CHAPTER I

INTRODUCTION AND RESEARCH DESIGN

Industrialization denotes the process of setting up of tiny, small, medium and large scale industries. It is a process which leads to transformation of a State from pre-industrial to an industrial State. Industries are the backbone of the developmental process and a source of employment, alleviation of poverty, rise in per capita income and national income. “Industrialization means mass production of commodities, the capabilities of mass production can materialize if there are possibilities of opening up of distant markets, discovery of new sources of raw-materials and means for the free mobility of factors of production”. Hence, planned government efforts are needed to accelerate industrial growth.

INDUSTRIAL SCENARIO IN INDIA

Initially, under colonial rule, India followed a non-industrial model. However, after attaining independence, it was believed by the policy makers (1947 -1964) that industrialization is indispensable for alleviation of poverty. Hence, priority was given to large and heavy industries. Subsequently, need was felt of centralized planned economy for rapid industrialization.

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1Seth Vijay k.: ‘Industrializations in India,’ (1987), Common Wealth Publishers, P.5
The industrial development regulation Act in 1951 laid the foundation for the administrative control on industries.

Eventually, India opted for State control over key industries. These included Electric power, Steel textiles, Insurance and Banking. However, to promote these industries the government levied high tariff and import restrictions. Further, during the period 1966-71 two major shifts took place in the country. First the neglected agriculture was revived through Government policy of subsidizing fertilizers, agriculture credit, rural electrification and high yield variety seeds. As a result green revolution took off and in mid-1970, India was self-sufficient in grain.

The second step was further tightening State control over the economy. As a result banks were nationalized, trade was increasingly restricted, price controls were imposed on wide range of products and foreign investment was restricted. Hence, industrial development initially based on the assumption that industrialization is essential for rapid development of the country’s economy and speedy industrialization can be achieved through emphasizing on heavy industries. In 1973, dealings in foreign investment were regulated by the FERA. The Act virtually shut out the inflow of advanced technology from abroad.
GLOBALIZATION AND INDUSTRIAL SECTOR IN INDIA

In July 1991, India launched a major economic reform program, wherein Government is committed to promote a competitive economy that would promote trade and foreign investment. Moreover, measures were introduced to reduce Government influence in corporate investment decisions coupled with the process of public disinvestment. Hence, the era of globalization commenced. “Globalization is the process of integrating all economics of the world so that there is free movement of goods, services, technology, capital and even labour across national boundaries”. Now, we are living in the industrial era which is characterized by the replacement of human muscles by machines run by power giving rise to multi-products and multi-national companies.

Indian industrial sector was made to compete with multinational companies. Globalization has thrown most of the Indian companies to unequal competition. Indian private business houses are either in competition or in collaboration with foreign companies. “Globalization is the pursuit of producing the best in most cost effective and the best organized way. At Corporate level globalization calls for environment scanning and formulation of business strategies in global context”. The general tendency of the companies in face of competition is to reduce production and prefer to remain in limited scale,

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considering their productive capacity. “In practical terms one can look at the competitiveness of industries from two angles export competitiveness and import competitiveness. The former relate to a scenario where the domestic manufacturer is competing with global manufacturers for gaining an increasing share of the foreign market. And later relate to a scenario where domestic manufacturer is competing against the importer, to fight the import penetration of domestic markets. Thus, export competitiveness is an aggressor’s concept and import competitiveness is a defender’s concept”

The reforms relating to foreign investment and foreign technology have freed business enterprises from excessive government control. This has reduced the time and money spent to acquire licenses and approval, resulting in low project cost and less time required to complete the project. At the same time, as Indian industries have become internally competitive, they are increasing their export orientation as well as making their global presence felt through mergers and acquisitions.

The economic reforms in India were meant to stabilize the economy as it suffered severe economic crisis and to bring about structural changes in the economy. “The growth experience of Indian Industry since the mid-1990s reveals that there were three distinct phases of slow down, all coincide with adverse global development of one form or the other, although the slowdown

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might not necessary have been caused entirely by global factor”.5 On industrial production front in India, it was robust growth during 2003-08 with an average of 8.7 per cent. However, thereafter, observed a significant moderation to 2.7 per cent in 2008-09, the reason being heightened uncertainty and weak domestic and foreign demand that started in the first quarter of 2007-08, turned out to be one of the longest spell in the recent past.

