend on the range of space requirements. It is economical not to have many sizes otherwise; the economies of standardization are lost to the sponsoring organisations.

❖ **Non-manufacturing use in layout planning:**

Once the sponsoring organisations have the broad picture of the needs and characteristics of prospective industries in terms of space, infrastructure and performance, and taken the decision to group them in a particular way, the next consideration before them is to determine the area under non-manufacturing uses. This area is not a residue after providing for manufacturing space. It is a definite relationship with the manufacturing space, and other requirements like infrastructure, parking, loading and unloading, etc. It also has economic implications since this area is not rentable, maintenance of which is the total responsibility of the estate management. So, the area under non-manufacturing uses has to be carefully assessed and provided for in such a manner that there is no over-investment in these facilities and services. The area under non-manufacturing uses should be kept as low as possible, without affecting the efficiency.

❖ **Circulation System:**

The most important non-manufacturing use in an industrial estate which needs careful attention is the circulation system. Besides the most frequently repeated statement that roads should be arranged as to provide adequate access to all buildings and facilities, and should form an efficient system of communication among different parts of the estate, there are no specific recommendations on planning a circulation system for an industrial estate.

In India, roads in industrial estates have been classified as a) main or arterial; b) secondary; and c) service. In the opinion of the Central Small Industries Organisation (CSIO), land width of the roads must not be less than 30 feet, except for small and rural estates.

❖ **Parking:**

An efficient circulation system essentially emerges from the overall transportation plan which incorporates movements and stoppages. To absorb the stoppages, parking space has to integrate with the intra-estate circulation system. There is absence of judicious allocation of parking area for vehicles. In order to earmark and locate parking space, the sponsoring organisation should consider the following points.

- a) Vehicle mix
- b) Loading and unloading bays
- c) Idle parking including garages

In order to determine the requirements of parking spaces for individual units, information on the system of employee commutation, income level of workers, staff structure, and magnitude of transport-oriented industries will be useful for the sponsoring organisations.

❖ **Off – street loading:**

Allocation of land should be made for off-street loading and unloading. The loading and unloading bays should be so located as to cause minimum traffic obstructions on the road.

As far as other uses such as administration, bank, post offices, and workshops are concerned, they should have a central location and easy accessibility. Estate facilities like canteens and workers' rest places should be so located that these are within walking distance from the farthest points.

❖ **Design Criteria and Architectural Controls:**

Design criteria and controls are an extension of the principles of layout planning. These are primarily concerned with the organisation of individual buildings and structures in an industrial estate.

The sponsoring organisation should consider the following aspects of design and control:

- a) Ratio of covered space to total plot sizes – determination of floor area ratios, number of storeys, etc.
- b) Orientation of individual plots to light, noise, etc.
- c) Selection of architectural controls for ensuring an order and unity in the design of the industrial estate.

The design efficiency of an industrial estate is determined as much by the ratio of plot area under worksheds to the total area of the estate as the extent of coverage within the plot itself. There are no established methods of determining the extent of plot coverage but certain very general principles like the lot to be kept sufficiently open

for space for uncovered yard areas, parking; landscaping, expansion, etc. provide guidance to the sponsoring organisations in this matter.

One possible way of approaching the problem is to determine the net density of workers for different categories of industries. The comprehensive city plans, wherever prepared, stipulated optimum densities for light manufacturing and heavy manufacturing zones, and guidance from these plans can be sought by the sponsoring organisations. Orientation in factory buildings is a critical design factor. Since adequate and uniform light distribution in the workshop area is necessary and exposure of long walls to severe heat and glare is to be avoided, a north orientation would best satisfy all these requirements. But a rigid adherence to this rule might result in wastage of land space and also cause difficulty in circulation.

Landscaping is also an integral part of the total design of an industrial estate. It includes consideration of the geological and soil features and climatic conditions of the area.

The main aim of architectural control is to bring about an order and unity in the physical design. It can bring in economies of standardisation and mass production in terms of design of buildings and use of components like doors, windows, etc. kind of controls depend upon the size and shape of the industrial estate.

❖ **Zoning and Performance Standards:**

The concept of zoning is associated with the mechanism which will protect the residential areas from being encroached upon by other uses, particularly the industrial

uses. Today, zoning is used as a device to make optimum utilisation of land. It is an effective tool to protect the industrial estate property. Zoning brings about an integrated development in an industrial estate by separating the conflicting uses, and synthesizing the complementary land uses.

As far as zoning regulations are concerned, there are two types of regulations, i.e. local zoning regulations and the intra-estate zoning. The local or the city zoning ordinances are generally framed and issued by the municipal authorities, which are applicable throughout the area of their jurisdiction. Industrial Estates form a part of the area which is classified as 'industrial zone'. In the absence of zoning regulations for a city, industrial estates become a separate zone by itself.

Intra – estate zoning regulations are related to the entire gamut of activities in an industrial estate. These are concerned with the use of property, admission of industries to the estate, architectural designs and materials, height of structures, building setbacks, landscaping improvements and maintenance.

Some instances from the intra estate zoning ordinances are as follows:

- All property in the estate shall be used only for specific uses which may be industrial, manufacturing warehousing, and certain service type activities related to the estate. Use of estate property for residential purposes (except for watch and ward and other emergency staff) may be strictly prohibited.
- Whether an industry or business is objectionable and shall be refused admission because of excessive emission of smoke, dust, noise, glare, odours, fumes or vibrations shall be determined by the sponsoring organisations.

- Occupant industries shall not be permitted to use any of their land or premises for manufacture storage, distribution or sale of materials or products that will depreciate the value of estate property, or for any purposes which constitute a nuisance or hazard.
- All buildings in the estate shall be fire-resistant, and constructed of acceptable materials, in conformity with municipal or local building codes.
- No improvements shall be erected, placed or altered on any building in the estate until the improvement plans, specifications and plot plan showing the location of proposed improvements have been submitted and approved by the estate management authorities.
- No structures within the industrial estate shall exceed 45 feet in height, measured from the average elevation of the finished lot grade at the front of the building to the roof line.
- Front yards of building sites shall be maintained in grass. Suitable plants shall be provided and maintained in front of the building or incorporated in the architecture of the structure. These zoning regulations should be framed by the sponsoring organisations at the time of the land development.

❖ **Utilities planning & Engineering considerations:**

Once the layout of a proposed industrial estate is prepared taking into account the design criteria and zoning regulations, the next step for the sponsoring organisation is provision of utilities and construction of buildings. The utilities which require detailed planning are electricity, water, sewerage and drainage. The sponsoring organisation should ensure that the utilities planned for an industrial estate will be adequate to meet the increasing consumption needs of a growing number of industries and other

consumers at least for a reasonable period of 15 years. The timing of providing these services is also one of the main concerns of the sponsoring organisations.

❖ **Water supply system:**

An industrial estate can draw its supplies of water either from the city system, or plan its own independent water supply and distribution system. In the former case, i.e. when water supplies can be drawn from the city system, the problem to confront is only of distribution. The costs involved are of similar magnitude. However, since industrial estates are generally planned away from the city, it requires examination if a separate system should be planned for the estate; Investigations are to be done with respect to the following issues:

- Search for the catchment area if there are rivers, streams or lakes
- Analysis of the properties of water with particular reference to acidity, hardness, alkalinity, etc.
- Determination of the size of primary conducts which will carry water from the source to the reservoirs and from the reservoirs into the distribution system.
- The size of the reservoirs

Cost estimates for each of the major works involved should be separately worked out. Where economically feasible, “ring” system of mains should be preferred to reduce the supply interrupt caused by pipe breaks, to enable sections of mains to be shut off for maintenance, and to prevent pressure drops when users at different positions on the line are drawing water at the same time.

❖ **Sewerage and drainage system:**

The first step in planning a system for efficient removal of sanitary and fluid industrial wastes, storm water is to determine whether a “separate” or a “combined” system will be suited for the area where an industrial estate is to be established. In order to determine this, information on the average slope, gravity flow and excavation costs will be necessary to be collected. Total run-off and rate of run-off of storm water also needs to be determined.

The engineering works in this respect will consist of:

- The sewerage network
- Storm drainage network and
- Collection and discharge system.

❖ **Power supply and distribution:**

Power supply and distribution system for an industrial estate is of great importance, and particular attention should be given to its adequacy reliability and safety. The sponsoring organisations will need to have information on the load characteristics, including required voltage level, resistance losses, and load factor; distance to consumers which is reflected in the spatial density of consumer loads, and estate layout; and economies of scale and diseconomies in substations load capacities should be so planned as to be susceptible to increases with a minimum amount of alterations. The main costs involved are transmission lines, switching station, and distribution cables.

❖ **Roads and streets:**

The major civil engineering works to be undertaken in developing an industrial estate are the roads and streets. In order to determine the most practical and efficient road characteristics, it is necessary to know the “peak load conditions” so that the requirements of 15-20 years are taken into account.

Information required for designing the road is as follows:

- Vehicle traffic volume – whether each sector in the estate will generate the same amount of vehicles
- Consumption of traffic between trucks, passenger vehicles, etc.
- Minimum and maximum speed, lateral sight distances, bearing capacities, turning radius for different kinds of vehicles for designing the traffic lanes.

The roads should be so designed and constructed that they have the advantage of low maintenance costs; long life expectancy; and high salvage value for future resurfacing. The cost estimates should be made separately in respect of excavation stabilization, materials, and base.

❖ **Estate Management:**

There are three forms of estate management:

- Direct management and supervision by the Government
- Management by the autonomous or semiautonomous organisations
- Co-operative management

The functions of the industrial estate management can be grouped into two needs:

- Administrative functions
- Promotional Functions

The functions under the first category are related to day to day administration of the estate, and comprise a host of activities like payment of taxes collection of rents, administration and maintenance of roads, power, water, sewage, canteen, etc. As a part of administrative function, the estate management negotiates sale and lease agreements examines and approves proposals for alteration to buildings, and exercises controls to ensure that conditions of tenancy and restrictive covenants are kept.

The promotional functions of the estate management have two aspects. The first aspect is related to the maintenance of common workshops, tool rooms, extending technical and managerial assistance and raw material depots. These are directly connected with production or manufacturing in the estate. The other aspect of great significance is concerned with formulating dynamic policies on admissions and occupancy, subsidies and incentives, sales promotion, market intelligence, etc. These functions have long term impact on the growth of industrial estates, and it is essential that the implications of the policies are properly grasped.

❖ **Admission and Occupancy Policies:**

Admission and occupancy policies in an industrial estate are generally governed by the regional or national industrialisation objectives, the likely industrial composition of the estate, and the zoning and other regulations. Admission is often influenced by policies aimed at maximising employment.

The broad *principles* to be followed in admission to industrial estates are as follows:

- Industries which use modern techniques and manufacture products which aim at substituting imports and increasing exports, and which are otherwise beneficial should be given first preference

- Technically trained young men who wish to set up small industries should be given special preference in the allotment of sheds
- Composite industrial units which result in inter-dependence should be given preference.
- Preference should be given to the industries manufacturing different products rather than two or three industries producing the same product.

Thus, the estate management's policy on admission should be so formulated that without sacrificing the basic objectives of the industrial estate, more and more industries are attracted there.

❖ **Sale and Lease Policies:**

The relative merits of selling factory sheds or leasing them to occupant industrialists depend on various factors such as,

- Objectives of the sponsor
- Cost of land and its development
- Ownership of land
- Trend in property values
- Financial resources of estate sponsor as well as of occupants

The main advantage to the estate management of outright selling is the quick turnover of funds invested and the possibility of reinvesting the same funds in a wider or expanding programme. On the other hand, leasing has relatively greater advantages both for the sponsor and the occupants. It provides continuing interest of the sponsor in the expansion of the estate and integration of the facilities and progress of the tenant firms, and facilitates the entry of occupants to the estate on favourable terms.

The weighing of the relative advantages in each of the two patterns rests with the estate management.

❖ **Fixation of Rent:**

Rent fixation is one of the difficult jobs for the management.

There are no uniform patterns in fixing the rents. In India, the formula for fixing the rent is as follows:

- The cost of the entire land acquired for the industrial estates plus the actual development cost should be included in the capital cost
- The following buildings are considered rentable buildings:

Canteen, Post Office, Bank, Factory buildings

- The following buildings are considered to be non rentable buildings, the cost of which should be added to the capital cost on the basis of which the tenants of the industrial estates should be charged rent:

Administrative buildings, Recreational buildings, First Aid post, Power Supply Service Station, Quarters for essential staff

- The development cost should include,

Internal Roads, Sewage disposal and Septic tanks, water supply, electrification, power lines, streetlights, railway siding, railing siding centers.

- The capital cost of an industrial estate should comprise the following items:

Cost of land, cost of development, cost of non-rentable buildings, and cost of rentable buildings.

- The economic rent should be calculated by dividing the total of the following items by the total covered area of the rentable buildings

Interest at the rate of 4 ½ % on the total cost Maintenance and administrative charges at actual Taxes to be paid, if any

In India, the extent of subsidy on rent is determined in the case of each estate on the basis of local circumstances and competitive market rate. Usually, this system results in rent differentials between metropolitan centres, urban centres and semi urban or rural centres. The main thrust of the rental policy should be on evolving a formula under which the industrialists will find it economical to occupy the factory sheds in the estate and the sponsoring organisation will be able to recover its capital in a reasonable time span.

1.9 INDUSTRIAL ESTATES IN GOA

Goa, established on May 30, 1987, is one of the coastal states in India. One of India's smallest states, it is bounded by the states of Maharashtra on the North and Karnataka on the East and South and by the Arabian Sea on the West. The capital is Panaji, on the North Central Coast of the mainland district. In terms of the geographical area cover Goa is the smallest state in India and has a total area cover of 3702 square kilometers. Also, a total population of 14,57,723 (2011 census), makes it the twenty-fifth most or fourth least populated State in India. Having the highest per capita GDP amongst all Indian States, Goa exhibits a strong economy and is the richest of all Indian States. According to a study conducted by the Rajiv Gandhi Institute for Contemporary Studies and the Confederation of Indian Industry, Goa's industry is ranked fourth in the country. Goa is the fourth best industrial state in the country and one of the top favoured destinations for industrial investment.

Goa comprises of two districts namely South Goa and North Goa. Each district has 06 talukas. Of the 12 talukas, 07 talukas have been designated as backward talukas viz Pernem, Sattari, Sanguem, Quepem, Canacona, Bicholim and Dharbandora.

Before the liberation, Goa's economy was mainly based on agriculture and to a large extent on the mining industry. Industrial activity in Goa was basically an offshoot of mining industry. However, after Goa's liberation due to various steps taken by the Government, the industrial scenario has undergone a vast change. Soon after the liberation, the concept of 'Planned Industrial Development' was introduced and a Planning Board was constituted.

Offices of the Small Industries Service Institute, Maharashtra State Financial Corporation were opened in Goa. The National Small Industries Development Corporation extended its services to Goa and the Directorate of Industries was also activated. Subsequently, financial institutions like the Industrial Development Bank of India (IDBI), the Industrial Finance Corporation (IFC) and the Small Industries Development Bank of India (SIDBI) established offices in Goa. Recognizing the importance of the existence of physical infrastructure in accelerating the pace of industrial development, the Goa, Daman and Diu Industrial Development Corporation (GDDIDC) was established in February 1966 under the provisions of Goa, Daman and Diu Industrial Development Act, 1965 with the aims and objectives of securing and assisting in the rapid and orderly establishment of industries in Industrial Areas and Industrial Estates in Goa.

1.10 GOA INDUSTRIAL DEVELOPMENT CORPORATION

The Goa Industrial Development Corporation (Goa-IDC) was established on 11th November 1965 by the Government of Goa to achieve the balanced industrial development of the state

of Goa with the emphasis on developing Industrial Areas / Estate throughout the state and providing facilities for setting up industries at various locations.

The Goa-IDC, a state owned corporation, is carrying out the activities within the framework of the GIDC Act, Rules and Regulations. These activities can be divided under three broad categories:

- ❖ Acquisition and disposal of land
- ❖ Provision of Infrastructure facilities
- ❖ **Providing of Services**

The Land for Industrial Estate / Area is acquired through the Government of Goa under Land Acquisition Act. Likewise, wherever available, Government land is also handed over to the corporation as an Industrial Area.

The Corporation is required to provide infrastructural facilities like Roads, Streetlight, Drainage, Water Supply and Buildings and common facilities like Post and Telegraphs, Canteen, Bank, Telephone Exchange, etc. to enable a prospective industrialist to establish his industry with ease and speed. Since the aim of the Government and the Corporation is to achieve a balanced development of the entire State of Goa with special emphasis on the development of backward Talukas of the State, the Corporation follows a policy of cross subsidization rate structure wherein the rates of land premium in developed and semi-developed areas are higher compared to the rates in backward areas.

The Corporation has set up 20 Industrial Estates. These estates house around 1500 operating industrial units over an utilized area of around 10 million sq.mt. The

Government has firm plans for the expansion of eight existing industrial estates in the talukas of Salcette, Mormugao, Canacona, Pernem, Bardez, Tiswadi, Ponda and Bicholim. The Government also proposes to set up 04 new industrial estates in Bicholim, Tiswadi, Dharbandora and Canacona talukas. The Government is in the process of acquiring approximately 3.3 million sq.mt lands for these new industrial estates and expansion of existing industrial estates.

1.11GOA INDUSTRIAL POLICY

The State of Goa envisages catalyzing economic growth through accelerated industrial development. The mission is to create sustainable employment opportunities mainly to the local people of Goa. It also includes environment friendly industrial development ensuring balanced growth of regions, a facilitative regime that explores and unleashes the energies of the private sector to create an environment in which existing and new industries can prosper.

The Industrial Policy, has been formulated by the Government with the view to achieve overall economic growth of the state through accelerated industrial development. The policy focuses on the creation of sustainable employment opportunities for the people of the state.

The mission of the Industrial Policy of Goa is to ensure accelerated industrial development, catalyze economic growth, ensure balanced regional growth, protect the environment and above all create sustainable employment to local youth of Goa. The Government of Goa recognises the need to kick-start investment in the Goan economy. The State has high potential due to the availability of a combination of port, rail, road and airport for efficient

logistics, and educated population, reliable and economical power supply and plenty water resources along with an excellent lifestyle and availability of social infrastructure.

The Government is committed to making Goa a destination for best-in-class, resource efficient industries by making running a business delightful and pleasurable, with processes that are efficient transparent and investor friendly. The Government is acutely aware of areas where improvements are required across the institutional and government framework and intends to make necessary changes in legislation to bring about these improvements.

To increase clarity and transparency in allocation of plots in the industrial estates, the Government has notified the Goa Industrial Development Corporation Allotment Regulations 2012. Further, to take back plots allotted to units but are non-operational, the Goa IDC Transfer and Sub-Lease Regulations, 2013 were notified. The Government is confident that with these two notifications, the clarity and transparency in allocation of plots will improve and land in the industrial estates will be freed up.

1.12 BACKGROUND OF THE STUDY:

From the preceding elaboration, it is clear that the industrial estates were established in India to promote the small scale industries. Industrial estates help the small scale units in the establishment, operation and management. The present study titled, “**Working of Industrial Estates in Goa: An Analytical Study**” is undertaken with the purpose of assessing the industrial estate programme in the state of Goa. It will throw light on the objectives of the industrial estate programme in Goa on the basis of its contribution to the economy of the state. The perceptions of the stakeholders of the programme are also taken into consideration

in the study. The stakeholders include the GIDC officials i.e. the Field Managers, Industrial Estate Association office bearers and the entrepreneurs whose units are located in the industrial estates in Goa. An analytical study is done on the basis of *five* parameters; Facilities, Infrastructure, Incentives, Benefits and the Challenges. The study also compares the working of the industrial estates in the South Goa and North Goa on the basis of the above parameters. Contribution of the industrial estates is also compared and analyzed district wise. Case studies of the two non-functioning industrial estates in Goa are undertaken in the study.

CHAPTER II

REVIEW OF LITERATURE

The concept of 'Industrial Estates' is studied by different scholars since 1960s. The study is also undertaken in different countries and states. The literature available on the industrial estates is very varied and hence it is difficult to put the studies thematically. Many scholars have attempted to study the different aspects of the industrial estate programme. These studies are as under:

2.1: Review of Literature

- ❖ **William Bredo** (1960) in his study has explained the concept of industrial estate in detail and also given guidelines for using it as a tool for industrialisation process. The study also highlights the advantages as well as the limitations of the industrial estate programme .
- ❖ **D.I Trotman –Dickenson** (1960) has done a study on the Scottish Industrial Estates. The study is related to the types of firms and the reasons, their views and opinions, their experiences with regard to the industrial estates. The data was also collected from the Government departments. The conclusion was that industries were encouraged to the industrial estate by offering various facilities by the government.
- ❖ **Dhar & Lydell** (1961) have attempted to analyse the Industrial Estate Programme. They concluded that an index of success of industrial estates is not based on the glamour for more industrial estates. However, their popularity is based on the fact that they ensure easy accessibility to raw materials in the regulated market. Further, the enthusiasm of

owning a unit in the industrial estate may disappear if scarcity of raw materials and power are relieved.

- ❖ **P.C. Alexander** (1963) has analysed the problems and prospects of industrial estates in India. He has found out that failure of the industrial estate is due to a wrong decision on its location and hence authorities should give proper attention to the planning aspects of the industrial estates. Proper planning will lead to success of industrial estates.

- ❖ **The Ministry of Industrial Development and Company Affairs** (1966) conducted a study on the industrial estates in India. The study involved various issues related to the industrial estates such as planning of industrial estates, time lag between the different stages of implementation of industrial estates, and effect of industrial estates on the growth of small industries. The study also highlighted the problems faced by the units in the industrial estates.

- ❖ **N. Somasekhara** (1966) studied the production function of the industrial estates in Mysore. It involved the estimation of the cross sectional production functions of the Cobb-Douglas type, for the seven industrial estates in Mysore. The conclusion was that generally the marginal productivity of the capital was almost zero for the small enterprises in the industrial estates.

- ❖ **The Directorate of Evaluation of the Government of Uttar Pradesh** (1967) conducted a study on the Industrial Estates Programme in Uttar Pradesh. The study found out that hill estates proved unsuccessful and were a failure. The reason was the non-consideration

of economic factors while establishing them. Bad location was the major reason for the lack of demand by the entrepreneurs.

- ❖ **Madhavan** (1969) made a study of the industrial estate programme in Tamil Nadu. His findings are related to the fact that in India and in most of the developing countries, industrial estates are mostly small estates. These small industrial estates are meant for the small units. The same is the case with Tamil Nadu. Further, the small industrial estates have acted as the nuclei for the future industrial development of the region.

- ❖ **Kalyani Bandyopadhaya** (1969) has analyzed the socio-economic factors of industrial estates. The study involved the reasons for setting up of industrial estates in both the developed as well as developing countries. Further, the assessment of the potentialities of industrial estates as a means of industrialisation in a developing economy like that of India is also undertaken.

- ❖ **Manickam** (1969) studied the physical planning of the industrial estates. The findings of the study are that the usage of the land area dimensions of the plot and the placement methods, which are the main parts of a layout plan, are not of efficient standards. Again, the analysis of land usage in the industrial estates showed a wide variation in the allotment of areas to different users.

- ❖ **P.M. Mathai** (1969) in his study has come out with the fact that the industrial estates are responsible for regional development. He has also revealed several inadequacies in the industrial estates such as lack of pre-planning and the absence of the required amenities in

the industrial estates. The conclusion is that while undertaking the regional development process the new estate planning must be included as an integral part.

- ❖ **Bureau of Statistics & Evaluation, Pondicherry** (1969) has prepared an evaluation report on the Thattanchavadi Industrial Estate, Pondicherry. The main purpose of the study was to find out the number of new entrepreneurs & their place of residence, mutual co-operation between the units in the estate, employment created, capital invested. Views of entrepreneurs are also taken on the working of the industrial estate. The conclusion is that the industrial estate has succeeded in attracting entrepreneurs, creating employment, providing facilities. The common problems faced are power shortage and raw material shortage.

- ❖ **Central Small Industries Organisation** (1970) has undertaken a study on 'Planning Rural Industrial Estates'. The study offers various guidelines to be followed while planning a rural industrial estate. The various points involved in the study are the methods of selection of location, sub-division of the plots, types of industries, incentives to be offered, facilities to be given and so on.

- ❖ **Om Prakash Mathur** (1971) analysed the problems and prospects of industrial estates. The finding of the study is that the programme of industrial estates is a failure. He has analysed the causes of the failure of the programme and also given various suggestions and directions to the planners and administrators to avoid the shortcomings and improve the future programmes.

- ❖ **K.V Prabhakar** (1971) made a study on the industrial estates in Mysore. He found out that there should be a strong relationship between the industrial estate programme and the general industrialisation programme. Promotion of ancillary and complementary units in the industrial estates would raise the effectiveness of the industrial estate and also strengthen their role in the industrial development of the state.

- ❖ **Nagaiya** (1971) has analysed the working of the industrial estates in India. He has studied the performance of the industrial estates in India and found out that the programme is successful in some states and unsuccessful in some other states. Further, he has highlighted various factors which determine the success of industrial estates. These are the presence of the entrepreneurs with technical and managerial knowledge, availability of raw materials, market availability, power supply, water supply, existence of large scale industries in the neighbourhood and so on.

- ❖ **Mathur** (1971) has given guidelines for the setting up of industrial estates in his manual of Industrial Estate Planning. The Manual gives the basic concepts of the Industrial Estates Programme and also gives the various steps to be followed for making it an effective tool for the promotion and development of industries in the developing countries.

- ❖ **S. Rama Subba Rao** (1971) has analysed the industrial estates in Andhra Pradesh. The study involves the assessment of the achievement of the programme, significance of the programme and problem of unutilization of capacity. The main conclusion is that the industrial estates programme provided the stimulus for the entrepreneurs.

- ❖ **The working Group of Industrial Estates** (1972) had done a study on the performance of the industrial estates in India. The group was very much convinced that industrial estates would be a successful aid to the development of small scale industries. However, proper care should be taken to remove the causes of failure of the programme such as faulty planning, absence of dispersal of industries, wrong location, and so on.

- ❖ **M.A. Oommen** (1972) has conducted an evaluative study of the industrial estates programme. His study brought to light the merits and the weaknesses of the programme. The findings of the study are that the programme has failed to achieve its objectives, the capital output ratio is very high, local raw materials have not been utilised and the contribution of the industrial estates to the income of the state is very negligible.

- ❖ **Chopra** (1973) has undertaken the study of industrial estates in the state of Rajasthan. The study includes the comparative analysis of the performance of the units located in the industrial estate and the units located outside the industrial estate. The study also involves inter industrial estate comparison and inter-location and inter-industry comparison within the industrial estate.

- ❖ **Kulkarni** (1973) has undertaken a study on the industrial estates in the state of Maharashtra. In this study, performance of the units in the industrial estates is compared with those units located outside the industrial estates. The major finding of the study is that the performance of the units in the industrial estates was inferior to the units located outside the industrial estates.

- ❖ **V.S. Kovjalgi** (1974) has studied the industrial estates in the State of Karnataka. The study brings out the fact that industrial estates were started in Karnataka with the objective of giving a help to the entrepreneurs whose basic problem was to accommodate his unit in a place with basic amenities like water, power, drainage and sewerage. All such facilities are available in the industrial estates in the form of a package.

- ❖ **N. Somasekhara** (1975) has analysed the effectiveness of the industrial estates in Mysore. A critical examination of the industrial estates is done based on the objectives of the programme and effectiveness of the programme is tested. The conclusion of the study is that the industrial estate programme in Mysore is not very successful. This is because the programme has not achieved many of the objectives for which it was started.

- ❖ **Palsapure** (1975) in his study has given the various reasons for setting up the industrial estates. The main reasons being fostering industrial development on the pattern of decentralisation and to relieve congestion in big cities. Major objectives of the industrial estates are to promote rapid development of the small scale industries and to facilitate the industrialisation of backward areas. Units located in the industrial estate can become complementary to one another.

- ❖ **Bhati** (1976) in his study has evaluated the industrial estates programme in detail. The major findings of the study are that the industrial estate programme had been successful in developing rural areas. However, despite higher demand, the utilisation of factory in the industrial estates remained at a lower level.

- ❖ **Indian Institute of Public Opinion, New Delhi** (1976) has undertaken a study on socio-economic evaluation of industrial parks in Tamil Nadu. The study found out various socio-economic benefits gained by the areas around the park. The benefits are generation of employment, investments attracted and the spread effects. The study suggested providing various facilities like medical, telephone, police station, housing and so on.

- ❖ **Kishore Kamal** (1976) in his study on the industrial estates in Haryana tested the effectiveness of the industrial estates at macro level. The study concluded that the industrial estate programme has failed in Haryana. The units located within the industrial estates are not efficient. The various problems faced by the units highlighted in the study are wrong location, absence of basic facilities and so on. Again, it was found that despite failure, the programme has sown the seeds of entrepreneurship and generated a industrial climate.

- ❖ **Reddy Subbi T.** (1977) has undertaken a study on the industrial estates in Andhra Pradesh. The study observed that the purpose for which the industrial estates were started is quite sound but the implementation is not done properly. Most of the industrial estates were located in and around towns and rural areas were neglected. Again the organisational models of the industrial estates were rigid and static.

- ❖ **Duraid Yawer** (1978) in his study has found out that the industrial estates are an important and successful measure of industrialisation and development of rural areas. Further, the industrial estates fetch an opening for employment. However, industrial estates need to be planned properly with proper location and provision of services and

facilities. If this is done then the industrial estates would help in industrialisation of the backward regions.

- ❖ **United Nations Industrial Development Organisation (UNIDO)** (1978) has given guidelines for the establishment of the industrial estates in the developing countries. This study has explained the concept of industrial estate, steps to be taken for the establishment and smooth running of the industrial estates, the conditions needed for the success of the programme and the role played by the industrial estates in the growth and development in the developing countries.
- ❖ **Pareek** (1978) has studied the contribution of the industrial estates in the development of the small scale industries in Rajasthan. The main findings of the study are that many existing industrial estates were yet not provided with proper amenities like roads, water, drainage, etc. construction cost of the sheds was very high. These limiting factors could not allow the growth of the industrial estates.
- ❖ **Bharati** (1978) in his study has pointed out the role of the industrial estates in a developing economy like India. He says that industrial estates occupy an important place in the industrial planning. Further, the industrial estates provide assistance to the small industries which are labour intensive and an effective instrument of industrialisation.
- ❖ **Nelson** (1978) in his study has provided very useful information for national authorities and agencies and technical assistance agencies. The information is regarding the planning and implementation of the industrial estates. He has also come out with various reasons for the failure of the industrial estates such as unrealistic nature of objectives, lack of co-ordination, lack of pre-planning, inadequacy of supporting institutions and so on.

- ❖ **J.E. Berryman** (1979) has studied the industrial estates in Queensland. He has drawn various conclusions such as government incentives attracting the firms; industrial estates have contributed to entrepreneurship; opportunities are provided to the entrepreneurs for expansion. However, the industrial estate programme has had no significant effect on the decentralisation of industries.

- ❖ **Sanghavi** (1979) in the study of working of the industrial estates in Gujarat has evaluated the working of the industrial estates in detail. The study throws light on various issues such as the size of the industrial estates, location, capacity utilization, efficiency, development of small scale industries and the impact on industrial dispersal and regional development.

- ❖ **Lavakumar** (1980) in his study on Ambattur Industrial Estate has made various observations on the small scale industries and their problems. The various problems faced by the small scale industries located in the industrial estate are high rate of plots, inadequate transport & housing facilities, erratic power supply, postal facilities and telephone facilities and non availability of raw materials.

- ❖ **Raman** (1980) in his study on the industrial estate in Tamil Nadu has highlighted the features of the industrial estate. The industrial estate possess various facilities such as excellent infrastructure, vast product market, huge hinterland, well connected rails and road, easy procurement of raw materials and availability of technical manpower.

- ❖ **Srinivasan** (1980) has highlighted the role of SIDCO in the development of the industrial estates in Tamil Nadu. He has observed that the industrial estates established in Tamil Nadu are fully equipped and are functioning well.

- ❖ **S.N. Bhattacharya** (1980) has advocated the role of industrial estates in developing the small scale industries. He has also highlighted various problems faced such as lack of marketing facilities, inadequate finance, lack of managerial capability etc. However, inspite of the problems, the industrial estates are considered important because they act as a bridge between industrialisation and urbanisation.

- ❖ **Prakash** (1980) has conducted a study on the mini industrial estates of Kerala. The study has come out with the various drawbacks in the implementation of the programme in Kerala. These are faulty selection of industries, wrong location, poor quality of project reports, and lack of space for expansion and hasty implementation of the programme.

- ❖ **N. Vijaya** (1980) has evaluated the performance of the industrial estate at Warangal and also studied the working of small units located in the industrial estate. The major findings are that the selection of the units by the estate authorities is faulty. This estate is an agglomeration of divergent enterprises unrelated to one another. The problems faced by the units in the industrial estates are lack of proper facilities, labour shortage, and underutilization of productive capacity of the working units. However, few units are very successfully running and have generated employment opportunities.