In this context, good infrastructural facilities, incentives to encourage entrepreneurs and technological support are essential to boost the Indian manufacturing sector. Hence, the environment and policies adopted will have to be fully conducive for industry to grow by utilizing all the opportunities with committed support of the government. This requires strengthening of Government machinery that provide financial and infrastructural support to the industrial sector. In fact, best quality infrastructure is essential for healthy growth of industries. Infrastructure is a Linkage between production and consumption activities and involves flow of funds. Hence, an availability of adequate infrastructural facilities is indispensable for accelerated economic growth. In general, there is a close relationship between the infrastructure and development. Therefore, “It is one of the causative factors of development” 6

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5Reserve Bank of India Annual Report, 2008-09, P.61
NEED OF THE STUDY:

The establishment of institutions by the government that encourage setting up of business units is to accelerated industrial development, catalyze economic growth, and ensure balanced regional growth. This will be achieved by providing industry an access to high quality infrastructure, ensuring institutional support, technological upgradation, catalyzing entrepreneurial as well as creative capabilities of human resources and developing market support. This requires strengthening of institutions established for the purpose of industrial development and assessing critically the role played by these institutions in the process of industrial development. Hence, an attempt is made in this direction.

REVIEW OF LITERATURE

Review of literature is an important aspect of research work, as it helps to understand specific problems and formulate some hypotheses. Keeping this in view, the literature connected with the need of the research study has been reviewed, gleaning it from various sources viz., books, journals, dissertations, surveys and reports.

Abhang, S.S. (2011) conducted study on ‘Small scale sector opportunities knocking’, which analyzed the role of small sector in employment generation and rural industrialization. The study is based on the performance of SSIs from
1991 to 2010. The study states that in order to outline the prospects of small scale industries, it is important to analyze the strengths, weakness, threats and opportunities of the sector in the context of liberalization and privatization. Infusion of technologies, capital, innovative practices and good infrastructure would strengthen the industrial sector to accept new challenges.

Ahuwalia Isher Judge (1985) conducted a study on ‘Industrial growth in India’. The study has analyzed the treads in industrial growth since the mid-fifties and, identified a phenomenon of persistent industrial stagnation since the mid sixties. This slowdown characterized by a marked and significant slowdown in the growth of heavy industries and slow growth of other industries.

The further analysis points out four factors which contribute to industrial stagnation. These were (i) slow growth of agriculture income (ii) the slowdown in public investment after the mid sixties with its particular impact on infrastructural investment (iii) poor management of infrastructural constraints (iv) the industrial policy frame work, including both domestic industrial policies and trade policies, and their effect in creating a high cost industrial structural in the economy.

Bandyopadhyay Gautam, Datta Avijan, Amitava Ghosh and Chaudhari K. (2009) conducted a study on ‘Impact of globalization on small scale industry’, in which impact of globalization on SSIs was analyzed. In globalized era SSIs
are thrown open on a competitive platform, particularly after lifting ban on quantitative restrictions and entry of organized sector into retail marketing.

Moreover, in present market economy the government acts as a facilitator and no longer a regulator. The emphasis is to be given on technology upgradation and product innovation. Hence, clustering is advisable as it is helpful to generate infrastructure specific to industry.

Chauhan Pradeep (2009) conducted a study on ‘Assessing the economic consequences of globalization in Indian economy’. The study concentrated on globalization and accelerated economic growth. The study states that the opening to globalization has been enormously benefited for economic growth in India. The study is based on GDP and manufacturing growth rate from 1951-52 to 2004-05. During the pre-globalization period, the first four years after launching of the heavy industries strategy, in 1956 saw an average growth rate of 3.6 per cent. The subsequent five year period marked the high water mark of the economic performance of heavy industries strategy with the average growth rate of 5 per cent.

The average growth rate over one whole decade from 1965-66 to 1974-75 was mere 3.6 per cent. In fact this period was considered as a period of economic stagnation. Subsequently during the period of intermittent incremental liberation from 1974-755 to 1990.91, the growth rate accelerated to 5.1 per cent.
The pattern of high growth continued into the period after paradigm shift except the year 1991-92. The growth performance after paradigm shift is a function of structural change in India’s economy. The changes pertain to fast growing service sector and secondary sector which constitute more than 50 per cent of GDP of the country. While that of the usually volatile agriculture sector has reduced to about a fifth.

Further, the study states that analysts differ over whether this structural change is the most desirable structural growth configuration. The manufacturing growth rate in 1951-52 was 3.2 per cent that has gone up to 9.2 per cent. The study states that globalization has led to accelerate industrial growth in the country.

D.S. Leelavati (1994) conducted a study on the ‘Role of Industrial estate in developing small scale industrial in Karnataka.’ The role of industrial estates as well as growth of industrial estates in five year plan period in the State of Karnataka was analyzed in the study. It is highlighted in the study that instead of increasing number of industrial estates or plots/sheds, there is a need to equip them with infrastructural facilities which would contribute to the success of industrial estate program.

Gupta Kanishak (2011) conducted a study on ‘MSMEs Cash – Strapped’. The study is based on the funding pattern in MSMEs as well as policy reforms and challenges faced by them. The study focuses on need of public investment on
industrial park, industrial estates, and industrial clustering to strengthen MSMEs in India.

Hora Anita (2002) conducted a study, ‘Globalization: Challenges Before Indian Companies’. The study states that as the globalization process gains, Indian industries will be exposed to the severe competition. Moreover, the rapid advancement of technology has led to proliferation of cross border trade to a scale unknown before, witnessing borderless global economy.

The study elaborated on challenges before Indian industries by considering their strength and weakness and, states that with the requisite of vast pool of trained manpower, a large entrepreneurial class, a strong financial system, and capital market, Indian companies can become global. However, there is a need of expansion and investment in high quality infrastructure.

Jain Malti, Mathur Shailash and Mittal Ramesh (2011) in their study ‘Sickness in Small and Medium Enterprises’, stated that a strong and vibrant SMEs sector is one of the key elements responsible for attaining financial inclusive growth. The SMEs contribute towards higher level of employment per unit of capital invested by addressing the issue of employment to a large number of under privileged and disadvantaged sections of the society. They are instrumental for overcoming the obstacles for rural and semi urban prosperity.

However, providing enabling environment for the entrepreneurs in
Nation building task and optimum utilization of locally available resources are issues of foremost concern. The study stresses on the need for development of Industrial estates/parks to ensure best of social and industrial infrastructure to address the problems of industries.

Jain Prerna and Jain Pragati (2007) conducted a study on ‘Manufacturing sector in India- competitiveness and the challenges ahead’, which focused on sector-wise GDP growth in India. Moreover, it states that contribution of agricultural sector to GDP has declined. However, industrial sector has failed to take advantage of fall in agriculture sector and it is the service sector which has increased its share in GDP at the cost of both agriculture and industry. The study further states that besides other factors, infrastructural bottleneck pose a severe hurdle to business activity in general and also manufacturing sector in particular. The study, stress upon requirement of world class infrastructure, to a globally competitive economy.

K. Uma & A. Shajaraj (2011) in their study on ‘The role of small scale industries’, stated that SSI sector has been contributing significantly to industrial production, exports and GDP. However, in spite of the promotional strategies of government at the Central and State level, the huge potential of Indian small scale enterprises remains untapped. The study further states that development of SSI sector is an important part of the overall economic, social and industrial progress of the country. Hence, right policies are needed to boost
SSI sector.

**KaurRajinder, Warne D.P. and SinghRajwinder (2007)** conducted a study on ‘Manufacturing Excellence leading to world class manufacturing’, in which focus is on world class manufacturing. WCM is about using manufacturing successfully as a competitive measure to face competition. The development of the economy of any country is supported by growth of its manufacturing industries. Currently, manufacturing industries are passing through a very tough competition.

In order to survive, every industry has to strive for improving in all spheres of activities. The need is to have new ways of utilizing the resource. In this context, WCM system provides to the organization a significant competitive edge over its rivals. WCM offers many benefits such as reduced cost, enhancement in quality, improvement in competitive position and lower turnover of staff. However, excellence of manufacturing facilities and continuous improvement in it play a key role.