- ❖ **Ammakertty** (1980) in her study on the mini industrial estates in Kerala evaluated the estates in detail. She has also highlighted various issues such as availability of plots, types of entrepreneur's availability of facilities and services, and so on. At the end, she has suggested some modifications for the success of the mini industrial estates.

- ❖ **P. Seetha** (1981) in her study on the working of the industrial estates in Assam has come out with different issues faced by the units located in the industrial estates. The major findings of the study are that demand for sheds was more in urban industrial estates than in rural industrial estates. Another fact was that employment generation in the industrial estates in Assam was not as expected. Hence, the Government should take efforts to improve the efficiency of the industrial estates.

- ❖ **P.V.Krishna** (1981) has evaluated the working of Malappuram industrial estate of Kerala. This industrial estate is located in agricultural and backward district. The study concludes that Kerala government has developed mini industrial estates for the development of rapid industrialization, utilization of available raw materials, and provision of employment opportunities to youth.

- ❖ **Ramakrishna Sarma** (1982) has critically evaluated the performance of the industrial estates in Andhra Pradesh. The findings of the study are that most of the industrial estates are working far from satisfactory. Hence, industrial estate programme should be considered purely as an economic activity and politics should not enter in the area of the industrial estates.

- ❖ **Cunningham** (1982) in the study on the use of industrial estates in the industrialisation of Brazil has analysed its role. The findings of the study are that the industrial estates have been used as a promotional tool to attract foreign firms and stimulate inter-state development, and have contributed to urban land planning.

- ❖ **Vepa** (1983) has undertaken a study on the role of the industrial estate programme in the development of small industries. The findings of the study are that the aims of the industrial estate programme are to promote and develop small industries, decentralisation of industrial development, assisting the growth of ancillary industries and enabling small industries to shift from the congested areas to the estate premises in order to increase their productivity.

- ❖ **Pradhan** (1984) has undertaken the study of industrial estates of Orissa. The study is an inter-district analysis. The conclusion of the study is that the programme of industrial estates has been successful in the districts with a greater degree of urbanisation, the proximity of market, easy availability of skilled manpower. Thus, the industrial estate programme has been more successful in the industrially advanced districts. Hence the programme did not succeed in achieving its objective of decentralised industrial development.

- ❖ **Chattopadhyaya** (1984) has studied the performance of the industrial estates in West Bengal. The main findings of the study are that management of industrial estates was responsible for its inefficiency. It was possible to turn the industrial estates into a profitable and economically rewarding activity, if given the right lead. Further, the study also reported that the industrial estate programme had no effect on clearance of slums and urban congestion.

- ❖ **Nagayya** (1984) has made a study of the industrial estates and industrial areas in the less developed region of Marathwada in Maharashtra. In this study, a comparison of performance of the units in the industrial estates and the units outside the industrial estates was done. Performance was measured on the basis of various indicators. The conclusion of the study is that the units in the estates located in less developed regions put up superior performance compared to those in fairly developed ones.

- ❖ **I. Bhanu Murthy** (1985) has done a case study of Renigunta Industrial Estate, Andhra Pradesh. He studied the various problems faced by the units, root causes of the deficiencies and suggested various ways and means to strengthen the infrastructure. The conclusion of the study is that the units face various problems such as technical, managerial, administrative, and marketing. Hence Andhra Pradesh Industrial Infrastructure Corporation should play an active role in solving these problems.

- ❖ **Khakhar** (1985) has provided the precise steps to be followed in using the industrial estates to settle the issues of urban and regional planning. In his study he has also referred to the industrial estates of United States and United Kingdom. The reference is made to these countries for the purpose of highlighting the impact of different situations which occur due to the influence of market conditions or purposive use of public policy.

- ❖ **Dandia** (1985) has brought out the progress and development of industrial estates in Rajasthan. The various facts revealed were that the price of the plots is very high; transportation facilities are poor; erratic power supply and poor telephone and telex facilities. These difficulties hinder the growth of industrial estates.
- ❖ **Jaffar** (1985) has reviewed the performance and problems of industrial estates in Uttar Pradesh. This review was undertaken during the plan periods. The findings were that the allotment of plots in the industrial estates were not done properly; the units faced many problems such as high sales tax; toll barriers; erratic supply of power; lack of facilities and telephone network problems.
- ❖ **R. Narayan** (1985) in his paper on industrial estates in Bihar has highlighted various problems faced by the units in the industrial estates. These are poor infrastructure, bad shape roads, inadequate water supply, raw materials, and power. The paper concludes that these problems have led to the closure of the units. However, the state government has taken various steps to solve the above problems.
- ❖ **Jairam Krishnan** (1985) has studied effluent disposal problems in the Gujarat industrial estate. He observed that the industrial estate has set up an underground disposal channel, power supply and drainage supply. There is proper outlet for the industrial waste and the atmosphere is pollution free.
- ❖ **G.B. Naik** (1986) has undertaken a study on the working of industrial estates in Karnataka. In this study he has analyzed the infrastructure facilities and utilities available in the industrial estates and also analysed the problems faced by the estate and the units. The study is a micro analytical study. The main finding of the study is that infrastructure

facilities and utilities are satisfactory but needs upgradation. The problems faced are water, power, labour, raw materials, etc. These need to be addressed by the authorities.

- ❖ **Agarwal** (1987) has reviewed the progress and performance of industrial estates in India in general and Uttar Pradesh in particular. The various findings of the study are the role played by the institutions working for the development of the industrial estates; promotion of small industries; attracting new entrepreneurs; and generating employment. The role of industrial estates in industrial dispersal, balanced regional development and rural industrialisation is also highlighted.

- ❖ **Mehta** (1987) has analysed the progress of the industrial estates in Rajasthan. He has come out with the different features of the industrial estates in terms of form of organisations, capacity utilisation, sources of technology, infrastructural facilities available in the industrial estates and the role of the institutions providing the infrastructure. The employment generated and the working conditions of the employees in the industrial estates are also discussed in the study.

- ❖ **Meera Bai** (1987) has done an evaluative study on the working of the industrial estates in Kerala. The major findings of the study are that chemical based industries are more efficient than the other industries. The main reasons for the efficiency of the units are proximity to the industrial centres, availability of transport and communication facilities, pre-existence of local industrial base and raw material base, access to the markets.

- ❖ **Hafiz A. Pasha and Zafar H. Ismail** analyzed the industrial estates in Pakistan. The analysis is related to the determinants of success of industrial estates for small units in

Pakistan. The major findings of the study are that the success curve of the industrial estates is 'S' shaped. The industrial estates located in the districts of intermediate level of socio-economic development showed higher rate of success.

- ❖ **Firdouse Rahman Khan** (1988) has undertaken a study of entrepreneurial development in the industrial estates of Chennai. The study has analyzed the factors of entrepreneurship development. The findings of the study are that unimportant factors such as education, knowledge and training, do play a positive role in motivating most of the entrepreneurs today. Hence, the Government agencies and sponsoring agencies should look into these factors for encouraging the entrepreneurs.

- ❖ **Pon Murugan** (1989) has studied the industrial estates in Kanyakumari district of Kerala. In this study working of industrial estates and also the economic and social impact of industrial estates on the growth of entrepreneurship is undertaken. The findings of the study are that entrepreneurial development in the industrial estates is influenced by socio-economic factors; the various problems faced by the small units are land scarcity, shortage of raw materials, finance, labour, water, power, etc; absence of large scale units. Government should take note of the problems and try to solve the same.

- ❖ **N. Manimekali** (1991) has undertaken a study on entrepreneurship development through industrial estates in Tamil Nadu. The study has made a comparative analysis of units located within the industrial estate and the units located outside the industrial estate. The finding of the study is that the industrial estate has played limited role in entrepreneurship development. Further, the performance of the units located outside the industrial estate is better than that of the units located inside the industrial estate. This is due to the problems associated with the industrial estates.

- ❖ **Yuen** (1991) has examined the industrial estates programme in Singapore. The study involves the assessment of the factors critical to programme planning and implementation. The programme was undertaken by the country to industrialise the economy thereby solving the various economic problems and facilitate the industrialists' to start up production. Further, the programme has been successful socially and economically through the remarkable progress and achievements.

- ❖ **Ajit Wagh** (1991) has undertaken a study on the role played by the industrial estates in Maharashtra's backward region of Jalagaon district. The study highlighted the evolution of the industrial estates and also investigated the impact of industrial estates on the region. The conclusion of the study is that success of the industrial estate depends on its location, availability of facilities, and type of industries and so on. Industrial estates in Jalagaon have acted as a boon to the economy.

- ❖ **Jayakumary** (1993) has made an analytical study on the working of the industrial estates in Kerala. The major finding of the study is that there are two types of industrial estates in the state, specialised and general. Specialised type of estates enjoys economies of large scale operations. This is not the case with the general type of estates.

- ❖ **D.S.Leelavathi**(1994), conducted a study on the role of industrial estates in developing small scale industries in Karnataka. The study highlights the growth of industrial estates in Karnataka in five year plan period. The study concludes that rather than increasing the number of plots or sheds, the industrial estates should be equipped with infrastructure facilities.

- ❖ **Gurusamy** (1994) has studied the problems of small scale industrial units in the industrial estates of Tamil Nadu. The study involves the examination of achievements, contributions, as well as the problems of SSI units located in the industrial estates and located outside the industrial estates. The findings of the study are that industrial estates have contributed to the growth and development of SSI; the various problems faced by SSI in the industrial estates like power, raw materials, water, etc. are minimum for the SSIS outside the industrial estates.

- ❖ **D.S Leelavathi** (1995) has studied the industrial estates in Mysore. The observations made are that there is a significant growth of industrial estates in Mysore; investments have been sizeable; entrepreneurship is induced. However, the main drawbacks of the programme are that dispersal of industries is not done and backward areas are not developed.

- ❖ **M.D. Shainul Haque** (1995) in his study on the industrial estates in the National Capital Region, a comparison was made among the units within the industrial estate and the units outside the industrial estate. The profitability was compared. The conclusion was that the units located outside the estate had higher profits than that of the units located inside the estate.

- ❖ **H.V. Shankaranarayana** (1995) has done the performance evaluation of industrial estates in Karnataka. The viability of the programme is examined. Performance of the units inside the industrial estate and the units outside the industrial estate is evaluated. The major findings of the study are that the quality of built up sheds was of sub standard

quality, roads are improper, waste clearance problem, irregular water supply were some of the problems faced in the industrial estates. Further, the industrial estates were economically not viable.

- ❖ **Debal Prava** (1997) has studied education employment profile of women in small scale units in an industrial estate in New: Delhi. The study examines the form and extent of participation of women in small units, their education, working conditions, difficulties faced by them. The major findings of the study are that women are working in unskilled jobs; they are economically poor; no wage discrimination; discrimination in job allocation is observed in SSI.

- ❖ **Suresh Parulekar** (1998) in his study on the problems faced by the firms in Tarapur industrial estate has evaluated the locational advantage of the industrial estate, diversification of the industries, infrastructure facilities, and the problems. His conclusion is that the industrial estate is located ideally; it is close to city, airport and railway station. Infrastructural facilities are satisfactory.

- ❖ **Leung Kwan-chi** (1988) has carried out a study on industrial estate in Hong kong. The study aims at identifying the problems and also contribution to the industrial, economic and urban development. The findings of the study are that industrial estates in Hong kong are well planned; the industrial estates have been appreciated by the industrialists; the industrial estates have been successful in broadening the industrial base of Hong Kong.

- ❖ **Khursheed Ahmad Bhat** (2001) has made a study on the industrial estates of Jammu and Kashmir. The study is related to the functioning of small units. The main findings of the study are that suitable accommodation and an ideal site have an impact on the growth and

efficiency of the industries. However, in Jamu & Kashmir, majority of the Industrial estates are not ideally located and fully developed.

- ❖ **S.G. Vibhuti** (2001) has carried out a study on the industrial estates in North Karnataka. This is a diagnostic study. The study includes comparison of shed based and plot based units and also rural and urban estates. The conclusion of the study is that urban industrial estates get basic infrastructure facilities where as rural industrial estates lack all the infrastructural facilities. Again, the performance of the plot based units is better than the shed based units.
- ❖ **Amita Shah** (2001) has undertaken a study of an industrial estate in Gujarat. She has examined the impact of industrial growth on the industrial estate. The various aspects that are looked into are rapid industrialisation and balanced regional growth with reference to industrial estates. The conclusion is that industrial estates and the employment generation are negatively related.
- ❖ **Singhal and Kapur** (2002) have studied the industrial estate planning and management in India. It was noticed that industrial estates are perceived as an integral part of the development strategies of many nations. Hence, unplanned industrial estates can be dangerous for both local and global sustainable development initiatives. Again the environmental impact of the concentration of a large number of industries in a small area is very serious .An integrated approach is suggested towards industrial estate planning in India.
- ❖ **Muhammad Faisal Ibrahim & Sim Wei Chung** (2002) have studied quality of life of residents living near the industrial estates in Singapore. The evaluation is done on the

basis of various life indicators in order to measure life satisfaction. The conclusion is that the residents are found to be generally satisfied with their life.

- ❖ **M.G. Udaykumar** (2004) has undertaken a study of industrial parks in Tamil Nadu and its impact on the industrial and economic growth of the state. The findings of the study suggest that the impact on the economy is impressive. Industrial parks have provided direct and indirect employment to the local people. The parks have contributed to the economic development of the state and also in minimizing the regional imbalances.
- ❖ **Nirmala Abreau** (2004) has studied the employment of women in selected industries in the industrial estates of Goa. The socio-economic profile, working conditions and problems faced by the women working in the units located in the industrial estates are studied. The major conclusions are that women face health issues; transport problem; lack of co-operation; the jobs for women at the higher levels are relatively few. However, women are satisfied with their job.
- ❖ **S. Radhamma** (2005) has studied the role of the industrial estates in solving the problem of unemployment in youth. She has highlighted the various benefits offered by the industrial estates to the entrepreneurs due to the location of their unit in the industrial estate. Industrial Estate has acted as a boon for the unemployed youth.
- ❖ **G. Jagadeesh Chandran** (2007) has studied the quality of worklife of the employees working in the industrial estates of Kerala. The study is based on data collected through interviews of the employees. The conclusions are that the majority of the employees are backward both socially and financially; and are not satisfied with the available facilities,

they were not getting appreciation for their ideas; and employees did not have sufficient opportunities for their growth.

- ❖ **Harish Adke** (2009) has undertaken a study on the industrial sickness in Satpur Industrial Area of Nashik. He has found out the causes of industrial sickness in small scale industries and also categorised the industries as agro based, Forest based, metal based, engineering and miscellaneous. He has come out with the problems faced by the small units such as finance, marketing, labour problem. These problems lead to the industrial sickness.

- ❖ **Pravin Gaonkar** (2011) has studied the role of Goa Industrial Development Corporation in the performance of the industrial estates in Goa. The main issues examined are the delay in the allocation of plots; corruption in land allocation; violation of rules; red tapism in the corporation and so on. The main conclusion is that e-governance is the need of the hour. E-governance will bring about transparency in the functioning of the corporation.

- ❖ **Kalyani Brinda P.R., Laila Al Yahyaee** (2012) have studied the industrial estate in Oman. The study analyzes the motivational factors affecting the entrepreneurs located in the industrial estate. The findings of the study are that ambition to become an entrepreneur ranks the first among the motivational factor.

- ❖ **Piyush Mehta** (2011) has undertaken a study on the role of Chhattisgarh State Industrial Development Corporation in setting up the industrial estates in Raipur District. The study has given the background of the economy of the State; the role played by the Corporation in providing infrastructure, creation of jobs, facilitating

entrepreneurship; transparency and accountability in the administration; regional development; and increasing exports. The conclusion is that setting of industrial estates in Raipur has changed the backward economy of the State through industrialisation.

- ❖ **Savita Nadkarni** (2015) has done a study on working of Goa Industrial Development Corporation during open regime: A critical study. In her study, she has analyzed the role of GIDC in industrialization of Goa and also the constraints faced by the units in the industrial estates. The study offers various suggestions to GIDC.

- ❖ **Shah Monica Kaushal** (2015) has carried out a study on the pollution profile of the Vatva industrial estate located in Gujarat state .The main purpose of the study is to find out the extent of pollution in and around the industrial estate. The assessment of the water and soil pollution is done in detail in the study.

2.2 RESEARCH GAP:

The above reviews of literature on the industrial estates in India and around the world indicate that the industrial estates have acted as the important tool for industrialisation process. The scholars have highlighted the advantages and limitations of the Industrial Estate Programme. The analysis of the programme is done on the basis of the objectives of the same, facilities provided, problems faced, prospects of the programme, effect of the programme, assessment of the potentialities, and the role played by the programme in the economy. Guidelines for making the programme effective are also provided. Comparative analysis of the performance of the units

located in the industrial estates and the units located outside the industrial estates is studied by many scholars.

Many studies have highlighted the defects in the functioning of the industrial estates such as wrong decision on location, high price of the plot/shed, poor infrastructural facilities, raw materials problems, labour problems, and so on. Many scholars have undertaken studies in a particular state or a region or a district.

As far as Goa State is concerned, only one study has been undertaken of only few industrial estates. Therefore, this is a pioneer study involving all the industrial estates in Goa. The study also involves case studies of non-functioning industrial estates in the State. All the stakeholders are taken into consideration for seeking the perceptions on the various issues related to the working of the industrial estates. These issues are the facilities, infrastructure, incentives, benefits and the challenges. Again, an attempt is also made to do a comparative analysis of the working of the industrial estates district wise. The profile of all the industrial estates in Goa is examined.

The Industrial Estate Programme in Goa is assessed in the light of its objectives. The impact of the industrial estate programme on the economy of Goa is also undertaken in the study. Perceptions of the sample industrial units located in all the industrial estates are examined. Opinions of the Field Managers and Industrial Estates Association Presidents are taken into consideration as regards the objectives of the programme. Hence, the present study is a micro level study of analysis of the working of the industrial estates in Goa.

CHAPTER III

RESEARCH DESIGN AND METHODOLOGY

3.1 RESEARCH PROBLEM:

Historically, the industrial estates in India were set up to promote the small scale industries. Industrialisation depends upon the large scale as well as small scale industries. Small scale industries face lot of constraints. Therefore, the Industrial Estate Programme was established. Industrial Estates help the small scale units in t establishment, operation and management. Thus, industrial estates play an important role in the industrial growth of the nation. They promote industrial and economic development. However, the effectiveness of industrial estates depends upon the planning, execution and operation of the programme.

A review of literature on the industrial estates reveals that there have been several studies on the industrial estates in India as well as in abroad. All these studies have been restricted to a particular country, state, region or district. These studies have touched upon various issues such as effectiveness of the programme, impact of the programme, role of the programme in economic development, problems and prospects, viability of the programme, role of the institutions, causes of the success and failure of industrial estates, employment generation, entrepreneurship development, regional imbalances, comparison between the units within and outside the industrial estates, physical performance of the industrial estates, infrastructure provided, shed based and plot based units comparison, working conditions in the industrial estates, quality of work life of the employees working in the industrial estates. The studies are carried out in various states like Maharashtra, Karnataka,

Andhra Pradesh, Kerala, Tamil Nadu, Rajasthan, Gujarat, Orissa, Assam, and Madhya Pradesh and so on. The studies carried out in the different states point out the fact that the performance of the industrial estate programme is not uniform throughout India. It is successful in some states and a failure in other states. The major reasons for the failure of the industrial estates are unsuitable locations, poor infrastructural facilities, unplanned industrial estates, lack of entrepreneurial talents and so on. As far as Goa State is concerned, only one study is made on the industrial estates and it is limited to few industrial estates only. It is against this background, that a micro study of the working of all the industrial estates in Goa is attempted to be made. The study also is a pioneering attempt to compare the working of the industrial estates in Goa and undertake the case studies of non-functioning industrial estates. Hence the statement of the problem is,

“WORKING OF INDUSTRIAL ESTATES IN GOA: AN ANALYTICAL STUDY.”

3.2 SIGNIFICANCE OF THE TOPIC:

The study ‘**Working of Industrial Estates in Goa: An Analytical Study**’ will throw light on the objectives of the Industrial Estate Programme in Goa and will assess the same on the basis of its contribution to the economy of Goa.

The study will seek the opinions of the different stakeholders of the programme regarding the working of the industrial estates in Goa. The evaluation of the industrial estates was done on the basis of the facilities, incentives, benefits, challenges and infrastructure in the industrial estates. The comparison of the industrial estates will be done on the basis of the above parameters.

The study will highlight the need for infrastructure facilities in formation of the units in the industrial estates. The study will provide a road map to the Goa Government in framing policies regarding the Industrial Estate Programme and rules and regulations regarding the same in future

The study focuses on the various problems and difficulties faced by the units located in the industrial estates and further expected to suggest appropriate measures for strengthening the working of the industrial units in the industrial estates in Goa. The study will be of great use not only to the academicians and fellow researchers, but it will be useful to the various officials related to the administration of Industrial Estate Programme in Goa. Future research in the other issues related to the same topic can be also be undertaken by the other researchers with the help of the present study.

3.3 OBJECTIVES OF THE STUDY:

- 1) To assess the Industrial Estate Programme in Goa
- 2) To study the profile of industrial estates in Goa
- 3) To examine whether the entrepreneur's demographic profile has an influence on his perception towards the working of industrial estates
- 4) To determine the relationship between the perception of the entrepreneur towards the working of the industrial estate and the type of unit
- 5) To compare the working and contributions of the industrial estates in South Goa and North Goa
- 6) To undertake the case studies of the two non-functioning industrial estates in Goa

3.4 HYPOTHESIS OF THE STUDY:

- 1) H1: There is no difference of opinion between the GIDC Officials and the Industrial Estate Association office bearers as regards the objectives of the industrial estates programme in Goa
- 2) H2: There is no significant relationship between the demographic profile of the entrepreneur and his perception towards the working of the industrial estates
- 3) H2.1- There is no significant relationship between the Age of the entrepreneur and his perception towards the facilities, infrastructure, incentives, benefits and challenges.
- 4) H2.2- There is no significant relationship between the Educational Qualification of the entrepreneur and his perception towards the facilities, infrastructure, incentives, benefits and challenges.
- 5) H2.3- There is no significant relationship between the Experience of the entrepreneur and his perception towards the facilities, infrastructure, incentives, benefits and challenges.
- 6) H2.4- There is no significant relationship between the Designation of the entrepreneur and his perception towards the facilities, infrastructure, incentives, benefits and challenges
- 7) H2.5- There is no significant relationship between the Number of years of existence of the entrepreneur in the industrial estate and his perception towards the facilities, infrastructure, incentives, benefits, and challenges.
- 8) H3: There is no significant relationship between the perception of the entrepreneur and the type of the unit on the facilities, infrastructure, incentives, benefits and challenges.

- 9) H4: There is no significant difference in the perceptions of the entrepreneurs of the manufacturing and non-manufacturing units regarding the facilities, infrastructure, incentives, benefits and challenges.
- 10) H5: There is no significant difference in the working and contribution of the industrial estates in South Goa and North Goa

3.5 SCOPE OF THE STUDY:

The scope of the present study is restricted to the analysis of the working of the twenty industrial estates established by the Goa Industrial Development Corporation (GIDC) in Goa only. The industrial estates established by the GIDC in Daman and Diu are outside the scope of the study.

Working of the industrial estates in Goa is analyzed on the basis of the facilities, infrastructure provided, incentives offered, benefits gained and the challenges faced, by the units located here.

3.6 LIMITATIONS OF THE STUDY:

The study is completely based on the data collected from the Goa Industrial Development Corporation, Panaji Goa, field managers of each industrial estate; sample units in the industrial estates and the industrial estate association presidents of each industrial estate. A number of visits were made to the GIDC office as well as to the other Government departments such as Department of Industries Trade and Commerce; Department of Planning, Statistics and Evaluation; Department of Printing and Stationary. This was done to enhance the quality and dependability of the information collected.

The conclusions of the study are based on the opinions of sample units which is 10% of the total functioning units in each industrial estate at the time of the data collection. It may vary with the increase in the sample size.

The study is confined to the industrial estates established by the GIDC in Goa. Hence the outcome of the study cannot be applied and generalized to the industrial estates established by the GIDC in Daman and Diu. Again, the findings are based on the perceptions of the respondents. Therefore, the results of the study are based on the co-operation, willingness and sincerity of the respondents in answering the questionnaire. Of the demographic variables, only age, education, experience, designation and number of years are considered in the present study.

In spite of the above limitations, an earnest and sincere effort has been made to arrive at fairly objective conclusion through discreet and tactful analysis of the data collected.

3.7 PERIOD OF THE STUDY:

Primary data was collected during January 2014 to December 2014.

Secondary data was collected from 2nd Oct 2006 to 31st January 2015 (9 years) from the Directorate of Industries, Trade and Commerce, Government of Goa i.e. the list of the industries registered in Goa.

3.8 SAMPLING DESIGN:

GIDC has establishment **twenty** Industrial Estates in Goa namely Sancoale, Bicholim, Pissurlem, Honda, Corlim, Pilerne, Kundaim, Tivim, Bethoda, Mapusa, Margao,

Cuncolim, Madkaim, Kakoda, Canacona, Verna, Colvale, Tuem, Sanguem & Shiroda. However, only eighteen industrial estates have functioning units. There are no functioning units in Sanguem Industrial Estate and Shiroda Industrial Estate.

The total functioning units in all these eighteen industrial estates are 1527 (as on 31st Dec 2014). This study covers 153 industrial units which constituted 10% of the functioning units. Random Sampling Method is adopted.

TABLE 3: DETAILS OF THE SAMPLE

	I.E. Name	Total Functioning Units as on Dec 14	Sample
1	Sancoale	130	13
2	Bicholim	88	09
3	Pissurlem	20	02
4	Honda	30	03
5	Corlim	80	08
6	Pilerne	89	09
7	Kundaim	230	23
8	Tivim	80	08
9	Bethora	80	08
10	Mapusa	30	03
11	Margao	90	09
12	Cuncolim	90	09
13	Madkaim	50	05
14	Kakoda	50	05
15	Canacona	30	03

16	Verna	300	30
17	Colvale	30	03
18	Tuem	30	03
		1527	153

3.9 SOURCES OF DATA :

The present study is based on both the Primary and Secondary data.

The primary data was collected from all 20 industrial estates established by the GIDC in Goa. 10% of the functioning units in each industrial estate (153 units) were surveyed with the help of a structured Questionnaire. It was administered personally during 2014. Another Questionnaire was designed for the GIDC officials (Field Managers) and the Industrial Estate Association Presidents. This was also administered personally during 2014. Personal Interview Method and Observation Method were also adopted for data collection.

Secondary data was collected through books, magazines, journals, reports, publications. Visits were made to the various libraries in Goa as well as other states like Karnataka, Maharashtra and Andhra Pradesh. Various Research Institutes were also visited for reference purposes. Data was collected from Goa Industrial Development Corporation as well as other Government Offices. Websites were also referred for data collection

3.10 PLAN OF THE STUDY :

The present study is divided into **five** chapters.

The first chapter is Introduction which includes the meaning of industrialisation, concept of Industrial Estate, its meaning and definitions, objectives in general as well as in different countries, advantages of industrial estates, historical background of industrial estates, types of industrial estates, criteria for selection of industrial estates, guidelines for industrial estate planning, industrial estates in Goa, role of Goa Industrial Development Corporation, industrial policy of Goa are the topics covered.

The second chapter consists of Review of Literature. This includes review of previous studies on the topics and research gap.

The third chapter is Research Design and Methodology. This chapter covers research problem, significance of the topic, need for the study, objectives, hypotheses of the study, limitations, plan, scope of the study, data source, sample profile, data collection instrument, contact method, data analysis tools, period of the study, and terms and concepts used.

Chapter four is Data Analysis and Discussion. This includes content analysis (Questionnaire 1), Factor Analysis, Cronbach Alpha, Descriptive Statistics, Variables, Testing of hypotheses, results and discussion, profile of industrial estates in Goa, comparison of industrial estates in North Goa and South Goa, Case studies of non functional industrial estates in Goa.

The fifth chapter consists of summary, findings of the study, observations, conclusions and suggestions- general and policy suggestions. The chapter includes summary of findings objective wise, conclusions of the study, general suggestions, policy suggestions to the Government of Goa and areas for future research.

3.11 DATA COLLECTION INSTRUMENT

The Primary data was collected with the help of a structured Questionnaire. Two Questionnaires were prepared. Questionnaire 1 for GIDC officials (Field Managers) and the Industrial Estate Association Presidents; Questionnaire 2 for the Sample Units located in the industrial estates. Questionnaire 1 contained profile of the respondent, i.e. gender, age, work experience, status, name of the industrial estate, profile of the industrial estate, nature of the units that are a part of the industrial estate, number of functioning, closed and new units, types of units, ranking of the objectives of the industrial estate, details of the programmes conducted, contribution of GIDC towards the development of the industrial estate, benefits gained and the challenges encountered because of GIDC.

Questionnaire 2 contained personal profile of the respondent such as gender, age, educational qualification, work experience and designation. Organisational profile included year of establishment, business sector, name of the industrial estate, number of years of existence of the unit in the industrial estates.

The respondents were asked to rate the facilities of the industrial estates as s of the as excellent, good, neutral, bad and worse. The facilities included were locality, infrastructure, topography, soil conditions, utility, incentives, access to highway, feasibility for running business and overall quality.

The respondents' perception on the Infrastructure facilities, incentives, benefits and challenges was taken on a Five Point Likert Scale with five options such as strongly agree, agree, neutral, disagree and strongly disagree.

Under 'Infrastructure provided,' the perception was taken on the five aspects such as offering of the state of the art infrastructure, reduction in the per business expenses

relating to infrastructure, overcoming power crisis, accessing all the modes of transport easily, and staying out of urban crowd.

Under ‘ Incentives provided,’ the perception was taken on ten aspects such as - subsidies for initial investment of capital, subsidies for initial feasibility study, exemptions from income tax, concessions in sales tax, reductions in stamp duty, share capital for starting the business, subsidies for interest payable, incentives for patenting the ideas, interest free loans for exporting the products, and mediclaim facilities.

Under ‘Benefits gained,’ the perception was taken on seven aspects such as exploration of new technologies, getting permits for construction/ enhancement easily, boost sales in domestic and international markets, doing business in an environment friendly manner, able to operate in a safe manner, saving on utility expenses, and improvement in economic and financial status.

Under ‘challenges encountered,’ the perception was taken on six aspects such as tedious entry procedures, problem of getting skilled and trained labour, few operational procedures to be followed, interventions by banks on activities, old infrastructure and problem of storage of the inventory.

The respondents were also asked to give strategies to be recommended to GIDC for better operation of industrial estate.

3.12 DATA ANALYSIS TOOLS:

The primary data collected from the respondents with the help of Questionnaire 1 and Questionnaire 2 was processed on the computer by using Ms. Excel and Statistical Package used was SPSS 20.

The various tools used are as under:

- ❖ Description Statistics (Mean, Standard Deviation, Frequency, Minimum Values, Maximum Values)
- ❖ Factor Analysis (factor loadings)
Extraction Method: Principal Component Analysis, KMO – Kaiser Meyer Olkin Measure of Sampling Adequacy and Bartlett t test of Spherical Value.
- ❖ Ordinary Least Square Regression (to test the relationship between the variables)
- ❖ Cronbach Alpha (to test the reliability)
- ❖ t test (comparison of dependent and independent variables)
- ❖ ANOVA (model significance)
- ❖ Pearson's Co-relation (relationship)
- ❖ Graphs (profile of industrial estates)

The statistical results derived from the exercise have been interpreted through an intellectual exercise and conclusions are drawn accordingly. Hypotheses were tested and results were arrived at.

3.13 TERMS AND CONCEPTS USED:

- 1) **Industrial Estate:** An area of land developed as a site for factories and other industrial businesses.
- 2) **Programme:** A planned series of future events or performances.
- 3) **Profile:** Description of a person or thing.
- 4) **Perception:** The way in which something is regarded, understood or interpreted.
- 5) **Opinion:** A judgement, viewpoint or statement about matters.
- 6) **Facilities:** The physical means to make something possible.

- 7) **Infrastructure:** An underlying base or foundation especially for an organisation or system.
- 8) **Benefits:** Advantages gained from something.
- 9) **Challenges:** Something that needs great mental or physical effort in order to be done successfully.
- 10) **Non-Functioning:** Not working or operating properly.
- 11) **Functioning:** operating in a proper way.

CHAPTER IV

DATA ANALYSIS AND TESTING OF HYPOTHESIS

4.1.1: DESCRIPTIVE STATISTICS(DEMOGRAPHIC PROFILE)

Demographic profile of the respondents includes Gender, Age, Education, Work Experience, Designation, and Number of years of existence. Gender of the respondents' includes Male and Female .Age groups are Below 25, 25 to 35, 35 to 45, 45 to 55, and above 55. Education includes Non-graduates, Graduates, and Post-graduates. Work Experience includes less than 2 years, 2 to 5 years, 5 to 8 years, 8 to 15years, and more than 15 years. Designation includes Proprietorship, Partnership, and Company. Number of years of existence in the industrial estate includes before 1980, 1981 to 1990, 1991 to 2000, 2001 to 2010, and 2011 onwards. The total respondents interviewed were 153.The following tables indicate the details of the demographic profile of the respondents:

TABLE 4- GENDER:

Gender	Count	%
Male	146	95.4
Female	7	4.6
Total	153	100

Source: primary data

The above table indicates that out of total 153 respondents contacted; only 07 were female and 146 were male.

TABLE 5-AGE:

Age group	Count	%
Below 25	2	0.7
25-35	11	7.2
35-45	42	27.6
45-55	51	33.6
Above55	47	30.9
Total	153	100

Source: primary data

The above table indicates that majority of the respondents are in the age group of 45 and 55 and also above 55 where as only few are below the age group of 25 years. This shows that the study is based on the perceptions given by aged and experienced entrepreneurs.

TABLE 6- EDUCATION:

Education	No. persons	%
Non graduates	39	25.5
Graduates	79	51.6
Post Graduates	35	22.9
Total	153	100

Source: primary data

The above table indicates that majority of the respondents are graduates. This indicates that the perceptions are given by educated people.

TABLE 7-WORK EXPERIENCE:

Work exp. In years	count	%
Less than 2	1	0.7
2-5	3	2
5-8	4	2.6
8-15	53	34.6
More than 15	92	60.1
Total	153	100.0

Source: primary data

The above table indicates that majority of the respondents are having work experience of more than 15 years. Thus, the perceptions given in the study are of the experienced entrepreneurs located in the industrial estates.

TABLE 8- DESIGNATION:

Designation	Frequency	Percent
proprietorship	50	32.7
partnership	30	19.6

company	73	47.7
	153	100.0

Source: primary data

The above table indicates that majority of the respondents belong to the company form of organisation followed by the proprietorship form of organisation. Hence, the perceptions given in the study are from the angle of the Company as well as from the angle of the Proprietor.

TABLE 9- NUMBER OF YEARS OF EXISTENCE:

year	IE	Percentage
before 1980	10	6.535948
1981-1990	32	20.91503
1991-2000	76	49.6732
2001-2010	32	20.91503
2011 onwards	3	1.960784
	153	100

Source: primary data

The above table indicates that majority of the entrepreneurs have their units started from 1991 to 2000. Thus, the study is based on the perceptions of the units which are having maximum number of existence in the industrial estate.

4.1.2 DESCRIPTIVE STATISTICS (WORKING PARAMETERS):

The following tables indicate the descriptive statistics for the parameters of working of the industrial estates. These parameters are **Facilities, Infrastructure, Incentives, Benefits, and Challenges.**

The respondents were told to rate the facilities of the industrial estates. The Nine criteria used for rating the industrial estates were Locality of the industrial estate, Infrastructure provided in the industrial estate, Topography of the industrial estate, Soil conditions in the industrial estate, Utility in the industrial estate, Incentives provided in the industrial estate, Accessibility of the industrial estate, Feasibility of the industrial estate, and the overall quality of the industrial estate. The ratings given for the facilities were Excellent, Good, Neutral, Bad, and Worse.

The following table shows the descriptive statistics for the ratings of facilities:

TABLE 10- RATINGS OF FACILITIES:

Ratings	Mean	SD	Min	Max
Locality	4.01	0.92	1	5
Infrastructure	3.19	0.90	1	5
Topography	3.60	0.80	1	5
Soil conditions	3.54	0.78	1	5
Utility	3.09	0.90	1	5
Incentives	2.99	0.70	1	4
Access to Highway	4.02	1.00	1	5
Feasibility for running business	3.62	0.83	1	5
Overall quality	3.45	0.83	1	5

Source: primary data

The above table shows the Ratings of facilities provided in the industrial estates in Goa.

These ratings are given by the entrepreneurs whose units are located in the industrial estates.

TABLE 11-PERCEPTIONS TOWARDS INFRASTRUCTURE PROVIDED

Perceptions	Mean	SD	Min	Max
State of art infrastructure	2.72	1.00	1	4
Reduction in per business expenses related to infrastructure	2.65	0.91	1	4
Overcoming power crisis	2.61	1.00	1	4
Accessing all the modes of transport	3.37	1.07	1	5
Staying out of urban crowd	3.60	0.90	1	5

Source: primary data

The above table shows the perceptions of the entrepreneurs towards the infrastructure provided in the industrial estates in Goa.

TABLE 12-PERCEPTIONS ON THE INCENTIVES PROVIDED

Perceptions	Mean	SD	Min	Max
Subsidies for initial investment of capital	3.08	1.07	1	5
Subsidies for initial feasibility study	2.67	0.95	1	5
Exemptions from income tax	2.88	1.02	1	5
Concessions in the sales tax	3.24	0.99	1	5
Reductions in the stamp duty	2.87	0.93	1	5

Share capital for starting the business	2.57	0.88	1	4
Subsidies for interest payable	2.56	0.90	1	4
Incentives for patenting the ideas	2.52	0.81	1	4
Interest free loan for exporting the products	2.47	0.78	1	4
Medicclaim facilities	2.45	0.77	1	4

Source: primary data

The above table shows the perceptions of the entrepreneurs towards the incentives provided to them.

TABLE 13-PERCEPTIONS ON THE BENEFITS GAINED BEING A PART OF THE INDUSTRIAL ESTATE:

Perception	Mean	SD	Min	Max
Opportunities to explore new technologies	2.72	0.93	1	4
Easily get permits for construction/enhancement of the business unit	3.19	1.04	1	5
Boost sales in both domestic as well as international markets	3.01	0.92	1	5
Doing business in environment friendly manner	3.52	0.87	1	5
Operating in safe manner	2.65	1.06	1	5
Saving utility expenses	2.60	0.94	1	5
Improvement in economic and financial status	3.30	0.86	1	5

Source: primary data

The above table shows the perceptions of the entrepreneurs towards the benefits gained by them being a part of the industrial estate.

TABLE 14-PERCEPTIONS ON THE ISSUES/CHALLENGES ENCOUNTERED BY THE UNITS BEING A PART OF THE INDUSTRIAL ESTATE:

Perception	Mean	SD	Min	Max
Tedious entry procedures	3.27	1.05	1	5
Problem in getting skilled and trained labour	3.56	1.00	1	5
Forced to follow operational procedures	2.98	0.87	1	5
Interventions by banks on managerial activities	2.50	0.72	1	5
Old infrastructure	4.34	0.91	1	5
Problem of storage of the inventory	3.15	1.17	1	5

Source: primary data

The above table shows the perceptions of the entrepreneurs towards the issues/challenges encountered by them being a part of the industrial estate.

4.2: ANALYSIS OF THE RESPONSES

The responses given by the 153 respondents on the five parameters of the working of the industrial estates are given in the following tables:

North Goa

Rate the facilities of the industrial estate in which you are operating (E-Excellent G-Good N-Neutral B-Bad W-Worse)

Table 15: Responses of ratings North Goa

Sr. No	Questions	1	2	3	4	5	Total
1	Locality	0.00	4.76	13.10	47.62	34.52	100
2	Infrastructure	1.19	20.24	22.62	55.95	0.00	100
3	Topography	1.19	8.33	16.67	67.86	5.95	100
4	Soil conditions	0.00	9.52	22.62	66.67	1.19	100
5	Utility	2.38	14.29	55.95	27.38	0.00	100
6	Incentives	1.19	9.52	64.29	25.00	0.00	100
7	Access to Highway	1.19	8.33	10.71	52.38	27.38	100
8	Feasibility for running business	1.19	10.71	21.43	63.10	3.57	100
9	Overall quality	0	16.67	17.86	65.48	0	100

Source: primary data

Comment on your opinion towards the infrastructure facilities provided by your industrial estate in running your industrial unit (SA- Strongly Agree A- Agree N-Neutral, D-Disagree, SD-Strongly Disagree)

Table 16: Responses on the infrastructure provided- North Goa

Sr. No	Questions	1	2	3	4	5	
1	My industrial estate offers state of the art infrastructure to its industrial units	5.95	47.62	23.81	22.62	0	100
2	My industrial estate helps my organization in reducing the per-business expenses related to infrastructure	2.38	52.38	17.86	27.38	0	100

3	My industrial estate helps my organization in overcoming power crisis for running the business	2.38	55.95	15.48	26.19	0.00	100
4	My industrial estate helps my organization in accessing all the modes of transport (rail/road/sea/air)very easily	1.19	35.71	20.24	39.29	3.57	100
5	My industrial estate helps my organization stay out of urban crowd thereby effectively running its business	1.19	11.90	8.33	76.19	2.38	100

Source: primary data

Comment on your opinion towards the incentives provided by your industrial estate in running your industrial unit (SA- Strongly Agree A- Agree N-Neutral D-Disagree, SD- Strongly Disagree)

Table 17: Responses of the incentives provided- North Goa

Sr. No	Questions	1	2	3	4	5	Total
1	My industrial estate offered me subsidies for initial investment of capital	1.19	14.29	27.38	53.57	3.57	100
2	My industrial estate offered me subsidies for initial feasibility study	1.19	33.33	32.14	32.14	1.19	100
3	My industrial estate offered me exemptions from income tax	1.19	22.62	33.33	41.67	1.19	100
4	My industrial estate offered me concessions in sales tax	1.19	14.29	29.76	51.19	3.57	100
5	My industrial estate offered me reductions in stamp duty	1.19	27.38	39.29	32.14	0	100
6	My industrial estate offered me share capital for starting my business	2.38	40.48	32.14	25.00	0	100
7	My industrial estate offered me subsidies for interest payable	2.38	39.29	38.10	20.24	0	100
8	My industrial estate offered me incentives for patenting my ideas	3.57	38.10	42.86	15.48	0	100

9	My industrial estate offered me interest free loan for exporting my products	3.61	37.35	49.40	8.43	1.20	100
10	My industrial estate offered me medical claim facilities	2.44	41.46	48.78	7.32	0	100

Source: primary data

Comment on the benefits gained by your industrial unit in being a part of this industrial estate:

Table 18: Responses of the benefits gained-North Goa

Sr. No	Questions	1	2	3	4	5	Total
1	I have got opportunities to explore new technologies by being a part of this industrial estate	1.19	52.38	23.81	22.62	0	100
2	I have been able to easily get permits for construction/ enhancement of my business unit	0.00	17.86	13.10	67.86	1.19	100
3	I have been able to boost my sales in both domestic as well as international markets by being a part of this industrial estate	1.19	22.62	38.10	36.90	1.19	100
4	I have learnt to do my business in an environment friendly manner by being a part of this industrial estate	0	7.14	14.29	76.19	2.38	100
5	I have been able operate in a safe manner through the security and emergency management services provided by this industrial estate	2.38	48.81	19.05	28.57	1.19	100
6	I have been able to save much of my utility expenses such as phone charges, water charges, electricity charges, transportation charges etc. by being a part of	1.19	48.81	27.38	22.62	0	100

	this industrial estate						
7	My economic and financial status has improved a lot by doing business in this industrial estate	0	18.07	31.33	49.40	1.20	100

Source: primary data

6. Comment on the issues/challenges encountered by your industrial unit in being a part of this industrial estate:

Table 19: Responses of the issues/challenges encountered- North Goa

Sr. No	Questions	1	2	3	4	5	Total
1	The entry procedures for establishing the industrial unit in the industrial estate are very tedious	2.38	44.05	17.86	32.14	3.57	100
2	I find problem in getting skilled and trained labour due to the locality where my industrial unit is put up	1.19	22.62	15.48	53.57	7.14	100
3	I am forced to follow few operational procedures by the industrial estate even though if I am not interested	1.19	39.29	38.10	20.24	1.19	100
4	Interventions by banks on managerial activities hinders the decision making process	1.25	31.25	62.50	3.75	1.25	100
5	The infrastructure is very old and needs much improvement	0	2.41	6.02	15.66	75.90	100

Source: primary data

South Goa

Rate the facilities of the industrial estate in which you are operating (E-Excellent G-Good N-Neutral B-Bad W-Worse)

Table 20: Responses of facilities: South Goa

Sr. No	Questions	1	2	3	4	5	
1	Locality	2.90	8.70	15.94	40.58	31.88	100
2	Infrastructure	1.45	33.33	27.54	36.23	1.45	100

3	Topography	1.45	10.14	23.19	56.52	8.70	100
4	Soil conditions	1.45	8.70	26.09	56.52	7.25	100
5	Utility	5.80	23.19	34.78	30.43	5.80	100
6	Incentives	2.90	23.19	57.97	15.94	0	100
7	Access to Highway	5.80	10.14	5.80	42.03	36.23	100
8	Feasibility for running business	2.90	10.14	24.64	52.17	10.14	100
9	Overall quality	2.90	10.14	31.88	49.28	5.80	100

Source: primary data

Comment on your opinion towards the infrastructure facilities provided by your industrial estate in running your industrial unit (SA- Strongly Agree A- Agree N- Neutral, D- Disagree, SD- Strongly Disagree)

Table 21: Responses of infrastructure provided- South Goa

Sr. No	Questions	1	2	3	4	5	
1	My industrial estate offers state of the art infrastructure to its industrial units	14.49	34.78	21.74	28.99	0	100
2	My industrial estate helps my organization in reducing the per-business expenses related to infrastructure	10.14	43.48	33.33	13.04	0	100
3	My industrial estate helps my organization in overcoming power crisis for running the business	18.84	42.03	17.39	21.74	0	100
4	My industrial estate helps my organization in accessing all the modes of transport (rail/road/sea/air)very easily	2.90	27.54	8.70	46.38	14.49	100
5	My industrial estate helps my organization stay out of urban crowd thereby effectively running its business	5.80	11.59	15.94	57.97	8.70	100

Comment on your opinion towards the incentives provided by your industrial estate in running your industrial unit (SA- Strongly Agree A- Agree N-Neutral D-Disagree SD- Strongly Disagree)

Table 22: Responses of infrastructure provided- South Goa

Sr. No	Questions	1	2	3	4	5	
1	My industrial estate offered me subsidies for initial investment of capital	17.39	24.64	31.88	20.29	5.80	100
2	My industrial estate offered me subsidies for initial feasibility study	20.29	30.43	37.68	10.14	1.45	100
3	My industrial estate offered me exemptions from income tax	18.84	27.54	27.54	23.19	2.90	100
4	My industrial estate offered me concessions in sales tax	11.59	20.29	30.43	31.88	5.80	100
5	My industrial estate offered me reductions in stamp duty	14.49	26.09	37.68	20.29	1.45	100
6	My industrial estate offered me share capital for starting my business	15.94	39.13	36.23	8.70	0	100
7	My industrial estate offered me subsidies for interest payable	18.84	37.68	30.43	13.04	0	100
8	My industrial estate offered me incentives for patenting my ideas	15.94	42.03	33.33	8.70	0.00	100
9	My industrial estate offered me interesting free loan for exporting my products	17.39	39.13	37.68	5.80	0.00	100
10	My industrial estate offered me medical claim facilities	17.39	42.03	34.78	5.80	0.00	100

Source: primary data

Comment on the benefits gained by your industrial unit in being a part of this industrial estate:

Table 23: Responses of benefits gained- South Goa

Sr. No	Questions	1	2	3	4	5	
1	I have got opportunities to explore new technologies by being a part of this industrial estate	10.14	39.13	26.09	24.64	0.00	100
2	I have been able to easily get permits for construction/ enhancement of my business unit	17.39	14.49	23.19	43.48	1.45	100
3	I have been able to boost my sales in both domestic as well as international markets by being a part of this industrial estate	8.70	23.19	31.88	36.23	0.00	100
4	I have learnt to do my business in an environment friendly manner by being a part of this industrial estate	7.25	10.14	24.64	53.62	4.35	100
5	I have been able operate in a safe manner through the security and emergency management services provided by this industrial estate	21.74	33.33	21.74	21.74	1.45	100
6	I have been able to save much of my utility expenses such as phone charges, water charges, electricity charges, transportation charges etc. by being a part of this industrial estate	15.94	42.03	24.64	15.94	1.45	100
7	My economic and financial status has improved a lot by doing business in this industrial estate	5.80	13.04	37.68	39.13	4.35	100

Source: primary data

Comment on the issues/challenges encountered by your industrial unit in being a part of this industrial estate:

Table 24: Responses of issues/challenges encountered –South Goa

Sr. No	Questions	1	2	3	4	5	
1	The entry procedures for establishing the industrial unit in the industrial estate are very tedious	1.45	21.74	23.19	36.23	17.39	100
2	I find problem in getting skilled and trained labor due to the locality where my industrial unit is put up	2.94	17.65	11.76	45.59	22.06	100
3	I am forced to follow few operational procedures by the industrial estate even though if I am not interested	2.90	24.64	37.68	28.99	5.80	100
4	Interventions by banks on managerial activities hinders the decision making process	10.29	42.65	42.65	2.94	1.47	100
5	The infrastructure is very old and needs much improvement	1.45	7.25	14.49	30.43	46.38	100
6	I encounter problems of storage of my inventory due to the limited area that has been allocated for me for accommodation.	4.35	23.19	24.64	26.09	21.74	100

Source: primary data

4.3- VALIDITY AND RELIABILITY RESULTS

4.3.1- VALIDITY AND RELIABILITY RESULTS: (QUESTIONNAIRE 1)

TABLE 25-FACTOR: OBJECTIVE OF DEVELOPING THE ECONOMY OF GOA

Variable	Factor loadings	KMO	Bartlett t test of sp p value	Total variance explained	Cronbach alpha
Catalyze growth of Goan economy	.675				
Increase export rates of Goa	.572	.714	P<0.01	55.49%	.793
Promote women entrepreneurship	.823				
Promote in the up gradation of	.766				

technologies					
Promote research and development	.853				

Source: primary data

TABLE 26-FACTOR: OBJECTIVE OF PROMOTING EMPLOYMENT AND ENTREPRENEURSHIP

Variable	Factor loadings	KMO	Bartlett t test of sp p value	Total variance explained	Cronbach alpha
Create employment opportunities that are sustainable to the people of Goa	.657				
Promote entrepreneurship	.782	.690	P<0.01	56.18%	.735
Provide excellent infrastructure facilities to industries	.787				
Promote industries in numerous business segments	.764				

Source: primary data

TABLE 27 Table after dropping

Variable	Factor loadings	KMO	Bartlett t test of sp p value	Total variance explained	Cronbach alpha
Promote industries that are eco friendly	.589				
Revive and rehabilitate industrial units that are sick and weak	.645	.529	p>0.1	46.2%	.399

Develop rural economy	.790				
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Source: primary data

The above three variables are dropped because total variance is less than 50%, p value is > 0.1 and cronbach alpha is less than 0.6

Extraction Method: Principal Component Analysis KMO- Kaiser Meyer Olkin Measure of Sampling Adequacy

Table 28-Table showing Cronbach alpha (Questionnaire 1):

Sr No	Item	Cronbach alpha
1	Economic development	.793
2	Promotion of employment and entrepreneurship	.735

Source: primary data

4.3 .2 VALIDITY AND RELIABILITY RESULTS(QUESTIONNAIRE 2)

TABLE 29.1- SEGMENT 1: FACILITIES

Variable	Factor loadings	KMO	Bartlett's test of sp value	Total variance explained	Cronbach alpha
Locality	.851				
Infrastructure	.531				
Topography	.795				
Soil conditions	.540	0.828			
Utility	.295				
Incentives	-.154				
Access to highway	.592				
Feasibility for running business	.583				
Overall Quality	.610				

Source: primary data

Table 29.2-After dropping Utility and Incentives (values are less than .50 and negative)

Variable	Factor loadings	KMO	Bartlett's t test of sp value	Total variance explained	Cronbach alpha
Locality	.796				
Infrastructure	.745				
Topography	.640	.803	P<0.01	52.53%	.844
Soil conditions	.592				
Access to highway	.660				
Feasibility for running business	.759				
Overall Quality	.847				

Source: primary data

Extraction Method: Principal Component Analysis KMO- Kaiser Meyer Olkin
Measure of Sampling Adequacy

TABLE 30.1-SEGMENT 2: INFRASTRUCTURE PROVIDED

Variable	Factor loadings	KMO	Bartlett t test of sp value	Total variance explained	Cronbach alpha
State of art infrastructure	.802				
Reduction of per business expenses related to infrastructure	.788	.707			
Overcoming power crisis	.680				
Accessing all the modes of transport very easily	.594				
Staying out of urban crowd	.459				

Source: primary data

Extraction Method: Principal Component Analysis KMO- Kaiser Meyer Olkin
Measure of Sampling Adequacy

Table 30.2- After dropping variable5- Staying out of urban crowd as factor

loading is .459 i.e. less than .50

Variable	Factor loadings	KMO	Bartlett t test of sp value	Total variance explained	Cronbach alpha
State of art infrastructure	.826				
Reduction of per business expenses related to infrastructure	.815	.684	P<0.01	54%	.700
Overcoming power crisis	.695				
Accessing all the modes of transport very easily	.575				

Source: primary data

TABLE 31.1-SEGMENT 3: INCENTIVES OFFERED

Variable	Factor loadings	KMO	Bartlett t test of sp value	Total variance explained	Cronbach alpha
Subsidy for initial inv of capital	.232				
Subsidy for initial feasibility study	.533				
Exemptions from income tax	.383				
Concessions in sales tax	.060				
Reduction in stamp duty	.528				
Share capital for starting business	.807				
Subsidies for interest payable	.858				
Incentives for patenting ideas	.872				

Interest free loan for exporting products	.878				
Mediclaime facilities	.855				

Source: primary data

Table 31.2-After dropping variable 1- subsidies for initial investment of capital, variable 3- exemptions from income tax and variable 4-concessions in sales tax

Variable	Factor loadings	KMO	Bartlett t test of sp value	Total variance explained	Cronbach alpha
Subsidies for initial feasibility study	.719				
Reduction in stamp duty	.673				
Share capital for starting business	.881	.898	P<0.01	68.99%	.920
Subsidies for interest payable	.904				
Incentives for patenting ideas	.890				
Interest free loan for exports	.884				
Mediclaime facilities	.833				

Source: primary data

Extraction Method: Principal Component Analysis KMO- Kaiser Meyer Olkin

Measure of Sampling Adequacy

TABLE 32.1-SEGMENT 4: BENEFITS GAINED

Variable	Factor loadings	KMO	Bartlett t test of sp value	Total variance explained	Cronbach alpha
Opportunity to explore new technology	.168				
Easily get permits for constructions/enhancement	.825				
Boost sales in both domestic and international markets	.747				
Doing business in environment friendly manner	.741				
Operate in a safe manner	.150				
Saving on the utility expenses	.093				
Improvement in economic and financial status	.632				

Source: primary data

Table 32.2-After dropping variable1-opportunity to explore new technology, variable5-operate in safe manner, variable 6-saving in the utility expenses

Variable	Factor loadings	KMO	Bartlett t test of sp p value	Total variance explained	Cronbach alpha
Easily get permits for construction/enhancement	.788				
Boost sales in both domestic and international markets	.768	.745	P<0.01	57.05%	.746
Doing business in environment friendly manner	.780				
Improvement in economic and financial status	.681				

Source: primary data

Extraction Method: Principal Component Analysis KMO- Kaiser Meyer Olkin

Measure of Sampling Adequacy

TABLE 33.1-SEGMENT 5: ISSUES / CHALLENGES FACED

Variable	Factor loadings	KMO	Bartlett t test sp p value	Total variance explained	Cronbach alpha
Tedious entry procedures	.804				
Problem of skilled and trained labour	.579				
Forced to follow operational procedures	.735				
Interventions by banks	.153				
Infrastructure is very old and needs improvement	-.123				
Problem of storage of inventory	.263				

Source: primary data

Table 33.2--After dropping variable 4- interventions by banks, variable 5- infrastructure is very old and needs improvement and variable 6- problem of storage of inventory

Variable	Factor loadings	KMO	Bartlett t test sp p value	Total variance explained	Cronbach alpha
Tedious entry procedures	.781				
Problem of skilled and trained labour	.600	.584	P<0.01	54.53%	.567
Forced to follow operational procedures	.816				

Source: primary data

Extraction Method: Principal Component Analysis KMO- Kaiser Meyer Olkin

Measure of Sampling Adequacy

TABLE 34-TABLE SHOWING CRONBACH ALPHA(QUESTIONNAIRE 2):

Sr No	Segment	Cronbach alpha
1	Facilities	.847
2	Infrastructure	.700
3	Incentives	.920
4	Benefits	.746
5	Challenges	.567

Source: primary data

4.4 INFERENTIAL STATISTICS

4.4.1 Independent variables:

- Age
- Education
- Work experience
- Designation
- Number of years of existence in the industrial estate
- Type of unit

4.4.2 Dependent Variables:

- Facilities in the industrial estates
- Infrastructure provided in the industrial estates
- Incentives offered
- Benefits gained
- Challenges faced

4.4.3 TOOLS USED:

- Descriptive statistics(Mean, standard deviation, frequency, minimum values and maximum values)

- Factor Analysis(factor loadings)
- Regression(to test the relationships between the variables)
- Cronbach Alpha(to test the reliability)
- T test(comparison of dependent and independent variables)
- ANOVA(model significance)
- Pearson's Co-relation(relationship)

4.4.4- STATISTICAL PACKAGE USED: SPSS 20

4.5 ANALYSIS OF DATA AND TESTING OF HYPOTHESIS

OBJECTIVE 1-TO ASSESS THE INDUSTRIAL ESTATES PROGRAMME IN GOA

This objective involves the assessment of the Industrial Estates Programme in Goa.

The Industrial Estates Programme in Goa is assessed on the basis of the opinions of the GIDC Officials and the Members of the Industrial Estate Association.

Questionnaire 1 was circulated among the GIDC officials i.e. Field Managers of all the industrial estates and also among the Member of the Industrial Estate Association of all the 18 functional industrial estates located in Goa. This Questionnaire consist of five parts i.e. Profile of the each industrial estate, Programmes conducted in the industrial estate to attain the objectives, Contribution of GIDC towards the development of the industrial estate, Benefits gained by the industrial estate due to GIDC, and Challenges encountered by the industrial estate due to GIDC.

The analysis of the responses for these *five* parts is as follows:

❖ **4.5.1 PROFILE OF THE INDUSTRIAL ESTATES:**

- **Kundaim** industrial estate is the second largest industrial estate of Goa. It was established in 1982. This industrial estate consists of mixed industries. It has large units, medium and micro units as well as small units.
- **Corlim** industrial estate is the oldest industrial estate of Goa. Initially, it was established with proper planning. However, today it is totally neglected. There are only micro and small units in this industrial estate. There are no medium and large scale units.
- **Mapusa** industrial estate is the most ideally located industrial estate of Goa. It is located at the heart of Mapusa city. This is a small industrial estate. There are no large units in this industrial estate.
- **Kakoda** industrial estate is located in the backward taluka of Sanguem. However, this industrial estate is very badly hit because of closure of mining activity in Goa. Most of the units are mining based. There is no large unit in this industrial estate. It is ideally located and also there are plans of expansion of this industrial estate.
- **Tivim** industrial estate enjoys strategic location. It is a small industrial estate containing 80% of the functioning units. It is a model industrial estate with all the amenities. It has a combination of small, micro and large units. There are

also export oriented units in this industrial estate. This industrial estate is located at the junction.

- **Margao** industrial estate is the second oldest industrial estate. Initially, most of the units in this industrial estate were owned by local entrepreneurs. However, today the scenario has changed. Majority of the units are owned by the entrepreneurs from the other States.
- **Bethora** industrial estate is a small industrial estate. However, this industrial estate contains majority ancillary units which are based on only one large scale unit.
- **Madkaim** industrial estate is a small industrial estate. It has a combination of all types of units. It also has large scale units and export oriented units.
- **Cuncolim** industrial estate is not well planned. There are no mixed types of industries in this industrial estate. Majority of the industries are steel units. Pollution is a major issue in this industrial estate.
- **Tuem** industrial estate is a small industrial estate located in the backward taluka i.e. Pernem. This industrial estate has no polluting unit. It has a variety of industries. There are no large units in this industrial estate. There are only small and micro units in this industrial estate.

- **Bicholim** industrial estate is centrally located industrial estate. It is situated in the backward taluka. There are varieties of industries in this industrial estate.
- **Honda** industrial estate is located in the remote area. There is only one big unit and the remaining are ancillary units. However, new industries are coming up in this industrial estate.
- **Canacona** industrial estate is the smallest industrial estate of Goa. It is located in the backward taluka namely Canacona. The major problem of this industrial estate is that the maximum area is unutilised. Two big units are closed down due to pollution problem.
- **Pilerne** industrial estate has excellent location i.e. it is very close to the capital city. It is a small and compact industrial estate. It is closer to the tourist spots. There are no pollution issues. It contains all the types of units. It also contains large export oriented units.
- **Verna** industrial estate is the largest industrial estate. The location of this industrial estate is very strategic. It is closer to all the modes of transport. There are good performing units in this industrial estate. Majority of the pharma companies registered in Goa are located in this industrial estate. There are plans to make this industrial estate a five star Industrial Estate.

- **Sancoale** industrial estate is strategically located close to the airport, seaport. However, industrial climate is lacking in this industrial estate. Association is not active. Majority of the units are either sold out or given on rent as godowns.
- **Colvale** industrial estate was basically established to cater to the needs of larger units. This industrial estate is not meant for small and micro units.
- **Pissurlem** industrial estate is located in the backward taluka of Sattari. There is no separate Field Manager for this industrial estate. Field Manager of Honda industrial estate is holding an additional charge. There is no association. This industrial estate is yet to be developed fully.

❖ **4.5.2 PROGRAMMES CONDUCTED IN THE INDUSTRIAL ESTATE TO ATTAIN THE OBJECTIVES:**

- **Colvale** Industrial Estate: waste collection drive, health checkups for workers, awareness of the Government schemes.
- **Sancoale** Industrial Estate: Workshops for the awareness of schemes for the entrepreneurs.
- **Verna** Industrial Estate: Monthly programmes for the entrepreneurs. Water harvesting projects. Awareness of schemes. Workshops and Seminars on different issues such as patenting, fire fighting, waste management, etc. are conducted for the entrepreneurs. Government departments such as Health Department, Water Resource Department conduct various awareness

programmes such as demo on rain water harvesting, malaria awareness etc. for the benefit of the industrial units.

- **Pilerne Industrial Estate:** MSME conducts awareness programmes for the entrepreneurs. Workshops and Seminars are also conducted for the benefit of the units. CIBA has also conducted various programmes for the units in the industrial estate.
- **Canacona Industrial Estate:** Department of industries create awareness drive about the schemes which can be availed by the entrepreneurs. Seminars are also organised on various topics such as ISO awareness, pollution rules, export formalities, etc. for the industrial units.
- **Kundaim Industrial Estate:** Seminars on entrepreneurship managerial skill development programmes, health checkups, blood donation camps, safety awareness, fire fighting demonstrations, training programmes by MSME and Agnel Institute, Verna for the entrepreneurs.
- **Corlim Industrial Estate:** MSME Workshops for the units. Awareness drives by Health Department regarding various diseases such as Malaria, Dengue, etc. Awareness of schemes by Government Departments, NABARD and other nationalised banks.
- **Mapusa Industrial Estate:** Awareness programmes of various schemes by CIBA, Verna. Workshops and training programmes by MSME. Government Departments organise talks for the entrepreneurs.
- **Kakoda Industrial Estate:** Awareness of various rules and formalities by Goa Pollution Control Board. Fire fighting demonstrations. Safety workshops for the units.

- **Tivim Industrial Estate:** Garbage management in association with municipality. Skill development programmes for managers as well as supervisors. Awareness of different schemes of the banks and government. Open forum to discuss the problems faced.
- **Margao Industrial Estate:** Various programmes in association with MSME and Government departments for the benefit of the entrepreneurs. Training programmes for the entrepreneurs to enhance their knowledge and skills.
- **Bethora Industrial Estate:** Awareness of various schemes for the entrepreneurs. Waste Management Programme. Health Camp for the employees.
- **Madkaim Industrial Estate:** Various workshops for the entrepreneurs conducted by MSME. Awareness about various schemes is created.
- **Cuncolim Industrial Estate:** Awareness programmes for the entrepreneurs on waste management and pollution control. Workshops for the units on various issues such as garbage management, environmental concern, disposition of biodegradable waste, etc.
- **Tuem Industrial Estate:** Awareness of various schemes. Entrepreneurship development programmes Workshops by MSME. Seminars on various topics for the benefit of the units such as fire fighting, safety at workplace, pollution control. Health camps and awareness of diseases such as Malaria, dengue, etc.
- **Bicholim Industrial Estate:** Industries department create awareness programmes on the schemes. Health department conduct awareness of various diseases and precautions to be taken by the entrepreneurs.

- **Honda** Industrial Estate: Training workshops conducted by various organisations such as GSIA, GCCI, etc. Skill development programmes for the entrepreneurs.
- **Pissurlem** Industrial Estate: No programmes are conducted as yet.

❖ **4.5.3 CONTRIBUTION OF GIDC TOWARDS THE DEVELOPMENT OF THE INDUSTRIAL ESTATE:**

- Plot allotment / Shed allotment
- Infrastructure provision
- Grievances are heard and solved
- Awareness of rules and procedures
- Co-ordinate with Industrial Estate Associations
- Maintenance of industrial estate
- Co-operative Field Managers

❖ **4.5.4 BENEFITS GAINED BY THE INDUSTRIAL ESTATE DUE TO GIDC:**

- **Colvale** Industrial Estate: Infrastructure, maintenance of the industrial estate and support in taking approvals.
- **Sancoale** Industrial Estate: In spite of enjoying strategic location, this industrial estate is the most neglected industrial estate.
- **Verna** Industrial Estate: Excellent location, and good infrastructure.
- **Pilerne** Industrial Estate: Provision of basic infrastructure.
- **Canacona** Industrial Estate: Infrastructure is provided and maintained.

- **Kundaim** Industrial Estate: Providing basic infrastructure facilities and awareness of procedures and rules. Dry Waste Collection Shed. Ready facilities.
- **Corlim** Industrial Estate: Good infrastructure Good location. Majority facilities are provided.
- **Mapusa** Industrial Estate: Centrally located. Provision of infrastructure.
- **Kakoda** Industrial Estate: Basic infrastructure is provided. Created employment for locals. Tie up with Municipality for Garbage Collection.
- **Tivim** Industrial Estate: Good infrastructure Accessibility to two approach Exclusive power station. Road widening with bus bay at the either side of the estate. Beautification of entrance. CCTV Cameras at the entrance. Streetlights with sodium bulb, Garbage collection. Hall given on rent.
- **Margao** Industrial Estate: Basic infrastructure, plots on installments and maintenance of industrial estate.
- **Bethora** Industrial Estate: Basic infrastructure is provided. However, it needs up gradation.
- **Madkaim** Industrial Estate: Basic infrastructure, employment generation for the local people, upliftment of the village, co-operative Field Manager.
- **Cuncolim** Industrial Estate: Infrastructure, non interference from locals, development of local economy, employment generation, development of surrounding villages.
- **Tuem** Industrial Estate: Ready plots, infrastructure fencing for the industrial estate, expansion plan.
- **Bicholim** Industrial Estate: Infrastructure, plots, co-operative and understanding Field Managers.

- **Honda** Industrial Estate: Ready infrastructure, plots, maintenance work, co-operative Field Manager.
- **Pissurlem** Industrial Estate: Plots and ready infrastructure.

❖ 4.5.5 CHALLENGES ENCOUNTERED BY THE INDUSTRIAL ESTATES DUE TO GIDC:

- **Colvale** Industrial Estate: Quality power, proper fencing for the industrial estate and security at the gate, fire station, health centre, Sulabh Toilets, Bank branch within the industrial estate.
- **Sancoale** Industrial Estate: Uninterrupted power supply, security, development of industrial climate.
- **Verna** Industrial Estate: Change in the system of calculating lease rent, single window system for all the procedures, motivational workshops for the entrepreneurs as well as employees, stray cattle.
- **Pilerne** Industrial Estate: Power fluctuations, interference by villagers, water shortage, and cattle menace at the estate, unhygienic canteen.
- **Canacona** Industrial Estate: Power fluctuations, start at least one large scale labour intensive industry, open forum to hear the grievances.
- **Kundaim** Industrial Estate: Upgrade infrastructure, awareness about the various rules is needed, environment protection, employment generation.
- **Corlim** Industrial Estate: Lease rent is very high for small units, sub-leasing rules need revision, lot of conflicts with local residents around the industrial estate, Garbage problem, resistance by local people, labour problem.
- **Mapusa** Industrial Estate: Quality power, sewage system, Garbage disposal.

- **Kakoda** Industrial Estate: Revival of sick units, land scarcity, quality power, proper telephone network, skilled labour, drainage, water shortage.
- **Tivim** Industrial Estate: Staff constraint, budget constraint, lack of accountability.
- **Margao** Industrial Estate: Encouragement of ancillary industries, head office of GIDC is too far for the units.
- **Bethora** Industrial Estate: Expansion Problem, land scarcity, majority units are ancillary units depending on single large unit.
- **Madkaim** Industrial Estate: Limited powers to Field Managers, lack of single window system, power fluctuations, lack of sufficient public transport, skilled manpower shortage, new administrative building needed.
- **Cuncolim** Industrial Estate: Need for up gradation of infrastructure, unhygienic canteen, pollution issues.
- **Tuem** Industrial Estate: up gradation of existing infrastructure, lack of facilities like fire station, health centre, improvement in public transport.
- **Bicholim** Industrial Estate: Power fluctuations, shortage of land, conflicts with locals, need for compound wall for the industrial estate, need for improvement in telephone cables and broadband.
- **Honda** Industrial Estate: Canteen has closed, Garbage problem, stray cattle problem, power fluctuation, need for underground electric cabling, doctor on duty, streetlights not working.
- **Pissurlem** Industrial Estate: Need to be developed, no full time Field Manager, no GIDC office, motivating entrepreneurs to come forward in this industrial estate.

4.6 TESTING OF HYPOTHESIS(H1 TO H5)

TESTING OF HYPOTHESES (H1)

H1: There is no difference of opinion between the GIDC Officials and the Industrial Estate Association presidents as regarding the objectives of Industrial Estate Programme in Goa.

TESTS USED: ORDINARY LEAST SQUARE REGRESSION and ANOVA

Table 35.1: Dependent variable: objective of developing the economy of Goa, Independent variable: GIDC Officials, Reference: Association presidents

Independent variable	Standardised Beta co-efficient	P value	R ²	Adjusted R ²
GIDC Officials	-.087	.613(p>0.1)	.008	0.022

Source: primary data

Table 35.2: Dependent variable: objective of promoting employment and entrepreneurship, Independent variable- GIDC Officials, Reference: Association presidents

Independent variable	Standardised Beta co-efficient	P value	R ²	Adjusted R ²
GIDC Officials	-.071	.681(p>0.1)	.005	0.024

Source: primary data

The above two tables indicate that GIDC Officials and Industrial Estate Association presidents have same opinion as regards the objectives of industrial estates programme in Goa are concerned. Both feel that industrial estates in Goa contribute to the development of the economy and also promote employment generation and entrepreneurship. Therefore, H1 is accepted. There is no difference of opinion between the GIDC Officials and the Industrial Estate Association Presidents as regards the objectives of industrial estate programme in Goa. The opinions are the same because both want to play safe and have given the same opinions. GIDC Officials are Government servants and hence are scared to speak against the

Government. Industrial Estate Association Presidents have their unit in the industrial estate and are dependent on the GIDC and therefore are reluctant to speak against GIDC.

Again, objective of developing the economy of Goa and the objective of promoting employment and entrepreneurship are significantly co-related. Promotion of employment and promotion of entrepreneurship leads to the development of the economy. Both are interdependent on one another.

Pearson's co-relation Co-efficient between the two objectives is 0.338 and $p < 0.05$

OBJECTIVE 2: TO STUDY THE PROFILE OF THE INDUSTRIAL ESTATES IN GOA

There are 20 industrial estates in Goa, namely Corlim ,Margao,Sancoale, Mapusa, Thivim, Bicholim, Honda, Kakoda, Bethora, Canacona,Kundaim, Tuem, Verna, Cuncolim, Pilerne, Madkaim, Shiroda, Colvale, Pissurlem, and Sanguem. However, there are no functioning units in two industrial estates namely, Shiroda and Sanguem.

This objective involves the study of the profile of the industrial estates in Goa. The study of profile is based on the secondary data collected from the GIDC Office; Panaji Goa. The tools used to study the profile includes graphs and charts. Comparative analysis is also undertaken between the industrial estates with reference to the parameters. The parameters used to study the profile of the industrial estates are as follows:

- Name of the industrial estate
- Year of establishment
- Total area
- Total sheds
- Total plots
- Total units

- Number of functioning units
- Number of closed units
- Total employment
- Water consumed per day

The following table indicates an overview of the industrial estates in Goa

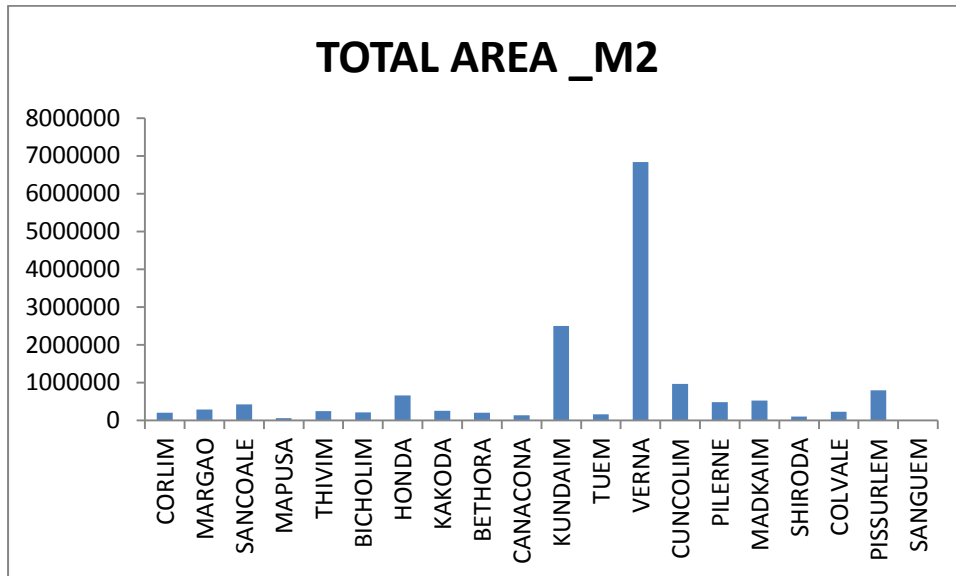
TABLE 36

INDUSTRIAL ESTATES IN GOA : AT GLANCE										
Sr.No	NAME OF I.E	YEAR OF EATBLISHMENT	TOTAL AREA	TOTAL SHEDS	TOTAL PLOTS	TOTAL UNITS	NO OF FUNCTIONING UNITS	NO OF CLOSED UNITS	TOTAL EMPLOYMENT	WATER CONSUM
1	CORLIM	1966	2,11,363 M2	76	78	102	82	20=1 NEW	800	230 M3/DAY
2	MARGAO	1967	2,93,031 M2	97	58	152	95	51+6 NEW	1400	300 M3/DAY
3	SANCOALE	1972	4,29,270 M2	98	78	176	146	30	1700	400 M3/DAY
4	MAPUSA	1975	66100 M2	31	20	32	27	5	900	100 M3/DAY
5	THIVIM	1976	1,79,108 M2,74,715 M2	89	65	132	109	23+1 NEW	2000	450 M3/DAY
6	BICHOLIM	1977	2,12,276 M2	65	65	126	87	39	950	225 M3/DAY
7	HONDA	1982	6,63,618 M2	31	43	51	34	13+4 NEW	800	65 M3/DAY
8	KAKODA	1984	2,60,815 M2	28	150		55	12+40 NEW	600	400 M3/DAY
9	BETHORA	1982	2,04,558 M2	95	130	95	79	16+1 NEW	1150	150 M3/DAY
10	CANACONA	1985	1,43,310 M2	27	73	53	30	15+8 NEW	150	28 M3/DAY
11	KUNDAIM	1982	24,99,658 M2	72	391	288	223	30+34 NEW	3560	1000 M3/DAY
12	TJEM	1986	1,62,418M2	31	82	48	30	18	800	90M3/DAY
13	VERNA	1989	68,39,746	NIL	200	325	301	24	10000	750 M3/DAY
14	CUNCOLIM	1993	9,72,335 M2	6	127	110	90	20	2000	600 M3/DAY
15	PILERNE	1994	4,89,225 M2	NIL	154	115	82	21+11 NEW	4000	800 M3/DAY
16	MADKAIM	1997	5,30,410 M2	NIL	139	88	64	09+15 NEW	1600	300 M3/DAY
17	SHIRODA	1998	1,05,100 M2	NIL	10+5=15	NIL	NIL	NIL	NIL	NIL
18	COLVALE	1998	2,31,070 M2	NIL	35	24	20	NI+04	1250	200 M3/DAY
19	PISSURLEM	1997	8,01,720 M2	NIL	149	35	20	05+10 NEW	300	20 M3/DAY
20	SANGUEM	2002	-	-	-	-	-	-	-	-

SOURCE: GIDC, PANAJI

The above table has been represented with the help of following figures/ diagrams:

FIGURE 1



The above figure indicates that Verna industrial estate is the biggest industrial estate and Mapusa industrial estates is the smallest industrial estate on the basis of the area. The total functioning units in Verna industrial estate are 301 which provide employment to 10000 people. However, total functioning units in Mapusa industrial estate are only 27 providing employment to 900 people.

FIGURE 2:

The below figure indicates that functioning units are highest in Verna industrial estate and lowest in Colvale and Pissurlem industrial estates. There are no functioning units in Shiroda industrial estate and Sanguem industrial estate respectively.

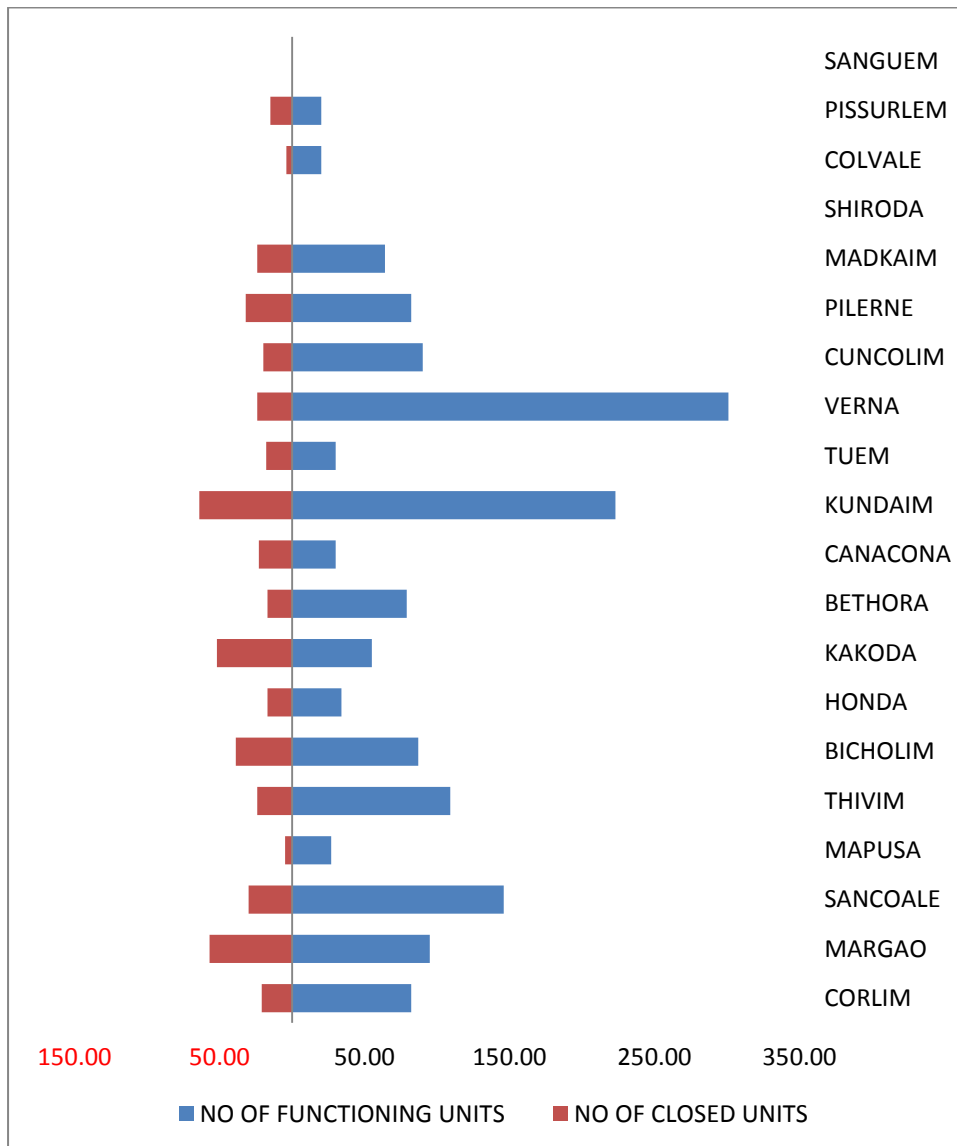
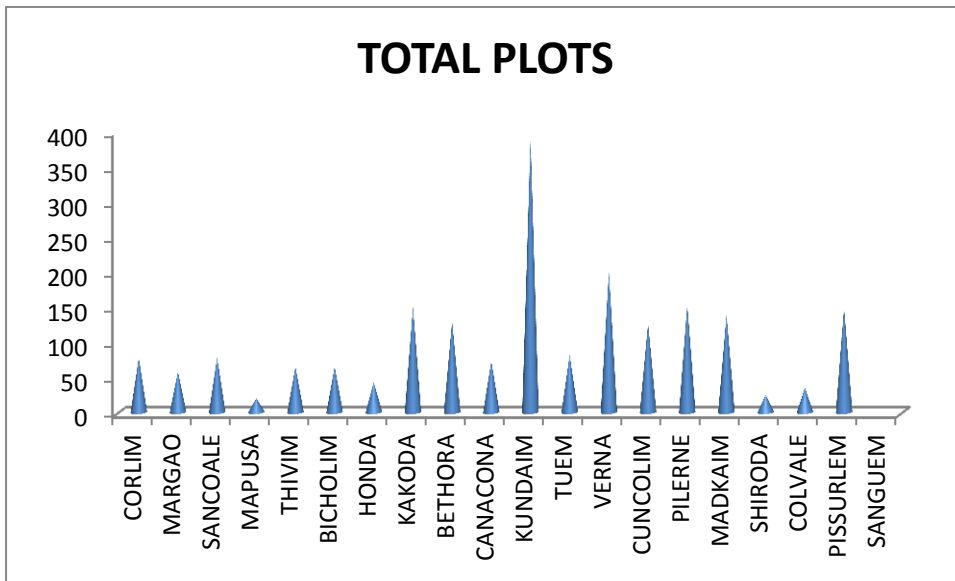
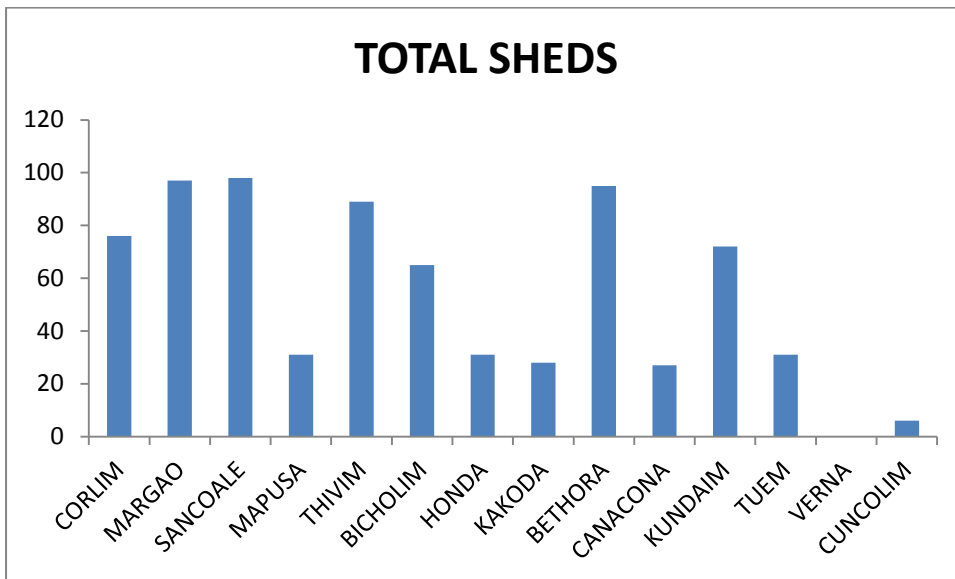


Figure: 3



The above figure indicates that Kundaim industrial estate has highest number of plots where as Mapusa industrial estate has lowest number of plots. There are 391 plots in Kundaim where as Mapusa industrial estate has only 20 plots.

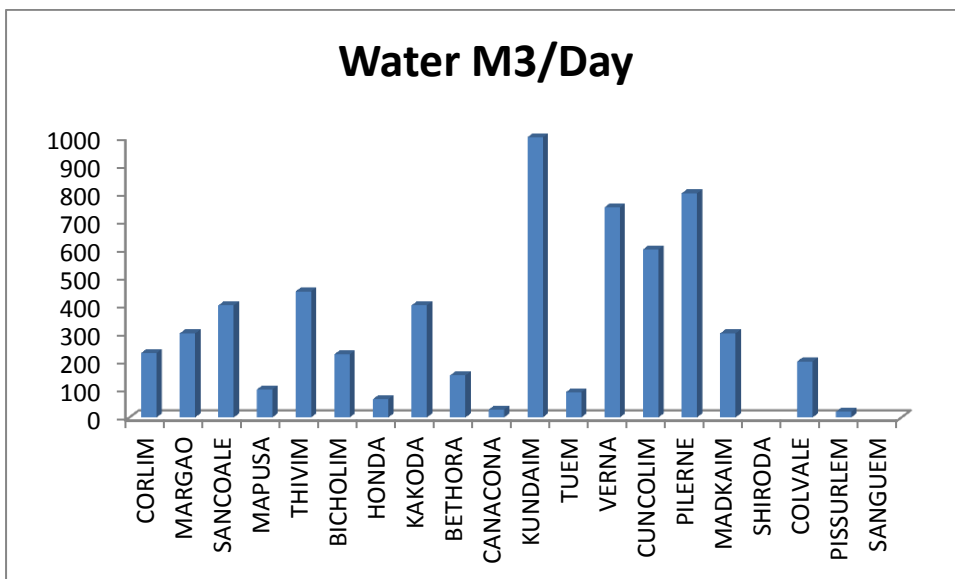
Figure 4:



The above figure indicates that Margao industrial estate and Sancoale industrial estate has highest number of sheds where as Cuncolim industrial estate has lowest number of sheds.

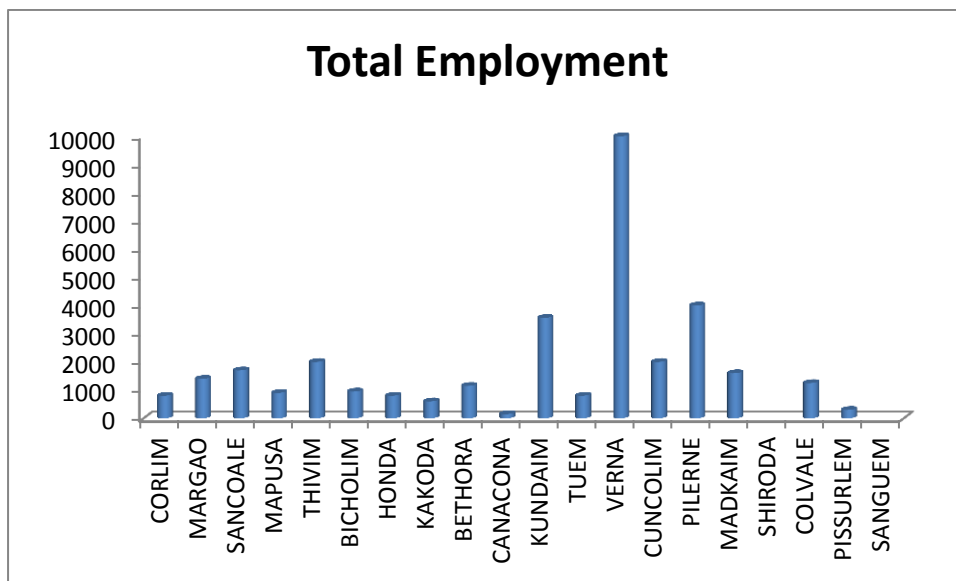
There are no sheds in Verna industrial estate. Verna industrial estate has only plots.

Figure: 5



The above figure indicates that water consumed per day is highest in Kundaim industrial estate and lowest in Pissurlem industrial estate. Kundaim industrial estate consumes 1000 m³ of water per day where as Pissurlem industrial estate consumes only 20 m³ of water per day.

Figure: 6



The above figure indicates that the total employment provided is highest in Verna industrial estate and lowest in Canacona industrial estate. Verna industrial estate provides employment to 10000 people where as Canacona industrial estate provides employment to only 150 people.

OBJECTIVE 3: TO EXAMINE WHETHER THE ENTREPRENEUR'S DEMOGRAPHIC PROFILE HAS AN INFLUENCE ON HIS PERCEPTION TOWARDS THE WORKING OF INDUSTRIAL ESTATES

TESTING OF HYPOTHESES (H2.1 TO H2.25)

H2: There is no significant relationship between the demographic profile of the entrepreneur and his perception towards the working of industrial estates in Goa.

(Demographic profile includes Age, Education, Experience, Designation and Number of years of existence). (Working includes facilities, infrastructure, incentives, benefits and challenges)

TESTS USED: ORDINARY LEAST SQUARE REGRESSION and ANOVA

H2.1: There is no significant relationship between the Age of the entrepreneur and his perception towards the facilities of the industrial estate.

TESTS USED: ORDINARY LEAST SQUARE REGRESSION and ANOVA

Table 37.1: Independent variable: Age, Dependent variable: Facilities, Reference: Below 25, Model Significance $p > 0.1$

Independent variable	Standardised Beta Co-efficient	P value ($p > 0.1$)	R ²	Adjusted R ²
25-35	-0.055	.843		
35-45	.053	.908	.026	0.002
45-55	-0.104	.829		
Above 55	-0.122	.795		

Source: primary data

The above table indicates that Model is insignificant. That means that Age of the entrepreneur does not influence his perception on the facilities provided in the industrial estate. Perception of all the entrepreneurs is almost the same irrespective of their age group. Negative values signify that relationship is negative. Therefore the Null hypothesis is accepted.

The perceptions of the entrepreneurs in the age group of 25-35 is negative because they are young, having less experience, and new in the industrial estate. Their expectations are high. They want the best facilities from GIDC. Since the facilities are below their expectations, their perceptions are negative. Similarly, the experienced entrepreneurs in the age group of 45-55 and above 55 also have negative perceptions. This is because they have been demanding better facilities from long but are not getting the same. However, the entrepreneurs in the age group of 35-45 are middle aged. They have learnt to do their business with the existing facilities. They are managing with the existing facilities and have no expectations from GIDC. They will be happy if the facilities improve.

H2.2: There is no significant relationship between the Educational Qualification of the entrepreneur and his perception on the facilities of the industrial estate.

TESTS USED: ORDINARY LEAST SQUARE REGRESSION and ANOVA

Table37.2 Independent Variable: Educational Qualification, Dependent variable: Facilities, Reference: undergraduates. Model Significance: $p > 0.1$

Independent variable	Standardised Beta Co-efficient	P value $p > 0.1$	R ²	Adjusted R ²
Graduates	0.007	.948	.001	0.013
Post graduates	0.031	.760		

Source: primary data

The above table indicates that the Model is insignificant. Educational Qualification does not influence the entrepreneur's perception on the facilities of the industrial estates. Perception does not change with the change in the educational qualification of the entrepreneur.

Therefore Null hypothesis is accepted .All entrepreneurs enjoy the same facilities in the industrial estate irrespective of their educational qualifications. Hence they have the same perceptions.

H2.3: There is no significant relationship between the experience of the entrepreneur and his perception on the facilities of the industrial estate.

TESTS USED: ORDINARY LEAST SQUARE REGRESSION and ANOVA

Table37. 3: Independent Variable: Experience, Dependent Variable: facilities, Reference: Less than 2 years. Model significance > 0.1

Independent variable	Standardised Beta Co-efficient	P value $p > 0.1$	R ²	Adjusted R ²
2-5 years	0.022	.894		

5-8 years	0.093	.608	.044	0.017
8-15 years	0.027	.955		
More than15 years	-.146	.767		

Source: primary data

The above table indicates that the Model is insignificant. Experience of the entrepreneur does not influence his perception on the facilities of the industrial estate. Therefore, the null hypothesis is accepted. The entrepreneurs having more than 15 years of experience have negative perception towards the facilities provided in the industrial estate. This is because they are in the industrial estate for more years. They have more experience and have noticed that the facilities have not improved irrespective of their continuous demands. Hence they are angry. However, the other category entrepreneurs having less than 15 years experience, has positive perceptions. They are learning to get adjusted to the existing facilities in the industrial estate.

H2.4: There is no significant relationship between the designation of the entrepreneur and his perception on the facilities of the industrial estate.

TESTS USED: ORDINARY LEAST SQUARE REGRESSION and ANOVA

Table37.4 : Independent variable: Designation, Dependent variable: Facilities, Reference: Proprietorship, Model Significance $p > 0.1$

Independent variable	Standardised Beta Co-efficient	P value $p > 0.1$	R ²	Adjusted R ²
Partnership	-0.096	.316	.018	0.004
Company	0.056	.559		

Source: primary data

The above table indicates that Model is not significant. This means that Designation of the entrepreneur is not influencing his perception on the facilities of the industrial estate.

Perception of the entrepreneur is the same on the facilities of the industrial estate irrespective of whether the form of his unit is Proprietor ship, Partnership or Company. Therefore the Null hypothesis is accepted .Whether the unit is Proprietorship, Partnership or a Company,

they get the same facilities in the industrial estate. The type of requirements is different for different type of unit. The proprietorship is a one man show where as the company is a large form of organisation. However, all the types of organisations have the same perception on the facilities provided in the industrial estate. Partnership form of organisation has negative perception on the facilities because the facilities provided are not as per their expectations.

H2.5: There is no significant relationship between the number of years of existence of the entrepreneur in the industrial estate and his perception on the facilities of the industrial estate.

TESTS USED: ORDINARY LEAST SQUARE REGRESSION and ANOVA

Table37. 5: Independent variable: Number of years, Dependent variable: facilities

Independent variable	Standardised Beta Co-efficient	P value p>0.1	R ²	Adjusted R ²
Number of years	-0.035	.673	.001	0.006

Source: primary data

The above table indicates that Number of years of existence of the entrepreneur in the industrial estate does not influence his perception on the facilities of the industrial estate. The entrepreneur has the same perception on the facilities of the industrial estate irrespective of whether he is new in the industrial estate or he has spent many years in the industrial estate. Therefore, the Null hypothesis is accepted .The new entrepreneur as well as the experienced entrepreneur have the same perception on the facilities provided in the industrial estate. The perception is negative. This shows that they are not happy with the facilities provided in the industrial estate.

H2.6: There is no significant relationship between the Age of the entrepreneur and his perception on the infrastructure provided in the industrial estate.

TESTS USED: ORDINARY LEAST SQUARE REGRESSION and ANOVA

Table 37. 6: I independent variable- Age, Dependent variable-infrastructure, Reference- below 25, Model significance-p>0.1

Independent variable	Standardised Beta Co-efficient	P value p>0.1	R ²	Adjusted R ²
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25-35	-0.043	.876		
35-45	-0.031	.945	.045	0.018
45-55	-.255	.591		
Above 55	-.235	.613		

Source: primary data

The above table indicates that Model is insignificant. Age of the entrepreneur is not related to his perception on the infrastructure provided by the industrial estates. Therefore, null hypothesis is accepted. The perceptions of all the age groups are negative. This means that the entrepreneurs belonging to all the age groups are not happy with the infrastructure provided in the industrial estates. They want improvement in the existing infrastructure.

H2.7: There is no significant relationship between the Educational Qualification of the entrepreneur and his perception on the infrastructure provided in the industrial estate.

TESTS USED: ORDINARY LEAST SQUARE REGRESSION and ANOVA

Table 37.7: Independent variable: Educational Qualification, Dependent variable: Infrastructure, Reference: Undergraduate, Model significance- $p > 0.1$

Independent variable	Standardised Beta Co-efficient	P value $p > 0.1$	R ²	Adjusted R ²
Graduates	-.115	.254	.012	0.002
Post graduates	-.118	.244		

Source: primary data

The above table indicates that Model is insignificant. Educational Qualification of the entrepreneur does not influence his perception on the infrastructure provided in the industrial estate. Hence Null Hypothesis is accepted. The perceptions of the graduate entrepreneurs as well as the post graduate entrepreneurs are negative. Both are not happy with the infrastructure provided in the industrial estate.

H2.8: There is no significant relationship between the Experience of the entrepreneur and his perception on the infrastructure provided in the industrial estate.

TESTS USED: ORDINARY LEAST SQUARE REGRESSION and ANOVA

Table 37.8: Independent variable-Experience, Dependent variable-infrastructure, Reference-less than 2, Model significance- $p > 0.1$

Independent variable	Standardised Beta Co-efficient	P value p>0.1	R ²	Adjusted R ²
2-5	-0.034	.839		
5-8	-0.073	.694	.006	0.022
8-15	-0.135	.783		
Above15	-.208	.679		

Source: primary data

The above table indicates that Model is insignificant. Experience of the entrepreneur is not related to his perception on the infrastructure provided in the industrial estate. Hence Null Hypothesis is accepted .The perceptions of the entrepreneurs having more than 15 years experience as well as less than 15 years experience have negative perceptions .New entrepreneurs as well as experienced entrepreneurs are unhappy with the infrastructure provided in the industrial estates.

H2.9: There is no significant relationship between the Designation of the entrepreneur and his perception on the infrastructure provided in the industrial estate.

TESTS USED: ORDINARY LEAST SQUARE REGRESSION and ANOVA

Table 37.9: Independent variable-Designation, Dependent variable-infrastructure, Reference-proprietorship, Model significance-p>0.1

Independent variable	Standardised Beta Co-efficient	P value p>0.1	R ²	Adjusted R ²
Partnership	.045	.638	.019	.005
Company	.154	.108		

Source: primary data

The above table indicates that the Model is insignificant. Designation of the entrepreneur and his perception towards the infrastructure provided in the industrial estate are not related. Irrespective of the form of organisation, all the entrepreneurs are having similar perception on the infrastructure provided in the industrial estate. Therefore, Null hypothesis is accepted .All the types of organisations enjoy similar type of infrastructure in the industrial estate irrespective of the fact that their requirements are different.

H2.10: There is no significant relationship between the number of years of existence of the entrepreneur in the industrial estate and his perception on the infrastructure provided in the industrial estate.

TESTS USED: ORDINARY LEAST SQUARE REGRESSION and ANOVA

Table 37.10: Independent variable-Number of years, Dependent variable-infrastructure, Model significance-p>0.1

Independent variable	Standardised Beta Co-efficient	P value p>0.1	R ²	Adjusted R ²
Number of years	.075	.573	.001	0.001

Source: primary data

The above table indicates that Model is not significant. Number of years of existence of the entrepreneur in the industrial estate does not influence his perception on the infrastructure provided in the industrial estate. Therefore, Null hypothesis is accepted. When the entrepreneur starts the unit in the industrial estate, he has some expectations as far as infrastructure is concerned. However, as the time passes, he gets used to the existing infrastructure. Hence the perception on the infrastructure does not vary with the number of years of existence in the industrial estate.

H2.11: There is no significant relationship between the Age of the entrepreneur and his perception on the incentives provided.

TESTS USED: ORDINARY LEAST SQUARE REGRESSION and ANOVA

Table 37.11: Independent variable-Age, Dependent variable-incentives, Reference-less than 35, Model significance p>0.1

Independent variable	Standardised Beta Co-efficient	P value	R ²	Adjusted R ²
35-45	.246	.090(p<0.1)		
45-55	.000	.997(p>0.1)	.067	0.048
Above 55	.233	.115(p>0.1)		

Source: primary data

The above table indicates that Model is significant which means that Age of the entrepreneur has an influence on his perception on the incentives. Those entrepreneurs who are in the age

group of 35-45 years have better perception on incentives than those who are below 35 years of age. Those entrepreneurs who are between 45-55 years of age and those who are above 55 years have the same perception as those who are below 35 years of age. Hence Null hypothesis is accepted. The entrepreneurs do not avail the incentives in the initial age as they are not aware of the same. However, as they grow older, they feel the need and start availing the available incentives. Hence their perception varies with the age.

H2.12: There is no significant relationship between the Qualification of the entrepreneur and his perception on the incentives provided.

TESTS USED: ORDINARY LEAST SQUARE REGRESSION and ANOVA

Table 37.12: Independent variable-Qualification, Dependent variable-incentives, Reference-undergraduates, Model significance $p > 0.1$

Independent variable	Standardised Beta Co-efficient	P value $p > 0.1$	R ²	Adjusted R ²
Graduates	.127	.210	.011	0.003
Postgraduates	.063	.532		

Source: primary data

The above table indicates that the Model is insignificant. Qualification of the entrepreneur is not related to his perception on the incentives provided. Therefore, Null hypothesis is accepted. Incentives availed by the entrepreneurs do not depend upon their qualifications. It depends upon the need for the incentives and the availability of the incentives.

H2.13: There is no significant relationship between the experience of the entrepreneur and his perception on the incentives provided.

TESTS USED: ORDINARY LEAST SQUARE REGRESSION and ANOVA

Table 37. 13: Independent variable-Experience, Dependent variable- incentives, Reference-less than 2 years, Model significance- $p > 0.1$

Independent variable	Standardised Beta Co-efficient	P value $p > 0.1$	R ²	Adjusted R ²
2-5years	.180	.277		
5-8 years	.122	.506	.019	.009
8-15 years	.630	.197		
More than 15 years	.621	.215		

Source: primary data

The above table indicates that Model is not significant. Experience of the entrepreneur does not influence his perception on the incentives provided. Hence Null hypothesis is accepted. Entrepreneurs avail the incentives according to their need and eligibility. Therefore, experience of the entrepreneur is not related to his perception towards the incentives.

H2.14: There is no significant relationship between the designation of the entrepreneur and his perception on the incentives provided.

TESTS USED: ORDINARY LEAST SQUARE REGRESSION and ANOVA

Table 37.14: Independent variable-Designation, Dependent variable-incentives, Reference-Proprietorship, Model significance $p > 0.1$

Independent variable	Standardised Beta Co-efficient	P value $p > 0.1$	R ²	Adjusted R ²
Partnership	-0.089	.354	.014	0.00
Company	-.135	.160		

Source: primary data

The above table indicates that Model is not significant. Designation of the entrepreneur does not influence his perception on the incentives provided. Therefore Null hypothesis is accepted. The perceptions are negative. This means that the entrepreneurs are not happy with the incentives provided to them and hence they have not availed the same.

H2.15: There is no significant relationship between the number of years of existence of the entrepreneur in the industrial estate and his perception on the incentives provided.

TESTS USED: ORDINARY LEAST SQUARE REGRESSION and ANOVA

Table 37.15: Independent variable- Number of years, Dependent variable-incentives

Independent variable	Standardised Beta Co-efficient	P value p>0.1	R ²	Adjusted R ²
Number of years	0.130	.116	.017	.01

Source: primary data

The above table indicates that the Model is not significant. Number of years of existence of the entrepreneur in the industrial estate does not influence his perception on the incentives provided. Hence Null hypothesis is accepted. Incentives provided to the entrepreneurs are not on the basis of the number of years of existence of the unit in the industrial estate. In fact, all are provided incentives at par. It is up to the entrepreneur to decide whether to take up the incentives or not.

H2.16: There is no significant relationship between the Age of the entrepreneur and his perception on the benefits gained.

TESTS USED: ORDINARY LEAST SQUARE REGRESSION and ANOVA

Table37. 16: Independent variable-Age, Dependent variable-Benefits, Reference-Below 25 years, Model significance-p>0.1

Independent variable	Standardised Beta Co-efficient	P value p>0.1	R ²	Adjusted R ²
25-35	0.035	.899		
35-45	.263	.567	.018	.010
45-55	.227	.629		
Above 55	.167	.728		

Source: primary data

The above table indicates that Model is not significant. Age of the entrepreneur does not influence his perception on the benefits gained. Irrespective of the age the perception of the entrepreneur is the same as far as the benefits gained is concerned. Hence Null hypothesis is accepted .Benefits gained by the entrepreneur is the same irrespective of their age. Young entrepreneur as well as the aged entrepreneur enjoys the same benefits due to the location of the unit in the industrial estate.

H2.17: There is no significant relationship between the Qualification of the entrepreneur and his perception on the benefits gained.

TESTS USED: ORDINARY LEAST SQUARE REGRESSION and ANOVA

Table 37.17

Independent variable- Qualification, Dependent variable-Benefits gained, Reference-undergraduates, Model significance- $p > 0.1$

Independent variable	Standardised Beta Co-efficient	P value $p > 0.1$	R ²	Adjusted R ²
Graduates	.029	.774	.002	.011
Post graduates	.060	.554		

Source: primary data

The above table indicates that the educational qualification of the entrepreneur does not influence his perception on the benefits gained. Hence Null hypothesis is accepted. All the entrepreneurs enjoy the same benefits irrespective of the qualification. Hence they have the same perception on the benefits gained.

H2.18: There is no significant relationship between the experience of the entrepreneur and his perception on the benefits gained.

TESTS USED: ORDINARY LEAST SQUARE REGRESSION and ANOVA

Table 37.18: Independent variable-Experiences, Dependent variable- benefits, Reference-less than 2 years

Independent variable	Standardised Beta Co-efficient	P value p>0.1	R ²	Adjusted R ²
2-5 years	-.017	.916		
5-8 years	0.075	.684	.009	0.019
8-15 years	.238	.627		
Above 15 years	.213	.671		

Source: primary data

The above table indicates that Model is not significant. Experience of the entrepreneur does not influence his perception on the benefits gained. Hence Null hypothesis is accepted. The perception of the entrepreneurs having less experience is negative because they are not happy with the benefits gained in the industrial estate. As their experience increase, they get used to the existing benefits hence the perception of the entrepreneurs having more than 05 years of experience is positive.

H2.19: There is no significant relationship between the designation of the entrepreneur and his perception on the benefits gained.

TESTS USED: ORDINARY LEAST SQUARE REGRESSION and ANOVA

Table 37.19: Independent variable- Designation, Dependent variable-benefits, Reference-Proprietorship, Model significance-p>0.1

Independent variable	Standardised Beta Co-efficient	P value p>0.1	R ²	Adjusted R ²
Partnership	-.131	.173	.013	0.00
Company	-.088	.356		

Source: primary data

The above table indicates that Model is not significant. Designation of the entrepreneur does not influence his perception on the benefits gained. Therefore Null Hypothesis is accepted .Both partnership firm as well as company form of organisation are not happy with the benefits gained in the industrial estate. Therefore their perception is negative.

H2.20: There is no significant relationship between the number of years of existence of the entrepreneur in the industrial estate and his perception on the benefits gained.

TESTS USED: ORDINARY LEAST SQUARE REGRESSION and ANOVA

Table 37. 20: Independent variable-Number of years, Dependent variable-Benefits.

Independent variable	Standardised Beta Co-efficient	P value p>0.1	R ²	Adjusted R ²
Number of years	0.033	.692	.001	0.006

Source: primary data

The above table indicates that Model is insignificant. Entrepreneurs' perception on the benefits gained does not vary with the number of years of his existence in the industrial estate. Hence Null hypothesis is accepted. Entrepreneurs who are new in the industrial estate as well as the entrepreneurs, who have spent more years in the industrial estate, have the same perception on the benefits gained by them in the industrial estate. All the entrepreneurs get the same benefits from GIDC irrespective of whether they are new or experienced.

H2.21: There is no significant relationship between the Age of the entrepreneur and his perception on the challenges faced.

TESTS USED: ORDINARY LEAST SQUARE REGRESSION and ANOVA

Table 37. 21: Independent variable-Age, Dependent variable-challenges, Reference-less than 25, Model significance-p>0.1

Independent variable	Standardised Beta Co-efficient	P value p>0.1	R ²	Adjusted R ²
25-35	-.405	.142		
35-45	-.426	.349	.038	0.01
45-55	-.560	.241		
Above 55	-.436	.350		

Source: primary data

The above table indicates that Model is not significant. Age of the entrepreneur does not influence his perception on the challenges faced. Again, there is marginal difference in perception across the age groups. As compared to young entrepreneurs, aged is facing less challenge. This is because experience of the person counts. Experienced

entrepreneurs have learnt to face the challenges. Hence null hypothesis is accepted .Perceptions are negative because all are facing the various problems which they are trying to put up but no action is being taken by GIDC.

H2.22: There is no significant relationship between the Qualification of the entrepreneur and his perception on the challenges faced.

TESTS USED: ORDINARY LEAST SQUARE REGRESSION and ANOVA

Table 37.22: Independent variable-Qualification, Dependent variable-Challenges, Reference- Undergraduate, Model significance- $p>0.1$

Independent variable	Standardised Beta Co-efficient	P value $p>0.1$	R ²	Adjusted R ²
Graduates	.149	.140	.018	.004
Post graduates	.033	.739		

Source: primary data

The above table indicates that Qualification of the entrepreneur does not influence his perception on the challenges faced. All entrepreneurs face similar challenges irrespective of their qualification. The problems faced by all the entrepreneurs are the same.

H2.23: There is no significant relationship between the experience of the entrepreneur and his perception on the challenges faced.

TESTS USED: ORDINARY LEAST SQUARE REGRESSION and ANOVA

Table 37.23: Independent variable-Experience, Dependent variable-challenges, Reference- less than 2 years, Model significance- $p>0.1$

Independent variable	Standardised Beta Co-efficient	P value $p>0.1$	R ²	Adjusted R ²
2-5years	-.259	.115		
5-8 years	-.130	.475	.032	.004
8-15	-.573	.238		
>15years	-.484	.330		

Source: primary data

The above table indicates that Model is not significant. Experience of the entrepreneur does not influence his perception on the challenges faced. In fact, perceptions are negative. This means that industrial estate authorities give only the promises. Hence null

hypothesis is accepted. Entrepreneurs through their associations and other platform try to put forward their problems faced by them. However, the problems still continue. Therefore, the perceptions are negative.

H2.24: There is no significant relationship between the Designation of the entrepreneur and his perception on the challenges faced.

TESTS USED: ORDINARY LEAST SQUARE REGRESSION and ANOVA

Table 37. 24: Independent variable-Designation, Dependent variable-challenges, Reference-proprietorship, Model significance- $p > 0.1$

Independent variable	Standardised Beta Co-efficient	P value $p > 0.1$	R ²	Adjusted R ²
Partnership	.020	.832	.003	.010
Company	-.045	.641		

Source: primary data

H2.25: There is no significant relationship between the number of years of existence of the entrepreneur in the industrial estate and his perception on the challenges faced.

TESTS USED: ORDINARY LEAST SQUARE REGRESSION and ANOVA

Table 37. 25: Independent variable-Number of years, Dependent variable-Challenges

Independent variable	Standardised Beta Co-efficient	P value $p > 0.1$	R ²	Adjusted R ²
Number of years	.058	.483	.003	0.003

Source: primary data

The above table indicates that Model is not significant. Number of years of existence of the entrepreneur in the industrial estate does not influence his perception on the challenges faced. Hence Null hypothesis is accepted. The challenges faced by the entrepreneurs who are new as well by the entrepreneurs who have spent more years in

the industrial estate face similar challenges and problems. Hence their perception is the same.

OBJECTIVE 4: TO DETERMINE THE RELATIONSHIP BETWEEN THE PERCEPTION OF THE ENTREPRENEUR TOWARDS THE WORKING OF THE INDUSTRIAL ESTATE AND THE TYPE OF THE UNIT

This objective determines the relationship between the entrepreneur’s perception on the working of the industrial estate and the type of the unit owned by the entrepreneur. The following table shows the types of units in each industrial estate district wise:

TABLE 38: TYPES OF UNITS - SOUTH GOA

NAME OF INDUSTRIAL ESTATE	SAMPLE SIZE	TYPES OF INDUSTRIES
Margao	09	Manuf(4), Engg(3), Food process(1) , Auto(1)
Verna	30	Manf(14), Elec(2), Bakery(1), Pharma(3), IT(2), Service(2), Auto(1), Home app(1), Telecomm(1), Trad(1), Cosmetics(1), Power(1)
Sancoale	13	Engg(4), Food proc(1), Manf(5), Serv(3)
Kakoda	05	Engg(1), Packg(1), Manf(3)
Cuncolim	09	Manf(5), Steel(1), Food proc(2), Const(1)
Canacona	03	Manf(2), Agro based(1)
TOTAL	69	

Source: primary data

From the above table we can see that in South Goa there are 06 industrial estates and 69 respondents, 09 in Margao, 30 in Verna, 13 in Sancoale, 05 in Kakoda, 09 in Cuncolim, and 03 in Canacona.

- In Margao, out of 09 units, 04 are manufacturing, 03 are engineering, 01 is Food Processing and 01 is Automobile unit respectively.
- In Verna, out of 30 units, 14 are manufacturing, 02 are electrical,01 is Bakery, 03 are Pharma, 02 are IT, 02 are Service, 01 is Automobile, 01 is Home Appliances, 01 is Telecommunication, 01 is Trading, 01 is Cosmetics, and 01 is Power respectively.

- In Sancoale, out of 13 units, 04 are engineering, 01 is Food Processing, 05 are manufacturing, and 03 are Service units respectively.
- In Kakoda, out of 05 units, 01 is engineering, 01 is packaging, and 03 are manufacturing units respectively.
- In Cuncolim, out of 09 units, 05 are manufacturing, 01 is steel, 02 are food processing and 01 is construction respectively.

TABLE 39: TYPES OF UNITS-NORTH GOA

NAME OF INDUSTRIAL ESTATE	SAMPLE SIZE	TYPES OF INDUSTRIES
Colvale	03	Ancillry(1), Auto(1), Packg(1)
Bethora	08	Engg(1), Pharm(1), Ancill(1), Manf(5)
Madkaim	05	Manf(2), Chem(1), Const(1), Pharma(1)
Kundaim	23	Manf(14),Packg(1), Engg(3), Pharma(1), FMCG(2), Const(1),Steel(1)
Corlim	08	Manf(7), Auto(1)
Mapusa	03	Manuf(2), Packg(1)
Tivim	08	Manf(4), Engg(2), Pharma(1), Fab(1)
Pissurlem	02	Engg(1), Manf(1)
Honda	03	Engg(2), Manf(1)
Bicholim	09	Auto(1), Manf(3), Engg(3), Pottry(1), Fab(1)
Tuem	03	Manf(2), Engg(1)
Pilerne	09	Manf(3), Furn(1), Bakery(1), Garments(1), Pharma(1), Stone(1), Engg(1)
TOTAL	84	

Source: primary data

From the above table, it can be seen that there are 84 respondents in North Goa district and 12 industrial estates. Out of 84 respondents, 03 are in Colvale, 08 in Bethora, 05 in Madkaim, 23 in Kundaim, 08 in Corlim, 03 in Mapusa, 08 in Tivim, 02 in Pissurlem, 03 in Honda, 09 in Bicholim, 03 in Tuem and 09 in Pilerne.

- In colvale, out of 03 units, 01 is ancillary, 01 is automobile, and 01 is packaging unit respectively.
- In Bethora industrial estate out of 08 units, 01 is engineering, 01 is pharma, 01 is ancillary and 05 are manufacturing respectively.

- In Madkaim , out 05 units, 02 are manufacturing, 01 is chemical, 01 is construction and 01 is pharma respectively.
- In Kundaim, out of 23 units, 14 are manufacturing, 01 is packaging, 03 are engineering, 01 is pharma, 02 are FMCG, 01 is construction and 01 is steel respectively.
- In Corlim, out of 08 units, 07 are manufacturing and 01 is automobile unit respectively.
- In Mapusa, out of 03 units, 02 are manufacturing and 01 is packaging unit respectively.
- In Tivim, out of 08 units, 04 are manufacturing, 02 are engineering, and 01 is pharma and 01 is fabrication unit respectively.
- In Pissurlem, out of 02 units, 01 is engineering and 01 is manufacturing unit respectively.
- In Honda, out of 03 units, 02 are engineering, and 01 is manufacturing unit respectively.
- In Bicholim, out of 09 units, 01 is Automobile, 03 are manufacturing, 03 are engineering, 01 is pottery and 01 is fabrication unit respectively.
- In Tuem, out of 03 units, 02 are manufacturing and 01 is engineering unit respectively.
- In Pilerne, out of 09 units, 03 are manufacturing, 01 is furniture, 01 is bakery, 01 is garment, 01 is pharma, 01 is stone and 01 is engineering unit respectively.

The above sample units are classified into *nine* categories:

- Manufacturing
- Engineering
- Food processing/ bakery
- Automobile
- Packaging
- Pharma
- Chemical
- IT
- Service

Further, since majority of the units are in the manufacturing category, the units are broadly categorised as Manufacturing Units and Non-manufacturing Units.

TESTING OF HYPOTHESES:(H3.1 TO H3.5)

H3: There is no significant relationship between the perception of the entrepreneur and the type of the unit on the facilities, infrastructure, incentives, benefits and challenges.

TEST USED: F TEST

H3.1: There is no significant relationship between the perception of the entrepreneur and the type of the unit on the facilities of the industrial estate.

Table 40.1

Perceptions	Types of Unit	N	Mean	Std. Deviation	F	Sig.
Locality	Manu	92	4.09	0.821	1.790*	0.084 p>0.05
	Eng	25	3.60	1.258		
	Food	4	4.25	0.500		
	Auto	5	4.20	0.837		
	pack	3	4.00	1.414		
	Pharma	9	4.33	0.707		
	Chem	4	3.00	0.816		
	IT	3	4.67	0.577		
	Service	8	4.25	1.035		
Infrastructure	Manu	92	3.30	0.848	1.843*	0.074 p>0.05
	Eng	25	2.76	0.879		
	Food	4	2.75	0.500		
	Auto	5	3.40	0.548		
	pack	3	3.00	1.414		
	Pharma	9	3.11	1.054		
	Chem	4	3.00	1.155		
	IT	3	4.33	0.577		
	Service	8	3.25	0.886		
Topography	Manu	92	3.72	0.746	0.924	0.499 p>0.05
	Eng	25	3.56	1.044		
	Food	4	3.00	0.816		
	Auto	5	3.60	0.548		
	pack	3	3.00	1.414		
	Pharma	9	3.56	0.726		
	Chem	4	3.50	0.577		
	IT	3	4.33	0.577		
	Service	8	3.63	0.744		
soil_condition	Manu	92	3.62	0.660	1.415	0.195 p>0.05
	Eng	25	3.52	0.918		
	Food	4	3.00	0.816		
	Auto	5	4.00	0.000		
	pack	3	3.00	1.414		
	Pharma	9	3.33	0.866		
	Chem	4	3.50	1.291		
	IT	3	4.33	0.577		
	Service	8	3.88	0.354		
Utility	Manu	92	3.14	0.793	0.941	0.485 p>0.05
	Eng	25	2.96	0.889		

	Food	4	3.00	1.414		
	Auto	5	3.00	0.707		
	pack	2	2.50	0.707		
	Pharma	9	2.67	0.866		
	Chem	4	3.00	0.816		
	IT	3	4.00	1.000		
	Service	8	3.13	1.246		
Incentives	Manu	92	3.14	0.656	2.929***	0.005 P<0.05
	Eng	25	2.64	0.638		
	Food	4	2.50	0.577		
	Auto	5	2.80	0.447		
	pack	3	2.50	0.707		
	Pharm	9	3.11	0.601		
	Chem	4	3.75	0.500		
	IT	3	2.67	0.577		
	Service	8	2.88	0.641		
Access_Highway	Manu	92	4.03	0.977	1.186	0.312 p>0.05
	Eng	25	3.68	0.988		
	Food	4	3.25	2.062		
	Auto	5	4.20	1.304		
	pack	3	4.00	1.414		
	Pharma	9	4.22	.667		
	Chem	4	3.50	1.000		
	IT	3	5.00	0.000		
	Service	8	3.75	1.165		
Feasibility_bu s	Manu	92	3.65	0.777	2.381**	0.019 P<0.05
	Eng	25	3.04	1.020		
	Food	4	3.50	1.291		
	Auto	5	3.80	0.447		
	pack	3	3.50	0.707		
	Pharma	9	3.78	0.441		
	Chem	4	3.25	0.500		
	IT	3	4.67	0.577		
	Service	8	3.75	0.886		
Overall_quality	Manu	92	3.53	0.762	1.253	0.273 p>0.05
	Eng	25	3.16	0.943		
	Food	4	3.25	0.957		
	Auto	5	3.60	0.548		
	pack	3	3.00	1.414		
	Pharma	9	3.44	0.882		
	Chem	4	3.25	0.500		
	IT	3	4.33	0.577		
	Service	8	3.75	0.886		

Source: primary data

The above table indicates that there is no significant relationship between the perception of the entrepreneur and the type of the unit on the locality, infrastructure, topography, soil conditions, utility, access to highway and overall quality. This is because in the case of all these factors, $p > 0.05$, whereas in the case of incentives and feasibility for running business, $p < 0.05$. Hence there is significant relationship between the perception of the entrepreneur and the type of the unit on these two factors. Thus, the null hypothesis is partly accepted and partly rejected.

H3.2: There is no significant relationship between the perception of the entrepreneur and the type of the unit on the infrastructure of the industrial estate.

Table 40.2

Perceptions	Types of Unit	N	Mean	Std. Deviation	F	Sig.
art_infra	Manu	92	2.74	1.004	2.342**	0.021 $P < 0.05$
	Eng	25	2.36	0.952		
	Food	4	1.25	0.500		
	Auto	5	2.20	0.447		
	Pack	3	2.50	0.707		
	Pharma	9	2.78	0.833		
	Chem	4	2.25	0.500		
	IT	3	3.67	0.577		
	Service	8	3.00	0.756		
reducing_pre_business	Manu	92	2.74	0.924	1.184	0.312 $p > 0.05$
	Eng	25	2.40	0.957		
	Food	4	2.00	0.816		
	Auto	5	2.00	0.000		
	Pack	3	2.00	0.000		
	Pharma	9	2.56	0.726		
	Chem	4	2.50	0.577		
	IT	3	3.00	1.000		
	Service	8	2.50	0.535		
power_crisis	Manu	92	2.71	0.989	1.023	0.420 $p > 0.05$
	Eng	25	2.36	0.952		
	Food	4	2.25	1.258		
	Auto	5	2.40	0.548		
	Pack	3	1.50	0.707		
	Pharma	9	2.33	0.707		
	Chem	4	2.25	0.500		

	IT	3	2.00	1.000		
	Service	8	2.63	1.061		
accessing_modes	Manu	92	3.25	1.012	1.304	0.245 p>0.05
	Eng	25	3.04	1.060		
	Food	4	3.25	0.957		
	Auto	5	2.80	1.304		
	Pack	3	2.50	0.707		
	Pharma	9	4.11	1.054		
	Chem	4	2.75	0.957		
	IT	3	3.33	1.155		
	Service	8	3.50	1.309		
	out_order_crowd	Manu	92	3.62		
	Eng	25	3.44	0.961		
	Food	4	3.50	1.000		
	Auto	5	3.80	1.095		
	pack	2	4.00	0.000		
	Pharma	9	3.89	0.601		
	Chem	4	3.75	0.500		
	IT	3	4.00	0.000		
	Service	8	3.25	1.389		

Source: primary data

From the above table we can see that as far as infrastructure provided is concerned, , there is significant relationship between the perceptions of the entrepreneur and the type of the unit only on the first statement that is state of art infrastructure since $p < 0.05$, hence null hypothesis is rejected in this case. However, for other factors $p > 0.05$, hence null hypothesis is accepted. This means that there is no significant relationship between the perception of the entrepreneur and the type of unit on the infrastructure provided in the industrial estate.

H3.3: There is no significant relationship between the perception of the entrepreneur and the type of the unit on the incentives provided

Table 40.3

Perceptions	Types of Unit	N	Mean	Std. Deviation	F	Sig.
subsidies_initial_investment	Manu	92	3.32	1.037	2.655***	0.009 P<0.05
	Eng	25	2.64	0.952		
	Food	4	2.25	1.258		
	Auto	5	2.60	1.140		

	Pack	3	3.00	1.414		
	Pharma	9	3.56	0.726		
	Chem	4	3.75	0.500		
	IT	3	3.00	0.000		
	Service	8	2.38	1.061		
subsidies_initial_study	Manu	92	2.85	0.983	1.658	0.113 p>0.05
	Eng	25	2.60	0.866		
	Food	4	1.50	0.577		
	Auto	5	3.00	1.225		
	Pack	3	3.00	1.414		
	Pharma	9	2.89	0.782		
	Chem	4	2.50	1.000		
	IT	3	3.00	0.000		
	Service	8	2.13	0.835		
exemptions_income_tax	Manu	92	3.09	1.002	2.220**	0.029 P<0.05
	Eng	25	2.52	0.918		
	Food	4	1.75	0.957		
	Auto	5	3.20	0.837		
	Pack	3	3.00	1.414		
	Pharma	9	3.33	0.866		
	Chem	4	3.25	0.957		
	IT	3	3.33	0.577		
	Service	8	2.38	1.188		
concessions_in_sales_tax	Manu	92	3.43	0.953	2.554**	0.012 P<0.05
	Eng	25	2.80	0.866		
	Food	4	3.00	1.826		
	Auto	5	2.80	0.837		
	Pack	3	3.00	1.414		
	Pharma	9	3.33	0.707		
	Chem	4	4.00	0.000		
	IT	3	3.00	0.000		
	Service	8	2.38	1.061		
reductions_in_stamp_duty	Manu	92	2.90	0.915	2.106**	0.038 P<0.05
	Eng	25	2.64	0.757		
	Food	4	3.75	1.258		
	Auto	5	2.80	1.095		
	Pack	3	3.00	1.414		
	Pharma	9	3.22	0.833		
	Chem	4	3.75	0.500		
	IT	3	2.67	0.577		
	Service	8	2.13	0.835		
share_capital	Manu	92	2.66	0.929	0.475	0.872 p>0.05
	Eng	25	2.52	0.714		
	Food	4	2.50	0.577		

	Auto	5	2.60	1.140		
	Pack	3	3.00	1.414		
	Pharma	9	2.78	0.833		
	Chem	4	2.50	1.000		
	IT	3	2.67	0.577		
	Service	8	2.13	0.835		
Subsidies for interest payable	Manu	92	2.63	0.922	0.612	0.766 p>0.05
	Eng	25	2.48	0.823		
	Food	4	2.00	0.816		
	Auto	5	2.20	0.837		
	Pack	3	3.00	1.414		
	Pharma	9	2.89	0.782		
	Chem	4	2.75	0.957		
	IT	3	2.67	0.577		
	Service	8	2.50	0.926		
incentives_for_ideas	Manu	92	2.61	0.864	1.206	0.299 p>0.05
	Eng	25	2.56	0.768		
	Food	4	2.00	0.816		
	Auto	5	2.40	0.548		
	Pack	3	2.00	0.000		
	Pharma	9	2.78	0.833		
	Chem	4	2.75	0.957		
	IT	3	2.67	0.577		
	Service	8	1.88	0.641		
Interest free_loan	Manu	91	2.58	0.817	1.312	0.241 p>0.05
	Eng	25	2.52	0.714		
	Food	4	1.75	0.957		
	Auto	5	2.20	0.837		
	Pack	3	2.00	0.000		
	Pharma	9	2.78	0.833		
	Chem	4	2.50	0.577		
	IT	3	2.67	0.577		
	Service	8	2.00	0.756		
medical_facility	Manu	90	2.49	0.797	0.751	0.646 p>0.05
	Eng	25	2.48	0.714		
	Food	4	1.75	0.957		
	Auto	5	2.60	0.548		
	Pack	3	2.00	0.000		
	Pharma	9	2.67	0.707		
	Chem	4	2.50	0.577		
	IT	3	2.67	0.577		
	Service	8	2.25	0.707		

Source: primary data

From the above table we can conclude that the hypothesis is partly accepted and partly rejected. In the case of subsidies for initial investment of capital, income tax exemptions, sales tax concessions, stamp duty reductions, $p < 0.05$, therefore null hypothesis is rejected. Alternate hypothesis is accepted. There is significant relationship between the perception of the entrepreneur on these factors and the type of the unit. In the case of subsidies for initial feasibility study, share capital, subsidies for interest payable, patenting incentives, interest free loan and mediclaim facilities, $p > 0.05$, hence null hypothesis is accepted. There is no significant relationship between the perception of the entrepreneur and the type of the unit on these factors.

H3.4: There is no significant relationship between the perception of the entrepreneur and the type of the unit on the benefits gained

Table 40.4

Perceptions	Types of Unit	N	Mean	Std. Deviation	F	Sig.
opportunities_explore_new_technologies	Manu	92	2.65	0.882	1.647	0.116 $p > 0.05$
	Eng	25	2.64	0.860		
	Food	4	1.50	0.577		
	Auto	5	2.80	0.837		
	Pack	3	2.50	0.707		
	Pharma	9	2.56	0.882		
	Chem	4	3.25	0.957		
	IT	3	3.67	0.577		
	Service	8	2.75	1.035		
permit_construction	Manu	92	3.36	1.001	1.008	0.432 $p > 0.05$
	Eng	25	2.92	1.038		
	Food	4	3.25	1.500		
	Auto	5	3.00	1.000		
	Pack	3	3.00	1.414		

	Chem	4	3.25	0.957		
	IT	3	3.33	0.577		
	Service	8	3.13	1.246		
utility_expences_save	Manu	92	2.60	0.902	0.151	0.996 $p > 0.05$
	Eng	25	2.60	0.957		

	Food	4	3.00	1.826		
	Auto	5	2.40	0.894		
	Pack	3	2.50	0.707		
	Pharma	9	2.56	0.882		
	Chem	4	2.75	0.957		
	IT	3	2.67	0.577		
	Service	8	2.50	0.926		
improve_eco_fin_status	Manu	92	3.35	0.870	0.748	0.648 p>0.05
	Eng	25	3.16	0.850		
	Food	4	3.75	1.258		
	Auto	5	3.20	0.447		
	Pack	3	2.50	0.707		
	Pharma	9	3.44	0.726		
	Chem	4	3.25	0.957		
	IT	3	3.33	0.577		
	Service	8	2.88	0.991		

Source: primary data

From the above table, it can be concluded that as far as the benefits gained by the units being a part of the industrial estate is concerned, all the entrepreneurs have similar perceptions. Again there is no significant relationship between the perceptions of the entrepreneurs and the type of the unit on the benefits gained. Here, $p > 0.05$ in the case of all the factors. Hence null hypothesis is accepted.

H3.5: There is no significant relationship between the perception of the entrepreneur and the type of the unit on the challenges faced

Table 40.5

Perceptions	Types of Unit	N	Mean	Std. Deviation	F	Sig.
entry_proc	Manu	92	3.11	1.021	0.434	0.899 p>0.05
	Eng	25	3.24	1.165		
	Food	4	3.50	1.291		
	Auto	5	2.80	1.304		
	pack	3	3.00	1.414		
	Pharma	9	2.89	0.928		
	Chem	4	3.25	0.957		
	IT	3	3.33	1.528		
	Service	8	3.63	1.302		

getting_labor	Manu	92	3.43	0.998	1.228	0.286 p>0.05
	Eng	25	3.88	0.971		
	Food	4	4.00	2.000		
	Auto	5	3.60	0.548		
	pack	3	4.00	0.000		
	Pharma	9	3.33	0.866		
	Chem	4	3.50	1.291		
	IT	3	2.33	0.577		
	Service	8	3.75	1.282		
f_followorce_to	Manu	92	2.93	0.862	1.821*	0.077 p>0.05
	Eng	25	3.32	0.988		
	Food	4	3.00	0.816		
	Auto	5	2.60	0.894		
	pack	3	3.50	0.707		
	Pharma	9	2.56	0.726		
	Chem	4	2.00	0.000		
	IT	3	3.33	0.577		
	Service	8	2.63	0.916		
hinder_deci	Manu	88	2.56	0.658	1.912*	0.062 p>0.05
	Eng	25	2.76	0.663		
	Food	4	2.25	1.500		
	Auto	5	3.20	1.095		
	pack	3	3.50	0.707		
	Pharma	9	2.56	0.527		
	Chem	4	2.25	0.500		
	IT	3	3.00	0.000		
	Service	8	2.13	0.835		
old_infra	Manu	92	4.30	1.003	1.577	0.136 p>0.05
	Eng	25	4.88	0.332		
	Food	4	4.75	0.500		
	Auto	5	4.60	0.894		
	pack	3	5.00	0.000		
	Pharma	9	4.33	0.866		
	Chem	4	4.50	1.000		
	IT	3	3.67	0.577		
	Service	8	4.25	0.707		
Storage	Manu	92	3.25	1.145	1.456	0.178 p>0.05
	Eng	25	3.44	1.044		
	Food	4	3.00	1.414		
	Auto	5	4.40	0.548		
	pack	3	3.50	0.707		
	Pharma	9	2.89	1.167		
	Chem	4	2.75	0.957		
	IT	3	3.00	1.000		

	Service	8	2.50	1.309		
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Source: primary data

From the above table, it can be concluded that there is no significant relationship between the perception of the entrepreneur and the type of the unit on the challenges faced by the unit being a part of the industrial estate. Since $p > 0.05$ in the case of all the factors, null hypothesis is accepted.

PERCEPTIONS BASED ON MANUFACTURING AND NON MANUFACTURING UNITS:

TESTING OF HYPOTHESIS (H4.1 TO H4.5)

H4: There is no significant difference in the perceptions of the entrepreneurs of the manufacturing and non-manufacturing units regarding the Facilities, Infrastructure, Incentives, Benefits and Challenges.

H4.1 There is no significant difference between the perceptions of the entrepreneurs of manufacturing and non-manufacturing units regarding the facilities in the industrial estates

Table 41.1

Perception	Unit	N	Mean	Std. Deviation	df	T	Sig. (2-tailed)
Locality	Manufacturing	92	4.09	0.821	150	1.103	0.272 $p > 0.05$
	Non Manufacturing	61	3.92	1.078			
Infrastructure	Manufacturing	92	3.30	0.848	150	1.862	0.065 $p > 0.05$
	Non Manufacturing	61	3.03	0.920			
Topography	Manufacturing	92	3.72	0.746	150	1.264	0.208 $p > 0.05$
	Non Manufacturing	61	3.55	0.872			
soil_condition	Manufacturing	92	3.62	0.660	150	0.430	0.668 $p > 0.05$
	Non Manufacturing	61	3.57	0.851			
Utility	Manufacturing	92	3.14	0.793	150	1.111	0.268 $p > 0.05$
	Non Manufacturing	61	2.98	0.948			
Incentives	Manufacturing	92	3.14	0.656	150	2.992	0.003 $P < 0.05$
	Non Manufacturing	61	2.82	0.651			
Access_Highway	Manufacturing	92	4.03	0.977	150	1.077	0.283 $p > 0.05$
	Non Manufacturing	61	3.85	1.087			
Feasibility_busine	Manufacturing	92	3.65	0.777	150	1.451	0.149

ss	Non Manufacturing	61	3.45	0.928			p>0.05
Overall quality	Manufacturing	92	3.53	0.762	150	1.107	0.270 p>0.05
	Non Manufacturing	61	3.38	0.885			

Source: primary data

The above table shows that p value>0.05 except in the case of incentives where p value<0.05.

This means that Null Hypothesis is accepted for all the other factors except the incentives.

Entrepreneurs of the manufacturing and non-manufacturing units have similar perceptions with regards to the Locality, Infrastructure, Topography, Soil conditions, Utility, Access to Highway, Feasibility for running the business, and overall Quality. However, their perceptions differ in the case of incentives.

H4.2 There is no significant difference between the perceptions of the entrepreneurs of manufacturing and non-manufacturing units regarding the infrastructure provided

Table 41.2

Perception	Unit	N	Mean	Std. Deviation	df	T	Sig. (2-tailed)
art_infra	Manufacturing	92	2.74	1.004	150	1.592	0.114 p>0.05
	Non Manufacturing	60	2.48	0.911			
reducing_per_business	Manufacturing	92	2.74	0.924	150	2.343	0.020 P<0.05
	Non Manufacturing	60	2.40	0.785			
power_crisis	Manufacturing	92	2.71	0.989	150	2.376	0.019 P<0.05
	Non Manufacturing	60	2.33	0.877			
accessing_modes	Manufacturing	92	3.25	1.012	150	0.095	0.925 p>0.05
	Non Manufacturing	60	3.23	1.125			
out_order_crowd	Manufacturing	92	3.62	0.862	150	0.246	0.806 p>0.05
	Non Manufacturing	60	3.58	0.926			

Source: primary data

From the above table we can conclude that p>0.05 in the case of all the factors except in the case of reduction in the per-business expenses and overcoming power crisis where p<0.05, hence null hypothesis is rejected in the case of these factors. However, for the rest of the factors, null hypothesis is accepted. Thus, perceptions of both the entrepreneurs of the

manufacturing and non-manufacturing units are the same for all the factors in infrastructure provided except for power crisis and per business expenses reduction.

H4.3: There is no significant difference between the perceptions of the entrepreneurs of the manufacturing and non-manufacturing units regarding the incentives provided.

Table 41.3

Perception	Unit	N	Mean	Std. Deviation	Df	T	Sig. (2-tailed)
subsidies_initial_investment	Manufacturing	92	3.32	1.037	150	2.938	0.004 P<0.05
	Non Manufacturing	60	2.82	1.000			
subsidies_initial_study	Manufacturing	92	2.85	0.983	150	1.775	0.078 p>0.05
	Non Manufacturing	60	2.57	0.909			
exemptions_income_tax	Manufacturing	92	3.09	1.002	150	2.124	0.035 P<0.05
	Non Manufacturing	60	2.73	1.006			
concessions_in_sales_tax	Manufacturing	92	3.43	0.953	150	3.170	0.002 P<0.05
	Non Manufacturing	60	2.93	0.954			
reductions_in_stamp_duty	Manufacturing	92	2.90	0.915	150	0.452	0.652 p>0.05
	Non Manufacturing	60	2.83	0.924			
share capital	Manufacturing	92	2.66	0.929	150	0.891	0.374 p>0.05
	Non Manufacturing	60	2.53	0.791			
Subsidies for interest payable	Manufacturing	92	2.63	0.922	150	0.659	0.511 p>0.05
	Non Manufacturing	60	2.53	0.833			
incentives_for_ideas	Manufacturing	92	2.61	0.864	150	1.155	0.250 p>0.05
	Non Manufacturing	60	2.45	0.769			
Interest free loan	Manufacturing	91	2.58	0.817	149	1.377	0.171 p>0.05
	Non Manufacturing	60	2.40	0.764			
Mediclaim_facility	Manufacturing	90	2.49	0.797	148	0.439	0.661 p>0.05
	Non Manufacturing	60	2.43	0.698			

Source: primary data

From the above table it can be seen that in the case of three factors i.e. subsidies for initial investments, exemptions in income tax and concessions in sales tax, $p < 0.05$, hence null hypothesis is rejected. Alternate hypothesis is accepted. This means that there is significant

difference in the perceptions of the entrepreneurs of manufacturing and non-manufacturing units as far as the above factors are concerned.

For the remaining factors, $p > 0.05$, hence null hypothesis is accepted.

H4.4: There is no significant difference between the perceptions of the entrepreneurs of the manufacturing and non-manufacturing units regarding the benefits gained.

Table 41.4

Perception	Unit	N	Mean	Std. Deviation	df	T	Sig. (2-tailed)
opportunities_explore_new_technologies	Manufacturing	92	2.65	0.882	150	0.098	0.922 $p > 0.05$
	Non Manufacturing	60	2.67	0.914			
permit_construction	Manufacturing	92	3.36	1.001	150	1.238	0.218 $p > 0.05$
	Non Manufacturing	60	3.15	1.039			
boost_sale	Manufacturing	92	3.05	0.869	150	0.082	0.935 $p > 0.05$
	Non Manufacturing	60	3.07	0.954			
environment_frndly	Manufacturing	92	3.64	0.779	150	0.919	0.359 $p > 0.05$
	Non Manufacturing	60	3.52	0.873			
safe_security	Manufacturing	92	2.64	1.023	150	0.144	0.886 $p > 0.05$
	Non Manufacturing	60	2.62	1.043			
utility_expences_save	Manufacturing	92	2.60	0.902	150	0.014	0.989 $p > 0.05$
	Non Manufacturing	60	2.60	0.942			
improve_eco_fin_status	Manufacturing	92	3.35	0.870	150	1.038	0.301 $p > 0.05$
	Non Manufacturing	60	3.20	0.840			

Source: primary data

From the above table we can see that $p > 0.05$ in the case of all the factors of the benefits gained by the units in the industrial estate. Therefore, Null hypothesis is accepted. There is no significant difference between the perceptions of the entrepreneurs of the manufacturing and non-manufacturing units regarding the benefits gained in the industrial estate. This may be because the benefits offered by the GIDC to all the units are the same irrespective of whether the unit is manufacturing or non-manufacturing.

H4.5: There is no significant difference between the perceptions of the entrepreneurs of the manufacturing and non-manufacturing units regarding the issues and challenges faced.

Table 41.5

Perception	Unit	N	Mean	Std. Deviation	df	T	Sig. (2-tailed)
entry_proc	Manufacturing	92	3.11	1.021	150	0.609	0.543 p>0.05
	Non Manufacturing	60	3.22	1.136			
getting_labor	Manufacturing	92	3.43	0.998	150	1.362	0.175 p>0.05
	Non Manufacturing	60	3.67	1.068			
f_followorce_to	Manufacturing	92	2.93	0.862	150	0.103	0.918 p>0.05
	Non Manufacturing	60	2.95	0.928			
hinder_deci	Manufacturing	88	2.56	0.658	146	0.775	0.440 p>0.05
	Non Manufacturing	60	2.65	0.799			
old_infra	Manufacturing	92	4.30	1.003	150	2.010	0.046 P<0.05
	Non Manufacturing	60	4.60	0.669			
Storage	Manufacturing	92	3.25	1.145	150	0.176	0.861 p>0.05
	Non Manufacturing	60	3.22	1.136			

Source: primary data

From the above table we can see that null hypothesis is accepted since $p > 0.05$, thus, to conclude, we can say that irrespective of the type of the unit they have, there is no significant relationship between the perception of the entrepreneur and the type of the unit in the case of the challenges faced by them in the industrial estates since $p > 0.05$ in all the case of all the factors except for the statement that the infrastructure is old and need improvement. Here the $p < 0.05$, hence null hypothesis is rejected and alternate hypothesis is accepted.

To conclude we can say that, all the units whether manufacturing or non-manufacturing enjoy similar type of benefits, get similar infrastructure, and avail same incentives, have same benefits and face similar challenges being a part of the industrial estate.

OBJECTIVE 5: TO COMPARE THE WORKING AND CONTRIBUTION OF THE INDUSTRIAL ESTATES IN SOUTH GOA AND NORTH GOA.

Goa is divided into two districts South Goa and North Goa. Industrial estates located in both the districts are compared on the basis of their working and contribution.

The parameters used for working of the industrial estates are Facilities, Infrastructure, Incentives, Benefits, and Challenges.

Contribution of industrial estates in the South Goa and North Goa is compared on the basis of following parameters:

- Investments of the Micro, small, medium and large scale industries in Plant and Machinery
- Investments of Micro, small, medium and large scale industries in Land and Building
- Employment generated by micro, small, medium and large scale industries.

The comparison of the contribution is based on the secondary data collected by the researcher from the Department of Industries, Trade and Commerce, Government of Goa, Panaji for the period 2-10-2006 to 31-1-2015

TESTING OF HYPOTHESES(H5.1 TO H5.8)

H5: There is no significant difference in the working and contribution of the industrial estates in South Goa and North Goa

TEST USED: F TEST

H5: There is no significant difference in the working of industrial estates in South Goa and North Goa.

Table 42: Working of industrial estates- South Goa

Variable	Mean	Standard	F test	P value
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		deviation		
Facilities	3.58	0.71		
Infrastructure	2.75	0.72	0.731	p>0.1
Incentives	2.40	0.74		
Benefits	3.13	0.79		
Challenges	3.41	0.80		

Source: primary data

Table 43: Working of industrial estates-North Goa

Variable	Mean	Standard deviation	F test	P value
Facilities	3.67	0.54		
Infrastructure	2.74	0.68	0.651	p>0.1
Incentives	2.79	0.64		
Benefits	3.46	0.53		
Challenges	3.06	0.63		

Source: primary data

H5.1: There is no significant difference between the facilities of industrial estates in South Goa and North Goa.

Table 44.1: Facilities

	Mean	F test	P value
South Goa	3.58	0.731	p>0.1
North Goa	3.67		

Source: primary data

The above table indicates that Model is not significant. Facilities provided in the industrial estates in South Goa as well as North Goa are almost the same. Only marginal difference is observed Facilities in the North Goa are better than South Goa. Hence Null hypothesis is accepted. Facilities include locality of the industrial estates, infrastructure provided in the industrial estates, topography, soil conditions, utility, incentives, accessibility to highways, feasibility for running business and overall quality.

H5.2: There is no significant difference in the infrastructure provided in the industrial estates in South Goa and North Goa.

Table 44.2: Infrastructure

	Mean	F test	P value
South Goa	2.75	0.003	p>0.1

North Goa	2.74		
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Source: primary data

The above table indicates that Model is not significant. Infrastructure provided in the industrial estates in the in South Goa as well as North Goa is almost the same. Hence Null hypothesis is accepted. Infrastructure for the industrial estates is provided by GIDC.

H5.3: There is no significant difference in the incentives offered by the industrial estates in South Goa and North Goa.

Table 44.3: Incentives

	Mean	F test	P value
South Goa	2.40	12.139	P<0.01
North Goa	2.79		

Source: primary data

The above table indicates that Model is significant. There is significant difference in the incentives availed by the entrepreneurs in South Goa and North Goa districts. In North Goa, more incentives are availed where as in South Goa fewer incentives are availed by the entrepreneurs. Therefore Null hypothesis is rejected. Alternate hypothesis is accepted

H5.4: There is no significant difference in the benefits gained in the industrial estates in South Goa and North Goa

Table 44.4: Benefits

	Mean	F test	P value
South Goa	3.13	8.09	P<0.01
North Goa	3.46		

Source: primary data

The above table indicates that Model is significant. There is significant difference in the benefits gained by the entrepreneurs in the industrial estates in South Goa and North Goa. Benefits gained by the entrepreneurs in the North Goa are better than the

benefits gained by the entrepreneurs in South Goa. Hence Null hypothesis is rejected.

Alternate hypothesis is accepted.

H5.5: There is no significant difference in the challenges faced in the industrial estates in South Goa and North Goa.

Table 44.5: Challenges

	Mean	F test	P value
South Goa	3.41	8.429	P<0.01
North Goa	3.06		

Source: primary data

The above table indicates that Model is significant. There is significant difference in the challenges faced by the entrepreneurs in the industrial estates in South Goa and North Goa. More challenges are faced by the entrepreneurs in South Goa industrial estates as compared to those in North Goa .Hence Null hypothesis are rejected. Alternate hypothesis is accepted.

H5.6: There is no significant difference in the contribution through the investments in Plant and Machinery in the industrial estate

Table 44.6

Groups	N	Mean	Std. Deviation
South Goa	6	2518.36	2426.67
North Goa	12	1975.85	2480.02

Source: primary data

Since $t(16) = 0.440$ ($P > .05$) there is no significant difference in the Plant and Machinery investment in IEs in Both districts. Hence Null Hypothesis is accepted.

There is no significant difference in the Plant and Machinery investments in South Goa and North Goa districts. These investments are made by the Micro, small and medium, and large industries located in the industrial estates.

H5.7: There is no significant difference in the contribution through the investment in Land and Building in the industrial estates in South Goa and North Goa

Table 44.7

Groups	N	Mean	Std. Deviation
South Goa	6	3203.15	4015.11
North Goa	12	1880.85	2122.18

Source: primary data

Since $t(16) = 0.368$ ($p > 0.05$) there is no significant difference in the Land and Building investment in IEs in Both districts .Since $p > 0.05$, null hypothesis is accepted.

There is no significant difference in the Land and Building investment in IEs in both the districts. Investments are almost the same in both the districts in spite of variations in the total number of industrial estates in both the districts.

H5.8: There is no significant difference in the contribution through the employment generated in the industrial estates in South Goa and North Goa.

Table 44.8

Groups	N	Mean	Std. Deviation
South Goa	6	29.667	18.651
North Goa	12	23.917	19.261

Source: primary data

Since $t(16) = 0.603$ ($p > 0.05$) there is no significant difference in the employment generated by IEs in Both districts. Since $p > 0.05$, null hypothesis is accepted.

There is no significant difference in the employment generated by IEs in both districts. The employment generated by the units located in the industrial estates in both the South Goa and North Goa districts is almost the same.

OBJECTIVE 6:

TO UNDERTAKE THE CASE STUDIES OF TWO NON-FUNCTIONING INDUSTRIAL ESTATES IN GOA:

Out of 20 industrial estates set by the GIDC in Goa, 02 industrial estates namely Shiroda Industrial Estate and Sanguem Industrial Estate do not have functioning units. Hence these industrial estates are considered as non-functioning industrial estates.

CASE STUDY 1: SHIRODA INDUSTRIAL ESTATE

Shiroda Industrial Estate was established in the year 1998. It is located in the Ponda Taluka of North Goa district of Goa state. The total area of the industrial estate is 1,05,100 m².

The 67, 457.50 sq mts land was allotted to a Special Project named Meditech Pvt Ltd owned by Alva Brothers in 2006. The company had plans to start the Animation Hub. However, due to Global scenario, they could not start the project. The land was surrendered to GIDC on 25th April 2007.

GIDC has now again developed this industrial estate. 15 plots are developed. 08 units are already allotted plots. The small units have shown interest in these plots. 03 big plots measuring 3570m² and 4000m² each are advertised by GIDC in the local newspapers. The land rate fixed is Rs 1250/- per sq mts.

GIDC is also planning to start new industrial estate PANCHAWADI INDUSTRIAL ESTATE. 56 plots of different sizes are advertised in the local newspapers. The land rate fixed is Rs 1250/- per sq mts.

CASE STUDY NO 2: SANGUEM INDUSTRIAL ESTATE

Sanguem industrial estate was established in the year 2002. It is located in the backward Sanguem taluka in the South Goa district of Goa state. The total area of this industrial estate is 1, 80,885 m² and the land rate is Rs 750/ per m².

One of the plots was allotted to a unit named M/S Shritik Ispat Pvt Ltd . However, this unit was closed down as per the directions of Goa State Pollution Control Board. The reason for the closure was violation of prescribed environmental standards by the said unit.

However, now Investment Promotion Board has cleared 09 projects which will be started in the Sanguem industrial estate shortly.

TABLE 45

**TABULAR REPRESENTATION OF THE
HYPOTHESIS**

Sr No	Hypothesis Statement	Accepted / Rejected
1) H1	There is no difference of opinion between the GIDC officials and the Industrial Estate Association presidents as regarding the industrial estate programme in Goa.	Accepted
2) H2.1	There is no significant relationship between the Age of the entrepreneur and his perception towards the facilities of the industrial estate.	Accepted
3) H2-2	There is no significant relationship between the Educational Qualification of the entrepreneur and his perception on the facilities of the industrial estate.	Accepted
4) H2-3	There is no significant relationship between the experience of the entrepreneur and his perception on the facilities of the industrial estate.	Accepted
5) H2-4	There is no significant relationship between the designation of the entrepreneur and his perception on the facilities of the IE.	Accepted
6) H2-5	There is no significant relationship between the number of years of existence of the entrepreneur in the industrial estate and his perception on the facilities of the IE.	Accepted
7) H2-6	There is no significant relationship between the age of the entrepreneur and his perception on the infrastructure provided in the industrial estate.	Accepted
8) H2-7	There is no significant relationship between the Educational qualification of the entrepreneur and his perception on the infrastructure provided in the industrial estate.	Accepted
9) H2-8	There is no significant relationship between the experience of the entrepreneur and his perception on the infrastructure provided in the industrial estate.	Accepted
10) H2-9	There is no significant relationship between the designation of the entrepreneur and his perception	Accepted

	on the infrastructure provided in the industrial estate.	
11) H2-10	There is no significant relationship between the number of years of existence of the entrepreneur in the industrial estate and his perception on the infrastructure provided in the industrial estate.	Accepted
12) H2-11	There is no significant relationship between the Age of the entrepreneur and his perception on the incentives provided.	Accepted
13) H2-12	There is no significant relationship between the qualification of the entrepreneur and his perception on the incentives provided.	Accepted
14) H2-13	There is no significant relationship between the experience of the entrepreneur and his perception on the incentives provided.	Accepted
15) H2-14	There is no significant relationship between the designation of the entrepreneur and his perception on the incentives provided.	Accepted
16) H2-15	There is no significant relationship between the number of years of existence of the entrepreneur in the industrial estate and his perception on the incentives provided.	Accepted
17) H2-16	There is no significant relationship between the Age of the entrepreneur and his perception on the benefits gained.	Accepted
18) H2-17	There is no significant relationship between the Qualification of the entrepreneur and his perception on the benefits gained.	Accepted
19) H2-18	There is no significant relationship between the experience of the entrepreneur and his perception on the benefits gained.	Accepted
20) H2-19	There is no significant relationship between the designation of the entrepreneur and his perception on the benefits gained.	Accepted
21) H2-20	There is no significant relationship between the number of years of existence of the entrepreneur in the industrial estate and his perception on the benefits gained.	Accepted
22) H2-21	There is no significant relationship between the Age of the entrepreneur and his perception on the challenges faced.	Accepted

23) H2-22	There is no significant relationship between the Qualification of the entrepreneur and his perception on the challenges faced.	Accepted
24) H2-23	There is no significant relationship between the experience of the entrepreneur and his perception on the challenges faced.	Accepted
25) H2-24	There is no significant relationship between the Designation of the entrepreneur and his perception on the challenges faced.	Accepted
26) H2-25	There is no significant relationship between the number of years of existence of the entrepreneur in the industrial estate and his perception on the challenges faced.	Accepted
27) H3.1	There is no significant relationship between the perception of the entrepreneur and the type of the unit on the facilities of the industrial estate.	Accepted
28) H3.2	There is no significant relationship between the perception of the entrepreneur and the type of the unit on the infrastructure of the industrial estate	Accepted
29) H3.3	There is no significant relationship between the perception of the entrepreneur and the type of the unit on the incentives of the industrial estate	Accepted
30) H3.4	There is no significant relationship between the perception of the entrepreneur and the type of the unit on the benefits of the industrial estate	Accepted
31) H3.5	There is no significant relationship between the perception of the entrepreneur and the type of the unit on the challenges faced	Accepted
32) H4.1	There is no significant difference between the perceptions of the entrepreneurs of manufacturing and non-manufacturing units regarding the facilities in the industrial estates	Accepted
33) H4.2	There is no significant difference between the perceptions of the entrepreneurs of manufacturing and non-manufacturing units regarding the infrastructure provided	Accepted
34) H4.3	There is no significant difference between the perceptions of the entrepreneurs of the	Accepted

	manufacturing and non-manufacturing units regarding the incentives provided.	
35) H4.4	There is no significant difference between the perceptions of the entrepreneurs of the manufacturing and non-manufacturing units regarding the benefits gained.	Accepted
36) H4.5	There is no significant difference between the perceptions of the entrepreneurs of the manufacturing and non-manufacturing units regarding the issues and challenges faced.	Accepted
37) H5-1	There is no significant difference between the facilities of the industrial estates in South Goa and North Goa.	Accepted
38) H5-2	There is no significant difference in the infrastructure provided in the industrial estates in South Goa and North Goa.	Accepted
39) H5-3	There is no significant difference in the incentives offered by the industrial estates in South Goa and North Goa.	Rejected
40) H5-4	There is no significant difference in the benefits gained in the industrial estates in South Goa and North Goa.	Rejected
41) H5-5	There is no significant difference in the challenges faced in the industrial estates in South Goa and North Goa.	Rejected
H5.6	There is no significant difference in the contribution through the investments in Plant and Machinery in the industrial estate	Accepted
H5.7	There is no significant difference in the contribution through the investment in Land and Building in the industrial estates in South Goa and North Goa	Accepted
H5.8	There is no significant difference in the contribution through the employment generated in the industrial estates in South Goa and North Goa.	Accepted

4.7 DISCUSSIONS OF HYPOTHESIS

H1: There is no difference of opinion between the GIDC Officials and the Industrial Estate Association presidents as regarding the objectives of Industrial Estate Programme in Goa

There is no difference of opinion between the GIDC Officials and the Industrial Estate Association Presidents as regards the objectives of industrial estate programme in Goa. The opinions are the same may be because both want to play safe and have given the same opinions. GIDC Officials are Government servants and hence are scared to speak against the Government. Industrial Estate Association Presidents have their unit in the industrial estate and are dependent on the GIDC and therefore are reluctant to speak against GIDC.

H2.1: There is no significant relationship between the Age of the entrepreneur and his perception towards the facilities of the industrial estate

The perceptions of the entrepreneurs in the age group of 25-35 are negative. This may be because they are young, having less experience, and new in the industrial estate. Their expectations are high. They want the best facilities from GIDC. Since the facilities are below their expectations, their perceptions are negative. Similarly, the experienced entrepreneurs in the age group of 45-55 and above 55 also have negative perceptions. This is because they have been demanding better facilities from long but are not getting the same. However, the entrepreneurs in the age group of 35-45 are middle aged. They have learnt to do their business with the existing facilities. They are managing with the existing facilities and have no expectations from GIDC. They will be happy if the facilities improve.

H2.2: There is no significant relationship between the Educational Qualification of the entrepreneur and his perception on the facilities of the industrial estate.

All the entrepreneurs enjoy the same facilities in the industrial estate irrespective of their educational qualifications. Hence they have the same perceptions.

H2.3: There is no significant relationship between the experience of the entrepreneur and his perception on the facilities of the industrial estate.

The entrepreneurs having more than 15 years of experience have negative perception towards the facilities provided in the industrial estate. This may be because they are in the industrial estate for more years. They have more experience and have noticed that the facilities have not improved irrespective of their continuous demands. Hence they are angry. However, the other category entrepreneurs having less than 15 years experience, has positive perceptions. They are learning to get adjusted to the existing facilities in the industrial estate.

H2.4: There is no significant relationship between the designation of the entrepreneur and his perception on the facilities of the industrial estate.

Whether the unit is Proprietorship, Partnership or a Company, they get the same facilities in the industrial estate. The type of requirements is different for different type of unit. The proprietorship is a one man show where as the company is a large form of organisation. However, all the types of organisations have the same perception on the facilities provided in the industrial estate. Partnership form of organisation has negative perception on the facilities because the facilities provided are not as per their expectations.

H2.5: There is no significant relationship between the number of years of existence of the entrepreneur in the industrial estate and his perception on the facilities of the industrial estate.

The new entrepreneur as well as the experienced entrepreneur has the same perception on the facilities provided in the industrial estate. The perception is negative. This shows that they are not happy with the facilities provided in the industrial estate.

H2.6: There is no significant relationship between the Age of the entrepreneur and his perception on the infrastructure provided in the industrial estate.

The perceptions of all the age groups are negative. This may be because of the fact that the entrepreneurs belonging to all the age groups are not happy with the infrastructure provided in the industrial estates. They want improvement in the existing infrastructure

H2.7: There is no significant relationship between the Educational Qualification of the entrepreneur and his perception on the infrastructure provided in the industrial estate

The perceptions of the graduate entrepreneurs as well as the post graduate entrepreneurs are negative. Both are not happy with the infrastructure provided in the industrial estate.

H2.8: There is no significant relationship between the Experience of the entrepreneur and his perception on the infrastructure provided in the industrial estate

The perceptions of the entrepreneurs having more than 15 years experience as well as less than 15 years experience have negative perceptions. New entrepreneurs as well as experienced entrepreneurs are unhappy with the infrastructure provided in the industrial estates.

H2.9: There is no significant relationship between the Designation of the entrepreneur and his perception on the infrastructure provided in the industrial estate

All the types of organisations enjoy similar type of infrastructure in the industrial estate irrespective of the fact that their requirements are different. Hence they have similar perceptions as far as infrastructure is concerned.

H2.10: There is no significant relationship between the number of years of existence of the entrepreneur in the industrial estate and his perception on the infrastructure provided in the industrial estate.

When the entrepreneur starts the unit in the industrial estate, he has some expectations as far as infrastructure is concerned. However, as the time passes, he gets used to the existing

infrastructure. Hence the perception on the infrastructure does not vary with the number of years of existence in the industrial estate.

H2.11: There is no significant relationship between the Age of the entrepreneur and his perception on the incentives provided.

Those entrepreneurs who are in the age group of 35-45 years have better perception on incentives than those who are below 35 years of age. Those entrepreneurs who are between 45-55 years of age and those who are above 55 years have the same perception as those who are below 35 years of age. This may be because the entrepreneurs do not avail the incentives in the initial age as they are not aware of the same. However, as they grow older, they feel the need and start availing the available incentives. Hence their perception varies with the age.

H2.12: There is no significant relationship between the Qualification of the entrepreneur and his perception on the incentives provided

Incentives availed by the entrepreneurs do not depend upon their qualifications. It depends upon the need for the incentives and the availability of the incentives. Hence there is no significant relationship between the qualification of the entrepreneur and his perception on the incentives provided.

H2.13: There is no significant relationship between the experience of the entrepreneur and his perception on the incentives provided.

Entrepreneurs avail the incentives according to their need and eligibility. May be experienced entrepreneurs avail more incentives due to their awareness? Therefore, experience of the entrepreneur is not related to his perception towards the incentives.

H2.14: There is no significant relationship between the designation of the entrepreneur and his perception on the incentives provided.

The perceptions are negative. This means that the entrepreneurs are not happy with the incentives provided to them and hence they have not availed the same

H2.15: There is no significant relationship between the number of years of existence of the entrepreneur in the industrial estate and his perception on the incentives provided

Incentives provided to the entrepreneurs are not on the basis of the number of years of existence of the unit in the industrial estate. In fact, all are provided incentives at par. It is up to the entrepreneur to decide whether to take up the incentives or not.

H2.16: There is no significant relationship between the Age of the entrepreneur and his Perception on the benefits gained

Benefits gained by the entrepreneur are the same irrespective of their age. This may be because the young entrepreneur as well as the aged entrepreneur enjoys the same benefits due to the location of the unit in the industrial estate .They are all part of the industrial estate and will enjoy the benefits being a part of the same.

H2.17: There is no significant relationship between the Qualification of the entrepreneur and his perception on the benefits gained.

All the entrepreneurs enjoy the same benefits irrespective of the qualification. Hence they have the same perception on the benefits gained.

H2.18: There is no significant relationship between the experience of the entrepreneur and his perception on the benefits gained.

The perception of the entrepreneurs having less experience is negative because they are not happy with the benefits gained in the industrial estate. As their experience increase, they get used to the existing benefits hence the perception of the entrepreneurs having more than 05 years of experience is positive.

H2.19: There is no significant relationship between the designation of the entrepreneur and his perception on the benefits gained.

Both partnership firm as well as company form of organisation are not happy with the benefits gained in the industrial estate. Therefore their perception is negative.

H2.20: There is no significant relationship between the number of years of existence of the entrepreneur in the industrial estate and his perception on the benefits gained.

Entrepreneurs who are new in the industrial estate as well as the entrepreneurs, who have spent more years in the industrial estate, have the same perception on the benefits gained by them in the industrial estate. All the entrepreneurs get the same benefits from GIDC irrespective of whether they are new or experienced.

H2.21: There is no significant relationship between the Age of the entrepreneur and his perception on the challenges faced.

As compared to young entrepreneurs, aged is facing less challenge. This is because experience of the person counts. Experienced entrepreneurs have learnt to face the challenges. Hence null hypothesis is accepted .Perceptions are negative because all are facing the various problems which they are trying to put up but no action is being taken by GIDC.

H2.22: There is no significant relationship between the Qualification of the entrepreneur and his perception on the challenges faced.

Qualification of the entrepreneur does not influence his perception on the challenges faced.

All entrepreneurs face similar challenges irrespective of their qualification. The problems faced by all the entrepreneurs are the same.

H2.23: There is no significant relationship between the experience of the entrepreneur and his perception on the challenges faced.

Entrepreneurs through their associations and other platform try to put forward their problems faced by them. However, the problems still continue. Therefore, the perceptions are negative.

H2.24: There is no significant relationship between the Designation of the entrepreneur and his perception on the challenges faced.

Designation of the entrepreneur does not influence his perception on the challenges faced.

The problems faced by all the entrepreneurs are almost the same. Partnership firm or proprietor or company face similar challenges in the industrial estates

H2.25: There is no significant relationship between the number of years of existence of the entrepreneur in the industrial estate and his perception on the challenges faced.

The challenges faced by the entrepreneurs who are new as well by the entrepreneurs who have spent more years in the industrial estate face similar challenges and problems. Hence their perception is the same.

H3: There is no significant relationship between the perception of the entrepreneur and the type of the unit on the facilities, infrastructure, incentives, benefits and challenges

H3.1: There is no significant relationship between the perception of the entrepreneur and the type of the unit on the facilities provided

There is no significant relationship between the perception of the entrepreneur and the type of the unit on the locality, infrastructure, topography, soil conditions, utility, access to highway and overall quality. This may be because in the case of all these factors the entrepreneurs of the units might be happy, where as in the case of incentives and feasibility for running business, perceptions vary.

H3.2: There is no significant relationship the perception of the entrepreneur and the type of the unit on the infrastructure provided

As far as infrastructure provided is concerned, there is no significant relationship between the perception of the entrepreneur and the type of the unit on the infrastructure provided in the industrial estate. This may be because all the types of units enjoy the same infrastructure in the industrial estate.

H3.3: There is no significant relationship between the perception of the entrepreneur and the type of the unit on the incentives offered

The incentives are offered by the Government. It depends upon the individual unit to avail it or not. Some units have availed the incentives where as others have not. Therefore, their perceptions vary. This may be again because those units who have availed the incentives partly, hence they have positive perceptions with reference to those incentives.

H3.4: There is no significant relationship between the perception of the entrepreneur and the type of the unit on the benefits gained

As far as the benefits gained by the units being a part of the industrial estate is concerned, all the respondents have similar perceptions .Again there is no significant relationship between

the perception of entrepreneur and the type of the unit on the benefits gained. This may be because all the units enjoy similar benefits in the industrial estate. These benefits are given to them by the GIDC .They enjoy these facilities because their unit is located in the industrial estate.

H3.5: There is no significant relationship the perception of the entrepreneur and the type of the unit on the challenges faced

There is no significant relationship between the perception of the entrepreneur and the type of the unit on the challenges faced by the unit being a part of the industrial estate. This may be because all the types of units face similar issues and challenges in the industrial estate. They face similar problems and enjoy similar benefits.

H4: There is no significant difference in the perceptions of the entrepreneurs of the manufacturing and non-manufacturing units regarding the Facilities, Infrastructure, Incentives, Benefits and Challenges

H4.1 There is no significant difference between the perceptions of the entrepreneurs of the manufacturing and non-manufacturing units regarding the facilities in the industrial estates

Manufacturing and non-manufacturing units have similar perceptions with regards to the Locality, Infrastructure, Topography, Soil conditions, Utility, Access to Highway, Feasibility for running the business, and overall Quality. However, their perceptions differ in the case of incentives. This may be because types of incentives are different for different type of unit.

H4.2 There is no significant difference between the perceptions of the entrepreneurs of the manufacturing and non-manufacturing units regarding the infrastructure provided

The perceptions of the entrepreneurs of both the manufacturing and non-manufacturing units are the same for all the factors in infrastructure provided except for power crisis and per business expenses reduction. This may be because power requirements for manufacturing and non-manufacturing units are different. Similarly, the nature of expenses also differs.

H4.3: There is no significant difference between the perceptions of the entrepreneurs of the manufacturing and non-manufacturing units regarding the incentives provided

In the case of three factors i.e. subsidies for initial investments, exemptions in income tax and concessions in sales, there is a significant difference in the perceptions of the entrepreneurs of manufacturing and non-manufacturing units. This may be because the type and volume of investment varies between the manufacturing and non-manufacturing unit. Similarly the taxation pattern is also different.

H4.4: There is no significant difference between the perceptions of the entrepreneurs of the manufacturing and non-manufacturing units regarding the benefits gained

There is no significant difference between the perceptions of manufacturing and non-manufacturing units regarding the benefits gained in the industrial estate. This may be because the benefits offered by the GIDC to all the units are the same irrespective of whether the unit is manufacturing or non-manufacturing.

H4.5: There is no significant difference between the perceptions of manufacturing and non-manufacturing units regarding the issues and challenges faced.

Irrespective of the type of the unit they have is no significant relationship between the types of units and the entrepreneur's perception on the issues and challenges faced by them in the industrial in the case of all the factors except for the statement that the infrastructure is old and need improvement. However, for the remaining factors similar perception on majority of the segments of working of the industrial estates. This may be because all the units whether

manufacturing or non-manufacturing enjoy similar type of benefits, get similar infrastructure, and avail same incentives, have same benefits and face similar challenges being a part of the industrial estate.

H5: There is no significant difference in the working and contribution of the industrial estates in South Goa and North Goa.

H5.1: There is no significant difference in the facilities provided in the industrial estates in South Goa and North Goa

Facilities provided in the industrial estates in South Goa as well as North Goa are almost the same. Only marginal difference is observed. Facilities in the North Goa are better than South Goa. This may be because there are more industrial estates in North Goa and the number of respondents is more. In South Goa, there are less respondents as there are only 06 industrial Facilities include estates. The facilities include the locality of the industrial estates, infrastructure provided in the industrial estates, topography, soil conditions, utility, incentives, accessibility to highways, feasibility for running business and overall quality.

H5.2: There is no significant difference in the infrastructure provided in the industrial estates in South Goa and North Goa.

Infrastructure provided in the industrial estates in the in South Goa as well as North Goa is almost the same. Infrastructure for the industrial estates is provided by GIDC. Hence GIDC will provide similar infrastructure in both the districts.

H5.3: There is no significant difference in the incentives offered by the industrial estates in South Goa and North Goa.

There is significant difference in the incentives availed by the entrepreneurs in South Goa and North Goa districts. This may be because in North Goa, more incentives are availed by the entrepreneurs whereas in South Goa fewer incentives are availed by the entrepreneurs. Again, this may be there are more industrial estates and more respondents in North Goa as compared to South Goa.

H5.4: There is no significant difference in the benefits gained in the industrial estates in South Goa and North Goa

There is significant difference in the benefits gained by the entrepreneurs in the industrial estates in South Goa and North Goa. Benefits gained by the entrepreneurs in the North Goa are better than the benefits gained by the entrepreneurs in South Goa. This may be because since North Goa district has capital city and number of industrial estates are also more, the entrepreneurs enjoy more benefits. In South Goa, there are few industrial estates and two are located in the backward talukas also.

H5.5: There is no significant difference in the challenges faced in the industrial estates in South Goa and North Goa.

There is significant difference in the challenges faced by the entrepreneurs in the industrial estates in South Goa and North Goa. More challenges are faced by the entrepreneurs in South Goa industrial estates as compared to those in North Goa. This may be because there are fewer industrial estates in South Goa, majority of the entrepreneurs have not availed the incentives offered by the government, entrepreneurs enjoy fewer benefits, and two of the industrial estates are located in the backward talukas. In North Goa, there are more industrial estates, entrepreneurs have availed the incentives, and they enjoy more benefits

H5.6: There is no significant difference in the contribution through the investments in Plant and Machinery in the industrial estates of South Goa and North Goa.

There is no significant difference in the Plant and Machinery investments in South Goa and North Goa districts. These investments are made by the Micro, small and medium, and large industries located in the industrial estates.

H5.7: There is no significant difference in the contribution through the investment in Land and Building in the industrial estates in South Goa and North Goa

There is no significant difference in the Land and Building investment in IEs in both the districts. Investments are almost the same in both the districts in spite of variations in the total number of industrial estates in both the districts.

H5.8: There is no significant difference in the contribution through the employment generated in the industrial estates in South Goa and North Goa

There is no significant difference in the employment generated by Ies in both districts. The employment generated by the units located in the industrial estates in both the South Goa and North Goa districts is almost the same. This may be because even though number of industrial estates is less in South Goa, the leading industrial estate, Verna, is located in the South Goa district. Verna industrial estate alone provides employment to more than 10000 people.

TABLE 46**CHART SHOWING THE DETAILS OF OBJECTIVES, HYPOTHESIS, FINDINGS AND TOOLS**

SR NO	OBJECTIVES	HYPOTHESIS	FINDINGS	TOOLS USED
1	To assess the Industrial Estate Programme in Goa	H1: There is no difference of opinion between the GIDC Officials and the Industrial Estate Office bearers on the Industrial Estates Programme in Goa	The opinions of both the respondents are the same as regards the IEP in Goa. Both feel that IEP in Goa has achieved its objectives	Content Analysis Descriptive Statistics Bar diagrams Factor Analysis Ordinary Least Square Regression ANOVA
2	To study the profile of industrial estates in Goa	-----	18 functioning industrial estates and 02 non-functional Maximum IEs established in 1980s Verna biggest IE and Mapusa smallest IE Kundaim has maximum plots Maximum functioning units in Verna and minimum in Colvale and Pissurlem	Secondary data collected from GIDC, Panaji. Bar charts, tables, graphs.
3	To examine whether the entrepreneur's demographic profile has an influence on his perception towards the working of the industrial estates in Goa	H2 There is no significant relationship between the Age, Educational Qualification, Experience, Designation and number of years of existence in the industrial estate and his perception towards the facilities, infrastructure, incentives, benefits and challenges of the industrial estates	Perception of the entrepreneur on the facilities, infrastructure, incentives, benefits, and challenges, does not vary with his Age, Education, Experience, Designation, and Number of years of existence in the industrial estate.	Ordinary Least Square Regression, t-test, ANOVA
4	To determine whether there is a relationship between the perception of the entrepreneur on the working of the industrial estate and the type of unit	There is no significant relation between the perception on the entrepreneur on the facilities, infrastructure, incentives, benefits and the challenges and the type of the unit	Perception of the entrepreneur on the facilities, infrastructure, incentives, benefits, and challenges, is not related to the type of the unit	T test ANOVA

5	To compare the working and the contribution of the industrial estates in South Goa and North Goa	<p>There is no significant difference in the facilities, infrastructure, incentives, benefits and challenges in the industrial estates in South Goa and North Goa</p> <p>There is no significant difference in the contribution of the industrial estates in the South Goa and North Goa</p>	<p>Facilities and infrastructure in the industrial estates in South Goa and North Goa are the same. Entrepreneurs in South Goa industrial estates are facing more challenges, enjoying fewer benefits and have availed less incentives as compared to the entrepreneurs in the North Goa district. There is no significant difference in the contributions made by the industrial estates in the form of Plant and Machinery, Land and Building, and employment generated.</p>	T test
6	To undertake the case studies of the two non-functional industrial estates in Goa	-----	Both the industrial estates do not have functioning units. Steps are being taken by the Government to revive both the IEs.	Case study

CHAPTER V

SUMMARY, FINDINGS, CONCLUSIONS AND

SUGGESTIONS

5.1 : SUMMARY:

The topic “**Working of Industrial Estates in Goa: An Analytical Study**” was carried out to study **six** objectives as mentioned in chapter 3 and the respective hypothesis. The entire report is divided into five chapters.

Chapter 1 deals with the introduction which covers the concept of industrialization, industrial estate – the meaning, definitions, objectives, origin and types of industrial estates, Industrial estates in Goa, GIDC and its role and industrial policies of Goa, background of the study are also covered in the chapter.

The theoretical background of the research topic is presented in **chapter 2**, to establish the fact that the present study does not resemble any other study at the national and international level.

Chapter 3 deals with the ‘Research Design and Methodology’ which covers a research problem, significance of the topic, objectives of the study, hypotheses, limitations, and scope of the study, data source, sample profile, data collection instrument, contact method, data analysis tools, period of the study.

Chapter 4 deals with data analysis and discussion. IEP in Goa is assessed in the light of its objectives .Contribution of the industrial estates is examined and compared between South Goa and North Goa. Opinion of GIDC officials and Industrial Estate Association Office

bearers were sought regarding the objectives of IEP in Goa. Contribution of the industrial estates to the economy of Goa is also determined. The profile of the industrial estates in Goa is studied. Whether the entrepreneur's demographic profile has an influence on his perception towards the working of industrial estates in Goa is examined in this chapter. Relationship between the perception of the entrepreneurs and the type of unit is assessed. Working of industrial estates in South Goa and North Goa is compared and case studies of two non-functional industrial estates in Goa are undertaken. These are the 'Shiroda industrial estate' and 'Sanguem industrial estate' respectively. This chapter ends with the discussions on the hypotheses tested.

Chapter 5 deals with summary of the report, findings of the study, tabular representation of the hypotheses, conclusion of the study, Industrial Estate wise recommendations to GIDC, and policy suggestions to the Government of Goa, and Areas for future research.

5.2 FINDINGS OF THE STUDY:

The study '**Working of Industrial estates in Goa: An Analytical Study**' was undertaken in the State of Goa. All the twenty industrial estates in Goa were analyzed. 153 units located in eighteen functioning industrial estates are taken as sample respondents. Case studies of two non-functioning industrial estates are also undertaken.

OBJECTIVE 1: TO ASSESS THE INDUSTRIAL ESTATE PROGRAMME IN GOA

Questionnaire 1 was circulated among the GIDC officials i.e. field Managers of all the industrial estates and also among the member of the Industrial Estate Association of all the eighteen industrial estates located in Goa.

The findings of the analysis of the responses are as follows:

As regarding the profile of the industrial estates in Goa,

- Kundaim industrial estate is the second largest industrial estate in Goa and it consists of mixed industries.
- Corlim industrial estate is the oldest industrial estate but is neglected as of today.
- Mapusa industrial estate is the most ideally located industrial estate but it is a small industrial estate.
- Kakoda industrial estate is located in one of the backward talukas of Goa and is badly affected by the closure of mining in Goa.
- Tivim industrial estate enjoys a strategic location, inspite of being small; it is a model industrial estate.
- Margao industrial estate is the second oldest industrial estate but majority of the units here are owned by entrepreneurs from the other states and not locals.
- Bethora industrial estate is a small industrial estate consisting of mostly ancillary units based on only one single large unit.
- Madkaim industrial estate is also a small industrial estate, but it consists of working and profitable units and many export oriented units are also located in this industrial estate.
- Cuncolim industrial estate is not well planned, majority of the units are steel units and pollution is the major issue in this industrial estate.
- Tuem industrial estate is also located in one of the backward talukas and the speciality of this industrial estate is that there is no single polluting unit in this industrial estate.
- Bicholim industrial estate is a centrally located industrial estate and has variety of industries.

- Honda industrial estate is located in a very remote area. This industrial estate is also based on only one single large scale unit.
- Canacona industrial estate, located in a backward taluka, but majority of the area of this industrial estate is unutilized as two big units are closed down due to pollution issues.
- Pilerne industrial estate is compact industrial estate which is ideally located, very close to the capital city, and there are no polluting units here.
- Verna industrial estate is the largest industrial estate, having maximum functioning units and providing employment to maximum number of people. Majority of the pharma companies are located in this industrial estate and there are plans to make this industrial estate a Five Star Industrial Estate.
- Sancoale industrial estate although located strategically, lacks the industrial climate, and the Association is also not active and majority of the units are either sold out or given on rent.
- Pissurlem industrial estate is located in the backward taluka of Sattari, and is yet to be developed fully.

The following programmes are conducted in the industrial estates to attain their objectives:

- Workshops on awareness of various Government Schemes
- Waste Collection Drive
- Health Checkups for the employees and health camps
- Water harvesting programmes
- Awareness drives by the health department regarding various diseases such as malaria, dengue etc.
- Skill Development Programmes for the entrepreneurs

- Seminars and talks for the entrepreneurs on the various issues such as patenting, ISO, pollution rules, fire fighting, waste management, export formalities, safety, environmental issues.
- Training programmes for the entrepreneurs by MSME and CIBA.

The main contributions by the GIDC towards the development of the industrial estate are allotment of plot and sheds, provision of infrastructure such as roads, electricity, water, streetlights, etc, solving the grievances, creating awareness about the rules and procedures, co-ordinating with the Industrial Estate Associations, maintaining the industrial estates.

The benefits gained by the units of being a part of the industrial estate are as follows:

- Ready infrastructure
- Co-operative and understanding Field Managers
- Awareness of various procedures and rules
- Employment generation for locals
- Expansion plans.

The challenges faced by the entrepreneurs in the industrial estates are as follows:

- Upgradation of the existing infrastructure to match the current scenario
- Quality power
- Proper fencing and security for the industrial estate
- Provision of the facilities like bank, ATM, pay toilets, shopping centre, police outposts, post office, hospital, inside the industrial estate itself.
- Open Forum to hear the grievances of the entrepreneurs
- Single Window System for all the procedures of GIDC
- More powers for the Field Managers

- Revival of sick units
- Hygienic and subsidized canteen within the industrial estate
- Conflicts with the locals
- Motivational workshops for the entrepreneurs to start the labour intensive industries
- Compound wall and fencing for the industrial estate.
- Underground electricity cables.

IEP in Goa is assessed on the basis of the opinions of the GIDC Officials and Industrial Estate Association office bearers. As per the opinions of GIDC officials and industrial estate association presidents, IEP in Goa has succeeded in achieving its objectives namely the objective of developing economy of Goa and the objective of promoting employment and entrepreneurship. The opinions do not differ with respect to the objectives of IEP in Goa. Again, both these objectives are co-related to each other.

It is found that IEP in Goa is successful in achieving its objectives of providing employment and promoting entrepreneurship.

There has been significant growth of industrial estates in Goa since 1966. The first industrial estate was set up in 1966 and the twentieth industrial estate was set up in 2000. Two industrial estates were set up in 1960s, four in 1970s, 07 in 1980s, six in 1990s and one in 2000. Thus, majority of the industrial estates were established in 1980s and 1990s. Industrial Estates have contributed to the economy of Goa. Industrial estates have attracted the local entrepreneurs as well as the entrepreneurs from the other states and countries. Majority of the entrepreneurs contacted agree to the fact that the industrial estates have played a significant role in making them entrepreneurs.

Entrepreneurs prefer to start their units in the industrial estates. This can be seen from the fact that out of 835 micro, medium and small units registered in Goa, 593 are located in the industrial estates. Similarly, out of 192 large units registered in Goa, 124 are located in the industrial estates.

OBJECTIVE 2: TO STUDY THE PROFILE OF INDUSTRIAL ESTATES IN GOA.

Profile of the industrial estates in Goa is studied on the basis of the year of establishment, total area, total sheds, total plots, total units, and number of functioning units, number of closed units, total employment and water consumed per day. It is observed that

- Two industrial estates were established in 1960s, four were established in 1970s, seven were established in 1980s, six were established in 1990s and only one was established in 2000. Thus, the maximum industrial estates were established in 1980s.
- Corlim industrial estate is the oldest industrial estate and Sanguem industrial estate is the new industrial estate set up in Goa.
- As far as area is concerned, Verna is the biggest industrial estate and Mapusa is the smallest industrial estate in Goa.
- Total sheds are highest in Sancoale industrial estate and lowest in Cuncolim industrial estate. There are no sheds in Verna, Pilerne, Madkaim, Colvale and Pissurlem industrial estates.
- Total plots are maximum in Kundaim industrial estate and minimum in Mapusa industrial estate.
- Functioning units are maximum in Verna industrial estate and minimum in Colvale and Pissurlem industrial estates.

- Closed units are maximum in Bicholim industrial estate and lowest in Colvale industrial estate.
- Employment generated is highest in Verna industrial estate and lowest in Canacona industrial estate.

OBJECTIVE 3: TO EXAMINE WHETHER THE ENTREPRENEURS' DEMOGRAPHIC PROFILE HAS AN INFLUENCE ON HIS PERCEPTION TOWARDS THE WORKING OF INDUSTRIAL ESTATES

153 entrepreneurs were interviewed to examine their perception on the working of the industrial estates in Goa. Relationship between the demographic profile of the entrepreneur and his perception towards the working of the industrial estates in Goa was studied. Demographic profile variables included age, educational qualification, experience, designation and number of years of existence of the unit in the industrial estate. Perception is analysed with reference to the facilities in the industrial estate, infrastructure provided in the industrial estate, incentives offered, benefits gained by the entrepreneur by being a part of the industrial estate and the challenges faced by the entrepreneur in the industrial estate. It is concluded that the perception of the entrepreneur does not vary with his demographic profile. There is no significant relationship between the demographic profile of the entrepreneur and his perception towards the working of the industrial estates in Goa. Thus, irrespective of the age, educational qualification, experience, designation and number of years of existence in the industrial estate, the entrepreneurs have the same perception on the facilities, infrastructure, incentives, benefits and the challenges. Entrepreneurs have similar perceptions with marginal variations.

OBJECTIVE 4:TO DETERMINE THE RELATIONSHIP BETWEEN THE PERCEPTION OF THE ENTREEPRENEUR TOWARDS THE WORKING OF THE INDUSTRIAL ESTATE AND THE TYPE OF UNIT.

Perception of the entrepreneurs was also judged with reference to the type of unit. The units were divided into 09 categories namely, Manufacturing, Engineering, Food Processing/bakery, Automobile, Packaging, Pharma, Chemical, IT and Service. However, majority of the industries were falling under manufacturing category. Hence, the units were broadly classified as Manufacturing and Non-manufacturing. It was concluded that there is no significant relationship between the perception of the entrepreneurs on the facilities, infrastructure, incentives, benefits and the challenges and the type of the unit. Entrepreneurs of all the types of units have similar perceptions on the facilities, infrastructure, incentives, benefits and challenges.

OBJECTIVE 5:TO COMPARE THE WORKING AND CONTRIBUTIONS OF THE INDUSTRIAL ESTATES IN SOUTH GOA AND NORTH GOA.

Goa is divided into two districts, South Goa and North Goa. Out of twenty industrial estates, twelve industrial estates are located in North Goa and six are located in South Goa. Two non-functioning industrial estates are located in both the districts each. Comparison of the working of industrial estates in South Goa and North Goa is done on the basis of the Facilities, Infrastructure, Incentives, Benefits and Challenges. It is found that,

- Entrepreneurs whose units are located in industrial estates in the South Goa district are facing more challenges; entrepreneurs are enjoying fewer benefits and have availed less incentives, as compared to the entrepreneurs whose units are located in

the industrial estates in the North Goa district. However, facilities and infrastructure provided in the industrial estates in South Goa and North Goa are the same.

- Contribution by the micro, small, medium and large units located in the industrial estates in both South Goa and North Goa is compared on the basis of the investments in the plant and machinery, investments in land and building, and employment generated. There is no significant difference in the investments in plant and machinery, investments in land and building and employment generated by the units located in the industrial estates in South Goa as well as the units located in the industrial estates in North Goa district respectively. This is inspite of the fact that there are twelve industrial estates in North Goa and only six industrial estates in South Goa district. Thus, the industrial estates in both the districts contribute equally to the state.

OBJECTIVE 6: TO UNDERTAKE THE CASE STUDIES OF THE TWO NON-FUNCTIONING INDUSTRIAL ESTATES IN GOA

The Case studies of two non-functioning industrial estates namely Shiroda industrial estate and Sanguem industrial estate, was undertaken.

Shiroda industrial estate was established in 1998 and is located in North Goa district.

Sanguem industrial estate was established in 2002 and is located in South Goa district.

There were no functioning units in both these industrial estates when the survey was undertaken in 2014. However, now the steps are taken by the GIDC to revive both these industrial estates. The plots allotted earlier are taken back and reallocation process is on. Plots are already advertised in the local newspapers. Many small as well as large units have shown interest in taking up the plots in these industrial estates.

5.3 CONCLUSION:

The utility of Industrial Estates as a tool for industrialization is accepted universally. They are in fact seed-beds for the promotion of small scale industries. However, as has been indicated earlier, their working has still to improve. There is an avoidable time lag in their construction, the demand for the units is not great, the selection of candidate industries was not very proper, the admission policies have not strictly been adhered to, their working by way of follow-up has not been reviewed, the success of the industries that have been set up has not been very satisfactory and the cost of construction has been high. The deficiencies could be attributed to lack of proper planning at every stage. While these industrial estates could be effective tools of development, it should be realized that they will become ineffective if proper attention is not given to their planning and organization.

Based on the findings of the study, the Goa Government's policy in respect to the future of these industrial estates has to be taken into consideration. Before it is decided to launch more industrial estates, it is necessary to examine whether it will not be more desirable to develop sites with all these amenities and allow the industrialists to build their own factories of approved types.

In view of the present performance of the Industrial Estates and the difficulties involved, it would be more desirable to go slow in the matter of establishing new Industrial Estates in Goa. The new industrial estates are to be set up with proper planning and with proper economic considerations rather than political considerations.

The **conclusions** drawn from the study are:

- ✓ The impact of Industrial Estates on the industrial and economic growth of Goa is satisfactory. This is inferred from the fact that out of 835 micro medium & small units registered in Goa; 593 units are located in the industrial estates. Total employment generated by the units located in the industrial estates is 34000.
- ✓ Majority of the entrepreneurs of the sample units agree that industrial estates have played a significant role in making them entrepreneurs.
- ✓ Out of eighteen functioning industrial estates in Goa only seven are located in the backward talukas. Hence, industrial estates have not minimised the regional imbalances in Goa. There are twelve talukas in Goa, six in South Goa and six in North Goa. Out of twelve talukas, six talukas are considered as backward talukas.
- ✓ There has been significant growth of industrial estates in Goa since 1966. Twenty industrial estates are established in Goa over a period of 36 years. Corlim industrial estate was established in 1966 and Sanguem industrial estate was established in 2002.
- ✓ There are twelve talukas in Goa. All the talukas have at least one industrial estate except Dharbandora taluka which is newly formed.
- ✓ Out of 192 large scale industries registered in Goa, 124 units are located in the industrial estates providing employment to 18000 people.
- ✓ Out of eighteen functioning industrial estates twelve industrial estates are in North Goa where as only six industrial estates are in South Goa. One non-functioning industrial estate is in South Goa & the other in North Goa. Total area of South Goa District is 1966 Sq.kms where as total area of North Goa District is 1736 Sq.kms.

- ✓ Field Managers/ Area Managers appointed in all the industrial estates are only Males.
- ✓ Infrastructure provided in the industrial estates in Goa is very old and needs to be upgraded.
- ✓ Out of eighteen industrial estates, only two have fire stations and of the remaining some have hydrants while several don't. Only Kundaim and Verna have fire stations but there is no haste in setting up more stations or new hydrants to tackle the situation in the industrial estates.
- ✓ Cuncolim Industrial Estate which has a number of hazardous units has neither a hydrant nor a fire station.
- ✓ Some industrial estates have hydrants, but most of them are not in working condition. Several industrial estates do not have hydrants at all. Industrial estates in interior areas are extremely vulnerable to fire.
- ✓ For a small state of 3700 sq.km, there are twenty industrial estates in Goa, thereby increasing the burden on the transportation, logistics and spread of hazardous waste and pollution. This shows that industrial estates are established in Goa without proper planning.
- ✓ All the twenty industrial estates in Goa are established and managed by Goa Government. Industrial estates are managed through state sponsored infrastructure facilities. The budgetary constraint of the Government has resulted in inadequate facilities in most of the industrial estates in Goa.

- ✓ Location of the industrial estates is based on the political rather than economic criteria.
- ✓ There are only Government owned industrial estates in Goa. There are no private or co-operative industrial estates.
- ✓ Concept of Sustainable Industrial Estate is lacking in Goa. Planning of industrial estate has been done at macro level rather than at micro level.
- ✓ Out of twenty industrial estates, two have been established in 1960s, four have been established in 1970s, seven have been established in 1980s, six have been established in 1990s and only one has been established in 2000. The first industrial estate was established in 1966.
- ✓ All talukas of Goa have at least one industrial estate except the newly established Dharbandora taluka. Ponda taluka and Bardez taluka have maximum industrial estates, four each.
- ✓ Total functioning units during the Survey period (2013-14) in the industrial estates were 1527. These are located in 18 functioning industrial estates. There are no units in two non-functioning industrial estates.
- ✓ The impact of industrial estates on the economy of Goa is impressive. This is inferred from the fact that 1527 industrial units are located in 18 industrial estates which have generated employment to 34,000 people.

- ✓ Verna (301) & Kundaim (223) IE seem to be most favourite for investors followed by Sancoale (146), Tivim (109) and Margao (95).
- ✓ The largest taluka in Goa, Sanguem, has no functioning units.
- ✓ Sanguem – largest taluka in Goa has been dotted with things of historical importance and is also bestowed with rich natural resources – both in mining as well as wildlife, agriculture and horticulture. 70% of Sanguem taluka is covered with thick natural forest and receives maximum rainfall. Coconut, cashew, teak, rubber, oil palm, rice and sugarcane are the major crops here, but so far no industry has been set up to process these crops.

5.4:RECOMMENDATIONS TO GIDC

Industrial estate wise recommendations to GIDC are as follows:

I) MARGAO INDUSTRIAL ESTATE :

- Efficient & transparent procedures.
- Single Window System.
- Separate and specific standards for different type of industries like Engineering, food processing, scrap yards, etc. Rules should be industry specific and not general.
- Government should have a control over labour turnover. Strict action should be taken on the workers leaving without prior notice.
- Illegal structures should be destroyed.
- Regular supply of water & quality power.

- Regular and frequent buses in the I.E.
- Improvement in infrastructure.
- GIDC staff should empathize with the entrepreneurs who run the units in the industrial estates.
- Upgrade infrastructure.
- Provision of facilities like transport office, Bank, ESI dispensary, Doctor on duty, Night Watchman.
- Street dogs problem to be solved.
- Widening of approach roads.
- GIDC should very quickly shed the wrong attribute of considering itself as Corporation for land development. Very precious scarce resource of land under their custody should go only to genuine entrepreneurs at reasonable cost. Improper decision to increase the premium plot price at different industrial estate should be reviewed against the level of infrastructure at different estates vis a vis the small tiny nature of SSI units in the estate and their limitations. GIDC should be judicious to consider viability of small units' revaluation of plot is done.
- Provide hygienic canteen & Regular Garbage collection.
- Provide ready sheds as it is a better option for small units. However, plots can be offered for large units.
- Information Counters to be set up for the new entrepreneurs.
- GIDC rules need to be revised. There should be transparency.

II) CUNCOLIM INDUSTRIAL ESTATE :

- Faster and quick decisions on allocation of plots.
- Better and responsive manpower.

- Provide First Aid Centre.
- Upgrade infrastructure – roads, garbage, streetlights.
- Goa Government should provide attractive incentives to the industries so that more and more industries will come to Goa.
- Provide Security to the units against thefts and robberies.
- GIDC should interact positively with the units to boost their morale.
- Vacant plots should be taken back by GIDC and the same should be reallocated to genuine parties.
- Pollution related matters to be dealt with promptly and strictly.
- Entrepreneurship culture should be promoted in Goa.
- Existing laws to be modified.
- Single Window System should be adopted by GIDC.
- GIDC can start on line facilities for most of the procedures so that entrepreneurs' time will be saved.
- Fencing should be provided for the entire industrial estate.
- Provide quality water and quality power.
- Fast processing of proposals by GIDC.
- Expansion of I.E. GIDC should acquire more land so that new plots can be created for new entrepreneurs.

III) SANCOALE INDUSTRIAL ESTATE:

- Upgrade infrastructure facilities.
- Speedy clearing of files by GIDC.
- Sub-lease rules to be revised.
- Sick units should be revived. Government should initiate revival policy.

- Regular Garbage collection.
- Provide quality power & regular water supply.
- Medical facilities in the industrial estate.
- Police should take rounds frequently.
- There should be regular interactions between GIDC staff and the entrepreneurs.
Regular meetings can be held on monthly basis in each industrial estate.
- There should be Hazard Management Plan.
- Drainage System to be provided.
- Alternate arrangement in the case of power failure is to be done by GIDC.
- Streetlights to be repaired on regular basis.
- There should be total fencing for the industrial estate.
- Provide Security at the Gate/entrance of I.E. Check Post for incoming vehicles.
- Construction Rules should be changed. Increase FAR at least 3 times plot area for constructing proper structures.
- There should be co-ordination between GIDC and Town & Country Planning Dept.
- Change in attitude and behavior of GIDC staff at head office is a must.
- There should be transparency in GIDC procedures.
- The forms for filling returns can be modified.

IV) BETHORA INDUSTRIAL ESTATE:

- There should be transparency in GIDC procedures.
- Provide quality infrastructure.
- GIDC should co-operate with entrepreneurs.
- Frequent public transport.
- Single Window System for all clearances.

- Simplify the procedures. Minimize bureaucracy.
- GIDC should encourage more large units so that ancillary units can also be boosted.
- Alternate source of water should be provided at the same price and not at the higher rate.
- Provide proper drainage system.
- GIDC should take initiative in conducting skill building programmes for the local youth.
- GIDC should provide clarity of rules for the entrepreneurs.
- Garbage Management should be taken up on priority basis. Garbage to cleared promptly.
- Hazardous Waste Disposal facility is a must in the state of Goa.
- Periodic inspection of Industrial Estate is a must. Regular maintenance to be taken up like streetlights repair, roads conditions.

V) MADKAIM I.E. :

- Single Window System for all clearances.
- Provide 24 hours Helpline for entrepreneurs.
- Construction rules to be modified. FAR to be increased.
- GIDC should make use of technology for all the procedures. Online facility should be provided to the entrepreneurs.
- Small Units should be given more freedom to operate without interference.
- Procedures can be simplified and prompt.
- Files should be cleared promptly.
- Field Managers have limited powers. They should be given more decision making powers.

- Provision of quality power.
- Frequent public transport, adequate water, police outpost, fire station, Doctor on duty, to be provided in the industrial estate.
- Security arrangements to deal with thefts and robberies.
- Check Post at the main entrance to check out the entry of unauthorized people and vehicles.
- Compound wall to be constructed for I.E.
- Export oriented units to be encouraged by GIDC.
- Beautification at the entrance of industrial estate is to be taken by GIDC.
- Provide hygienic canteen, late night buses, 108 ambulance facility in the industrial estate.
- Crèche facility can be made available in the Industrial Estate.
- Garbage clearance is to be done on regular basis.

VI) TUEM INDUSTRIAL ESTATE:

- GIDC should give more attention. This I.E. being far away is neglected.
- Upgrade infrastructure
- Maintenance of IE is very poor.
- Single Window System for the procedures.
- GIDC should have frequent interactions/ meetings with the entrepreneurs.
- Industrial Estate should have its own power sub-station so that power issues can be solved.
- Mopa airport is a must. It will benefit the industries in North Goa.

VII) COLVALE INDUSTRIAL ESTATE:

- Upgrade infrastructure. It is very old.
- Expand I.E so that new industries come up.
- Single Window System for all clearances.
- Change in attitude by GIDC staff is a must.
- Encourage more large industries so that ancillary units can be also encouraged.
- Garbage issue, Pay Toilets for the Workers, Fire Station, to be started.
- Doctor on duty, ambulance, bank branch to be provided in the I.E. itself.
- Proper fencing of Industrial Estate is a must for the safety and security of the units.

VIII) PILERNE INDUSTRIAL ESTATE:

- GIDC can save the time of the entrepreneurs by starting online facilities.
- GIDC should be more active in their roles and functions. Promptness in clearing the files is a must.
- Quality power is the need of the hour for the industries.
- Open spaces in the I.E. can be developed by GIDC and converted into parks, clubs, etc.
- Industrial estate should be expanded to meet the demands of new entrepreneurs.
- Some ready sheds can be built by GIDC for the benefit of small units.
- Power sub-station in the industrial estate should be provided by GIDC.
- Garbage disposal should be done on regular basis.
- Drainage System should be properly done.
- Land is scarce in Goa. Therefore land locked in SEZs should be settled so that the same can be declared as industrial area.
- GIDC should simplify its procedures.
- Boundary/compound wall is a must for Industrial Estate.

- Cattle issue needs to be settled.
- Bank Branch/ATM Machine, clean canteen, doctor on duty, parking space should be provided in the industrial estate.
- Water rates/electricity rates should be different for different units (e.g. small, large, micro, etc).
- Power cut intimation should be given to the units well in advance.
- IE should be maintained well. Streetlights should be repaired on time.
- Days where Field Manager is not available in the industrial estate should be told to the entrepreneurs.
- GIDC should have different rules according to the scale of operation of the unit.
- Garbage collection should be done on regular basis. Nominal charges can be taken from the units.
- Rain Water Harvesting can be done in the industrial estate.
- GIDC should co-ordinate with IE Association office bearers and have regular meetings to discuss the problems.

IX) CANACONA INDUSTRIAL ESTATE:

- GIDC should start Mobile Vehicles one in North Goa and the other in South Goa. These vehicles should move through each industrial estate so that problems of the units can be addressed and solved.
- New Guidelines of GIDC needs to be revised again.
- Single Window System should be followed by GIDC for its procedures.
- Infrastructure needs to be upgraded.
- Formalities should be handled in the office of Field Manager in each industrial estate since head office is very far from Canacona.

- Construction rules need to be relaxed. FAR should be increased.
- More labour oriented units should be encouraged in this industrial estate so that employment opportunities are created for the local people in the taluka.

X) BICHOLIM INDUSTRIAL ESTATE:

- Single Window System for all the clearances.
- Infrastructure is very old and needs to be upgraded.
- Uninterrupted power supply is the major issue. There should be dedicated 'Power House' for each industrial estate.
- Clean canteen needs to be started with proper control by the authorities.
- Maintenance of industrial estate should be undertaken on regular basis for e.g. cutting of bushes, repairs of streetlights, etc.
- GIDC should minimize bureaucratic hurdles.
- Since land is scarce in Goa, the Government should look into the land locked in SEZs.
- Construction rules need to be reviewed, i.e. FAR should be increased and temporary roofs in setback areas should be permitted.
- Quality of power has to be drastically improved.
- GIDC should have proper co-ordination with Electricity Dept, Panchayat, Fire, Police, PWD, Town & Country Planning, etc.
- ITI Education needs to be upgraded. Skill Development Programmes need to be organized for the students.
- There is a need for change in workers mentality.
- Broadband Connectivity needs to be improved in the industrial estate as the speed is very slow.
- Every industrial estate need to have a compound hall.

- Cattle problem need to be addressed.
- Field Managers need to be given more powers.
- GIDC should look into the revival of sick units in the Ind. Estates.
- Existing entrepreneurs should be given preference while allotting new plots / sheds.
- SSIs can be given subsidies by the government.

XI) PISSURLEM INDUSTRIAL ESTATE:

- GIDC should pay more attention to this industrial estate. Since it is far away, it is neglected.
- Infrastructure needs to be upgraded.
- Fully Fledged Field Manager's Office is yet to start. Other Field Manager is holding additional charge.
- GIDC should motivate local people from the taluka to start small scale units in this industrial estate.
- Large Scale Labour intensive units should be encouraged so that it will provide local employment.
- Facilities like Bank, Post Office, Police Outpost, and Doctor on duty, Fire Station, Ambulance, etc should be provided in the industrial estate itself.

XII) HONDA INDUSTRIAL ESTATE:

- No canteen is available in the industrial estate. GIDC should take the steps to do the needful.
- Maintenance of industrial estate is very poor. Bushes are to be cut on regular basis.
- Gutters have collapsed and require repair and cleaning also.

- Stray cattles are creating lot of problems. Area need to be fenced and pipes to be put across the road so that cattles cannot cross.
- Garbage disposal to be taken up on priority basis.
- Electricity Department staff should be appointed exclusively for Industrial Estate only.
- A sub-station which was planned for the industrial estate is to be taken up.
- Approach road needs to be widened.
- There is no doctor on duty; neither there is fire station, police outpost, bank branch.
- GIDC should have Single Window System.
- Field Manager needs to have more powers so that he can take decisions.
- GIDC is a major body in the State. Hence, it should take more efforts to promote industries.
- More workshops should be organised in the industrial estate to create awareness about rules and procedures to be followed by the units.
- GIDC should update its website and also make changes.
- Underground cabling is the need of the hour because the problem of power failure is very common during rainy season.
- Since this Industrial Estate is located in Sattari Taluka which is backward, GIDC should take efforts to encourage larger labour intensive units so that employment opportunities are provided to the local people.
- Sewage Treatment Plant is a must.
- GIDC should start 'Plug and Play' and 'Gala Type' Sheds.
- GIDC can make arrangements for backup generator for small units at nominal charges.
- GIDC should provide larger water storage facility and backup water pumps

XIII) TIVIM INDUSTRIAL ESTATE:

- Single Window System should be adopted by GIDC for all its procedures.
- Infrastructure is very old and needs to be upgraded as per the current requirements.
- GIDC staff should be allocated work and made accountable.
- Dedicated power station which is planned for the industrial estate should be implemented promptly.
- Garbage collection should be undertaken on regular basis.
- GIDC's rules should vary from industry to industry.
- Entry Gate should have security to check the entry of unauthorized vehicles and people.
- Common facilities are lacking. GIDC should provide common amenities like parking slots, pay toilets, rest rooms, etc.
- Entrance of the industrial estate is not impressive. It should be showcasing and attractive.
- Field Managers should be given autonomy to take routine decisions.

XIV) KAKODA INDUSTRIAL ESTATE:

- Single Window System should be adopted by GIDC.
- Infrastructure in the first phase needs to be improved very badly.
- The entrance of the industrial estate is very unattractive. It needs to be impressive.
- This industrial estate is totally neglected. GIDC should pay more attention. Lot of improvement is necessary.
- There is no security at the main gate to check the unauthorized vehicles or people.
- Quality power is the need of the hour.
- Broadband speed is very slow.

- Telephone line is to be replaced.
- GIDC should follow strict rules for closed sheds or unoccupied plots.
- Canteen should be clean and hygienic.
- I.E should be maintained on regular basis streetlights need to be repaired on time.
Roadside bushes should be trimmed.
- GIDC should offer plots to the genuine entrepreneurs only. Preference should be given to the existing and local entrepreneurs.
- Efforts should be made by GIDC to start labour intensive large units.

XV) CORLIM INDUSTRIAL ESTATE:

- In spite of being the oldest industrial estate, it is totally neglected by GIDC.
- The conflict between the local people and the entrepreneurs need to be resolved promptly.
- Canteen should be clean. Proper monitoring should be done by the GIDC.
- Common facilities like parking lot, pay toilets, restrooms for drivers, parks, etc. should be provided in the industrial estate.
- Garbage should be collected on regular basis.
- Compound wall should be constructed for the IE for the purpose of safety and security.
- Field Manager's Schedule should be known to the industrial units.
- Field Manager's Office is not properly manned. There is no full time Field Manager. He is having additional charge.
- GIDC can organize training programmes for the entrepreneurs.
- Construction rules should be changed. Increase FAR.
- GIDC should simplify its procedures.

- IE are not properly planned by the authorities. They are started without considering the long term effect.
- Roads are very bad. Expansion of roads is a must.
- There are no industry academic linkages. The education given in ITIs is faulty. It needs revision.
- More frequent public transport needed.
- Field Managers need to be given more decision making powers, so that entrepreneurs' time is saved.
- Attitude of labourers / contract workers need a change.

XVI) MAPUSA INDUSTRIAL ESTATE:

- Location of Mapusa I.E. is excellent. However, industrial climate is lacking. GIDC should take efforts to encourage entrepreneurs so that more industries come up.
- Most of the people have given their premises on rent. Manufacturing activities are missing. GIDC should do something about this issue.
- Infrastructure needs to be improved.
- Since the industrial estate is centrally located, GIDC should take efforts to bring large scale, labour intensive, non-polluting industries.
- Sewage system needs to be repaired.
- Garbage should be collected on regular basis.
- Security should be appointed at the entrance. The cost can be shared by the unit owners.
- Compound wall should be provided to the Industrial Estate for safety purpose.
- Quality power is the need of the hour.

- Single Window System should be adopted by GIDC to save time and minimize bureaucracy.

XVII) VERNA INDUSTRIAL ESTATE :

- GIDC can create a 'Common Hub' for transporting materials from Verna to fixed locations such as airport, Mumbai, Bangalore, etc. and vice versa.
- Common Crèche facility for the women employees.
- Manpower Development cell has to be created.
- Residential quarters can be constructed near to industrial estate.
- Late night buses are required.
- Infrastructure needs to be upgraded.
- Quality of power and regular supply of water is required.
- Garbage Treatment Plant can be started for each industrial estate in Goa.
- Chairmanship of GIDC should be given to professional person, and not a political person.
- Streetlights need to be repaired on time.
- Garbage bins are absent in the industrial estate.
- GIDC can have tie up with Panchayat for garbage collection.
- Canteen is unhygienic. Needs to be checked & controlled.
- Signboards are very old and need to be replaced.
- Single Window System is a must for GIDC.
- Change in mindset of GIDC employees is a must.
- GIDC should move the files of plot allocation very fast.
- Security check at the entrance of industrial estate is very much needed.
- GIDC policies should be transparent.

- Maintenance of industrial estate on regular basis.
- GIDC Website contains only limited information. It needs to be more comprehensive
GIDC should allot plots to genuine people. Preference should be given to the existing entrepreneurs for their expansion.
- FAR should be increased to 75% instead of 50%
- Sick Units can be revived by the Government.
- Small Scale Units can be given some extra support.
- GIDC Field Managers should regularly take rounds and monitor the industrial estate.
- GIDC should have control over transport vehicles. Their charges are very high.
- CCTV cameras can be put up at prominent places.
- GIDC Website should be updated from time to time.
- .GIDC Website needs to be more comprehensive.
- Verna industrial estate should be converted as 'Five Star Industrial Estate'.

XVIII) KUNDAIM INDUSTRIAL ESTATE:

- Single Window System should be adopted within the industrial estate itself to save time.
- The main focus of GIDC should be more industrialisation instead of revenue generation.
- Rules should be clear and transparent so that no injustice is done.
- All units irrespective of their size should not be treated at par. Each unit is different and hence should be handled differently by GIDC.
- Ideas/suggestions put forward by the IE Associations should be considered and implemented quickly.
- GIDC should co-ordinate with association to sort out their grievances.

- Streetlights should be repaired.
- Roads are to be hot mixed after rainy season every year.
- GIDC should increase their budget on infrastructure. It is a very important body and its focus should be on the development of industrial estate.
- Frequency of public transport through the industrial estate.
- Police should take regular rounds day and night for the safety and security of the units.
- Regular cleanliness of industrial estate is to be taken on priority basis.
- Parking space should be provided for trucks.
- Sulabh toilets, rest rooms, bathrooms need to be provided for the truck drivers.
- Water Storage Capacity should be increased.
- Panchayat Tax should be waived for the units located in the industrial estates.
- Grass/bushes cutting should be undertaken by GIDC periodically.
- Every industrial estate should have two entrances /exit.
- GIDC should take efforts to encourage larger, non-polluting, labour intensive units.
- Future industrial estates should be well planned.
- Information counter can be put up in each Industrial Estate to create awareness of the new schemes, changed rules, etc.
- Entrepreneurs should be nominated on the Board of GIDC.
- GIDC should make their staff accountable and responsible for what they do.
- 108 Ambulance should be stationed within the industrial estate.
- Field Managers have limited powers. Their decision making powers should be increased.
- Canteen should be clean and regularly monitored by GIDC officials.
- Speed breakers are needed in the industrial estate to regulate the speed of the vehicles.
- New rules should be circulated from time to time.

- Quality of work of labour is very low. ITI education needs to be revised.
- GIDC chairman should visit the industrial estate very frequently and try to understand and solve the problems.
- Dedicated Power Station for each industrial estate is a must.

5.5 POLICY SUGGESTIONS:

The policy suggestions offered to the Government of Goa are as follows:

- ❖ The planning of industrial estates should be conceived by the Government of Goa as an integral part of the Urban and Regional development process and should be related to the industrial development of regions. In Goa, the planning of industrial estates has been largely at macro level. Government decides to set up an industrial estate in a particular place and proceed with further procedure. However, the establishment of an industrial estate requires micro level planning. An industrial estate cannot be undertaken without the pre-investment techno-economic surveys of the alternate locations.
- ❖ **Regional Analysis Techniques** should determine the suitability of locations for industrial estates. Industrial Estates should be established in future in towns which can function as ‘growth points’ based on the size of population and the rate of population growth, the extent of available infrastructure facilities, the functional orientation towards trade and commerce, the inherent capacity for industrialisation, the availability of skilled labour and the availability and willingness of entrepreneurs.
- ❖ Development costs of the industrial estates can be reduced by the Goa Government by increasing their design efficiency and by reducing the areas set apart for roads and ancillary buildings.

- ❖ The type of industries to be set up in the industrial estates in Goa should be based on pre-location studies on the availability of raw materials, the level of skilled labour, markets and investment pattern.
- ❖ Co-operative Industrial Estates may be encouraged in Goa since such estates have the advantages of a spirit of ownership by the entrepreneurs, and it also reduces management problems to the minimum as far as official agencies are concerned.
- ❖ Selection of entrepreneurs and the industrial units must be made after a scientific study of the managerial abilities of the entrepreneur and the feasibility of the unit in a locality .GIDC should follow a rational admission policy. Allotment of plots is made on the first come first served basis by GIDC. Due to this planning and organizing common services becomes difficult. Therefore, admissions of the units to the industrial estates should be planned and regulated.
- ❖ There should be periodical evaluation of the working of the industrial units by a competent authority appointed by GIDC to provide adequate data to the Director of Industries to take timely action against the bottlenecks of development of the industries.
- ❖ Admissions to industrial estates should be planned and regulated by the GIDC so as to bring about the utmost co-operation and complementary relationship among the member enterprises. The selective admission of certain types of large enterprises in the industrial estates on their establishment in the vicinity of industrial estates can be a good strategy for accelerated industrial development. On an experimental basis 20 to 25 percent of the disposable area in the industrial estates can be thrown open to

medium and large units, the rest of the area may be exclusively earmarked for small units to avoid preemption of the entire industrial estate by large units.

- ❖ Municipalities and local governments should also be involved by the GIDC in the programme of industrial estates for providing water for industrial use, sewage and drainage facilities.
- ❖ The location and land for the industrial estate should be selected by GIDC very carefully and on the basis of thorough techno-economic survey. Thereafter attention should be concentrated on the physical planning and layout. Enough of land should be acquired initially to provide for future expansion and to safeguard against undue land price increases. However, only that portion which will be needed in the short run should be developed in order to have a rational basis for economic rent.
- ❖ Land utilization by the Goa Government should be as far as possible prudent and economical. Industrial land is very precious and should not be wasted in open space.
- ❖ The cost of construction also deserves attention. It is not necessary to have very elaborated buildings and display architectural feats, nor is it necessary to use costly and scarce materials. Cheaper and more functional buildings using local materials would not only reduce the time taken for the completion of sheds. Lower costs would ultimately help in lowering the rents and in making the units economically viable.
- ❖ Prompt and regular payment of rent should be made compulsory by the GIDC and a progressive rate of penalty should be imposed on the arrears of rent.

- ❖ It is very important that GIDC should pay attention to the utilities, facilities and services within the industrial estate. The provision of utilities, facilities and services are a part of the Indian Industrial Estate Programme and industrial estate is incomplete without them. These facilities should be organized by GIDC on a full scale irrespective of the size of the industrial estate, the number of sheds, the number of functioning units and the place of location.

- ❖ Government of Goa should keep in mind that industrial estates are not something which can be sprinkled generously all over the geographical area uniformly. Their location should be carefully determined, more so with respect to the backward regions and rural areas.

- ❖ It was found that sheds in the industrial estates in Goa are made in a uniform model. However, it must be made on the basis of the nature of the industry.

- ❖ There are many types of institutional assistance available to small scale entrepreneurs. Many of the entrepreneurs in the industrial estates are not aware of such assistance. In order to create more awareness about institutional assistance among entrepreneurs and to provide them better service, periodic intensive campaign should be launched in each industrial estate by the GIDC.

- ❖ A **‘Quality Assurance Wing’** can be organized by the GIDC inside every industrial estate which can certainly increase the demand of the products of SSI units of industrial estates.

- ❖ Sound physical infrastructure with easy availability of key utilities is a dream scenario for any investor. Therefore, the State of Goa should benchmark itself with the quality of infrastructure made available to both the industries and citizens at reasonable tariffs. Development of infrastructure should be the top priority on the agenda of Goa state.
- ❖ Strengthening road network → by converting existing roads into multi-lane roads and expressways depending upon the traffic requirements is a must by the Government of Goa.
- ❖ Laying water pipeline all across the State of Goa for bulk supply of water for drinking and industrial purposes has to be undertaken by the Goa Government.
- ❖ Government of Goa should encourage private developers to set Industrial Parks which are employment oriented, high-tech and investment oriented units.
- ❖ Good infrastructure is the crucial requirement of the industries. The Government of Goa is committed to bring about qualitative change in the conditions of existing GIDC Industrial Estates. Some of these industrial estates were set up in the 60's and 70's and the infrastructure was designed and developed with the requirements of the time then. Therefore, there is a need to upgrade the existing infrastructure. Provision of all modern amenities is a must for all the existing industrial estates in Goa.
- ❖ Replacement of present Street Light Systems by a Solar Street Light System in the industrial estates in Goa has to be undertaken by the Government.

- ❖ A committee to be appointed by GIDC for each industrial estate to study and solve the issues and problems pertaining to a particular industrial estate. The committee should include the field manager and the representatives of the units located in the industrial estate.
- ❖ Effective method should be adopted by the Government of Goa to rehabilitate the sick industrial units in the industrial estates. For this purpose Government of Goa can constitute a committee of experts to go into the details of the reasons for sickness and to suggest remedial measures.
- ❖ GIDC can undertake promotional campaigns in the form of Advertisements, Entrepreneurship Development Programmes, Seminars, Workshops and Exhibitions in order to boost the sale of plots in the industrial estates.
- ❖ GIDC Website should be updated from time to time. It needs to be more informative.
- ❖ GIDC should encourage women entrepreneurs to start their units in the industrial estates.
- ❖ Women field managers can be appointed in the industrial estates along with the males.
- ❖ Single Window System for all the procedures is the need of the hour in Goa. This will save the time of the entrepreneurs.
- ❖ Open spaces available within each industrial estate can be developed into parking lots and also parks and gardens.

- ❖ Safe disposal of hazardous and non- hazardous industrial waste has to be looked into seriously.
- ❖ Common facilities such as warehousing, cold storage, truck terminus, container depots, need to be provided within each industrial estate.
- ❖ There is a need for modernization and upgradation of existing industrial estates with regard to sewage treatment facilities, rain water harvesting, recycling of waste water and recharging of ground water.

5.6 AREAS FOR FUTURE RESEARCH

Researcher can undertake research in the following topics:

- ❖ Quality of worklife of employees working in the industrial estates in Goa.
- ❖ Performance evaluation of units located in the industrial estates in Goa.
- ❖ Comparison of efficiency of the units located in the industrial estates and the units located outside the industrial estates.
- ❖ Industrial Sickness in the industrial estates in Goa.
- ❖ Impact of industrial estates on the economy of Goa.
- ❖ Environment Management in the industrial estates in Goa.

❖ Effectiveness of industrial estates in Goa.

❖ Comparative study of Industrial Estates in Goa and other States.

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ANNEXURES

QUESTIONNAIRE 1:

Profile of the Respondent:

Name (Optional):

A	Gender	Male		Female		
B	Age	21-25	26-35	36-45	46-56	Above 56
C	I am a	GIDC official		Member of industrial estate association		
D	Work experience in years	2-5 years	5-8 years	8-10 years	> 10 years	

Role of GIDC in developing industries at Goa

1. Which one of the following industrial estates do you represent?

- Bicholim
- Colvale
- Honda
- Tivim
- Mapusa
- Verna
- Kundaim
- Pilerne
- Pissurlem
- Corlim
- Sancoale
- Shiroda
- Madkaim
- Bethora
- Kakoda
- Margoa
- Canacona
- Cuncolim
- Sanguem
- Tuem

2. Explain in short about the profile of your industrial estate

3. Select the nature of units that are a part of your industrial estate (Y-Yes N-No)

Nature of unit	Yes/No
Our industrial estate has units that are active in production at present	
Our industrial estate has units that are non-functional	
Our industrial estate has units that have functioned in the past and now closed for one or the other reasons	
Many new units have been proposed by yet to start in our industrial estate.	

4. Please give an approximate figure of the number of units that are at present in production in your industrial estate

- Less than 10
- Between 11 and 30
- Between 30 and 50
- Between 50 and 80
- Between 80 and 100
- Above 100

5. Please give an approximate figure of the number of units that have functioned in the past but closed at present in your industrial estate

- Less than 3
- Between 3 and 5
- Between 5 and 8
- Between 8 and 10
- Above 10
- Not applicable

6. Please give an approximate figure of the number of units that have been proposed to start in the future in your industrial estate

- Less than 3
- Between 3 and 5
- Between 5 and 8
- Between 8 and 10
- Above 10
- Not applicable

7. Does your industrial estate have any non-functional units?

- Yes
- No

If yes, how many (give an approximate number)

8. Which among the following thrust industrial areas does a majority of units of your industrial estate mainly belong to?

- Entertainment industry
- Tourism industry
- Information technology industry
- Food processing/Agro foods industry
- Pharmaceutical/Bio-technology industry

9. Rank in a scale of 1 to 5 the ultimate objective of your industrial estate

Objectives of Industrial estate	Ranking
Catalyze growth of Goa-n economy	
Create employment opportunities that are sustainable to the people of Goa	
Promote entrepreneurship	
Provide excellent infrastructural facilities to industries	
Increase export rates of Goa	
Promote industries in numerous business segments/areas	
Promote industries that are economically friendly	
Revive and rehabilitate industrial units that are sick and weak	
Promote women entrepreneurship	
Develop rural economy	

Promote in the up-gradation of technologies	
Promote research and development	

10. Explain about some of the programmes conducted by your industrial estate in helping it attain its objectives

11. How does Goa-Industrial development Corporation contribute towards the development of your industrial estate

12. List the 5 major benefits that your industrial estate has gained out of Goa-Industrial development Corporation

- a. _____
- b. _____
- c. _____
- d. _____
- e. _____

13. List the 5 major challenges that your industrial estate encounters because of Goa-Industrial development Corporation

- f. _____
- g. _____
- h. _____
- i. _____
- j. _____

14. Comments if any

DATE:

PLACE:

THANK YOU FOR YOUR VALUABLE TIME

QUESTIONNAIRE 2

Personal Profile						
A	Name (Optional)					
B	Gender	Male			Female	
C	Age	Below-25	25-35	35-45	45-55	Above 55
D	Educational Qualification					
E	Work experience in years	< 2 yrs	2-5 yrs	5-8 yrs	> 8 yrs	F
F	Designation					
Organizational profile						
G	Name of the organization					
H	Year of establishment					
I	Business sector					
J	Name of the industrial estate in which your unit operates					
K	Year of establishment					

Role of Goa-Industrial Development Corporation in promoting industrial units

1. How long has your industrial unit been operating in this industrial estate?
 - Less than 2 years
 - 2 to 5 years
 - 5 to 8 years
 - More than 8 years

2. Rate the facilities of the industrial estate in which you are operating (E-Excellent G-Good N-Neutral B-Bad W-Worse)

FACILITIES	E	G	N	B	W
Locality					
Infrastructure					
Topography					
Soil conditions					
Utility					
Incentives					
Access to Highway					
Feasibility for running business					
Overall quality					

3. Comment on your opinion towards the infrastructure facilities provided by your industrial estate in running your industrial unit (SA- Strongly Agree A- Agree N-Neutral D-Disagree SD-Strongly Disagree)

INFRASTRUCTURE	SA	A	N	D	SD
My industrial estate offers state of the art infrastructure to its industrial units					
My industrial estate helps my organization in reducing the per-business expenses related to					

infrastructure					
My industrial estate helps my organization in overcoming power crisis for running the business					
My industrial estate helps my organization in accessing all the modes of transport (rail/road/sea/air) very easily					
My industrial estate helps my organization stay out of urban crowd thereby effectively running its business					

4. Comment on your opinion towards the incentives provided by your industrial estate in running your industrial unit (SA- Strongly Agree A- Agree N-Neutral D-Disagree SD-Strongly Disagree)

INCENTIVES	SA	A	N	D	SD
My industrial estate offered me subsidies for initial investment of capital					
My industrial estate offered me subsidies for initial feasibility study					

My industrial estate offered me exemptions from income tax					
My industrial estate offered me concessions in sales tax					
My industrial estate offered me reductions in stamp duty					
My industrial estate offered me share capital for starting my business					
My industrial estate offered me subsidies for interest payable					
My industrial estate offered me incentives for patenting my ideas					
My industrial estate offered me interesting free loan for exporting my products					
My industrial estate offered me medical claim facilities					

5. Comment on the benefits gained by your industrial unit in being a part of this industrial estate:

BENEFITS	SA	A	N	D	SD
I have got opportunities to explore new technologies by being a part of this industrial estate					
I have been able to easily get permits for construction/enhancement of my business unit					
I have been able to boost my sales in both domestic as well as international markets by being a part of this industrial estate					
I have learnt to do my business in an environment friendly manner by being a part of this industrial estate					
I have been able operate in a safe manner through the security and emergency management services provided by this industrial estate					
I have been able to save much of my utility expenses such as phone charges, water charges, electricity charges, transportation charges etc. by being a part of this industrial					

estate					
My economic and financial status has improved a lot by doing business in this industrial estate					

6. Comment on the issues/challenges encountered by your industrial unit in being a part of this industrial estate:

ISSUES/CHALLENGES	SA	A	N	D	SD
The entry procedures for establishing the industrial unit in the industrial estate are very tedious					
I find problem in getting skilled and trained labor due to the locality where my industrial unit is put up					
I am forced to follow few operational procedures by the industrial estate even though if I am not interested					
Interventions by banks on managerial activities hinders the decision making process					
The infrastructure is very old and needs much improvement					
I encounter problems of storage of my inventory due to the limited area that has been allocated for me for accommodation.					

7. What strategies would you recommend the Goa-Industrial development corporation/Industrial estate in which you operate in helping industrial units in a better way?

8. Comments, if any

DATE:

PLACE:

THANK YOU FOR YOUR VALUABLE TIME

ABSTRACTS OF THE PAPERS PUBLISHED:

- **INDUSTRIAL ESTATES IN GOA: AN OVERVIEW**

Industries play a very crucial role to transform the economy and society. Industrialisation is considered as one of the surest means of maintaining economic development of an underdeveloped country. The concept of industrial estate is as old as Steam Engine but its systematic application to the challenge of the time is as new as the Sputnik. The principal objective of industrial estate is to provide factory accommodations to small scale industries at suitable sites with facilities of water, electricity, steam, transport, banks, post offices,

canteens, etc and thus create a healthy atmosphere for the development of industries. At the time of liberation, the industrial sector was the weakest link of the Goan economy. However, soon after the liberation, the concept of planned industrial development was introduced and a Planning Board was constituted. Recognising the importance of the existence of physical infrastructure in accelerating the pace of industrial development, the Goa Daman and Diu Industrial Development Corporation was established in 1965. The main aim of the Corporation is to achieve balanced development of the entire state and with the special emphasis on the development of backward talukas of the state. This paper gives an overview of the industrial estates in Goa. The paper is based on the secondary data collected from the head office of the Corporation.

- **FUNCTIONING OF INDUSTRIAL ESTATES IN GOA: A CASE STUDY**

Rapid industrialisation of the economy is a task which poses a challenge to the competence of the Government and the people of the underdeveloped countries. During the last few decades some positive institutional approaches were adopted by most of the developing countries with a view to stimulate process of industrial growth. A planned industrial estate is a recent but recognised technique, used extensively in a number of developed as well as developing countries. In industrial estates tracts of land are sub divided and factory buildings are erected on them in advance for the prospective industrial occupants. Before the liberation, Goa's economy was mainly based on agriculture and to a large extent on the mining industry. However, after liberation various steps were taken by the Government. 1965. The Corporation has set up 20 industrial estates across Goa. The objectives of this paper are to understand the industrialisation scenario in Goa, to study the functions of Goa Industrial Development Corporation and to evaluate the functioning of Margao Industrial Estate. The paper is based on both primary and secondary data. Primary data is collected through the field work and personal interview of the sample units located in Margao Industrial Estate.

- **INDUSTRIAL ESTATES IN SOUTH GOA: AN EVALUATION**

Industrialisation has played a very important role in the process of economic development of all countries of the world including India. Developing countries have given a high priority to industrialisation because in it they hope to find a solution to their problems of poverty, insecurity and overpopulation. After the Second World War several new institutional techniques have been adopted in promoting and guiding industrialisation both in industrially advanced and newly industrialised countries. Of these institutional techniques, the technique of industrial estate occupies an outstanding place. Industrial estate, an important plank of small industrial development programme, is a branch of social technology of development. Industrial estate provides an organisational set up in which medium and small scale industries get a favourable environment for development. At the time of liberation, the industrial sector was the weakest link of the Goan economy. Soon after the liberation the concept of planned industrial development was introduced. The Goa, Daman and Diu Industrial Development Corporation was established in 1965. The Corporation has established 20 industrial estates in Goa. Goa is divided into two districts namely South Goa and North Goa. South Goa includes 07 industrial estates. The present paper evaluates the

industrial estates in South Goa. The main objectives of the paper are to understand the profile of industrial estates in South Goa, to evaluate the industrial estates in South Goa, and to study the perceptions of the units located in the industrial estates. The paper is based on both the primary and secondary data.