**Mehta Swati (2011)** has conducted a study on ‘Economic reforms, technology intensity and industrial development in India’. The study is conducted by classifying the industries into technology intensive sub groups to ascertain the impact of reforms on them. The industries were classified into high technology, medium technology and low technology.
The study does not find any significant structural transformation within the organized manufacturing sector which is still dominated by relatively low technology industries. The study states that in an increasing technology driver’s world, promoting industrialization is a multidimensional complex task, which requires a constructive role of government.

Mishra R. S. (2005) conducted a study on ‘Development of Indian Transport sector in the economic reform period’. The study focuses on development of Indian transport sector during the economic reform period. It highlights on need to accelerate the rate of growth to at least 7 to 8 per cent and even faster accompanied by a wider regional dispersion of benefit.

The study asserts that to achieve this objective and to undertake global trade negotiations, the country requires strengthening of infrastructure facilities including massive expansion and improvement in the various modes of transport. The major modes of transport have witnessed an impressive growth in the last half a century and contributed to the process of globalization in the country.

The study concludes that notwithstanding all the achievements, the quality of infrastructure and services are required to be improved along with the expansion of network both in terms of spread and capacity.
Moreover, it is necessary to insure adequate, efficient and high quality of transport infrastructure and service with a view to achieve maximum efficiency at minimum cost.

Hence, it is important to visualize transport system as an integrated structure of different modes and services functioning as distinct entities with the elements of inter-modal and intra-modal competition, ensuring organizational efficiency and individual mobility. The emphasis will have to shift from merely providing transport infrastructure and services to technological modernization of the same in order to ensure mobility and not only accessibility.

Mishra Vijaykumar, (2009) in his study ‘FDI Bonanza amid meltdown – an analysis’, stated that the Indian economy has witnessed phenomenal growth during the current millennium. However, in the promising scenario, the world economy was caught in the grip of the global financial crisis. The crisis had led to a slowdown in the economies worldwide. This slow down had hit the growth rate of Indian economy as well.

The study further states that when the world economy was struggled to cope with the challenges of melt down, an encouraging bullish FDI inflows had boosted the confidence of the Indian economy. Further, the service sector along with the industrial sectors actually played a driving role in creating a momentum in the economy. The study concludes stating that service sector and
industrial sector were the highest contributors to GDP and the highest recipient of FDI.

Mohanty B.K. (2009) has conducted a study on ‘Global slowdown and management of SME- A sustainable economic growth approach’. The study analyzed the impact of globalization on SSIs and accordingly a strategy for development is proposed.

The study further states that major requirements of SME sector are quality power at affordable price, water, as well as infrastructure such as road and transport. Hence, emphasis should be on the development of industrial estates with necessary infrastructure for enterprises.

N. Suchita (2007) has conducted a study of ‘Industrialization of Goa during a decade of pre and post economic liberalization’. The study is based on broader parameters to assess the impact of liberalized policies on manufacturing sector by covering overall aspects of manufacturing and, contribution of manufacturing sector to SGDP. The study focused on the need to conduct in-depth study on working of industrial estates in Goa.

Prijan Vimal and Karthi Halselvi V. (2011) in their study on ‘Growth of MSMES’ emphasized on emergence of MSMES as a highly vibrant and dynamic sector of Indian economy. This sector has contributed enormous to the socio economic development of the country. It is instrumental for reducing
regional imbalance assuring more equitable distribution of national income and wealth. The eleventh five year plan has recognized the MSME sector that needs infrastructure and credit support. However, MSMEs still continues to face problems in their operations, infrastructure and credit facilities that are to be addressed.

Rathod M.C (2004) carried out the study on ‘Performance evaluation of Industrial Development Institutions: A case study of KSSIDC.’ The study reveals that concentration of industrial units in industrial estates should not be on the cost of sustenance of industrial estates. The study focuses on planning, while establishment of industrial estates and their maintenance for healthy growth of industries.

Shakarnarayan C. and Padmanabhan V (2012) conducted a study on ‘Global competitiveness of Indian infrastructure’. The study does the critical assessment of Indian infrastructure for global competitiveness. The study about infrastructure indicates that the achievements in some sectors have been remarkable. However, there have been shortcomings in some other areas. The study states that during eleventh plan government is successful in garnering private sector investment in infrastructure sector through public private partnership that has laid foundation for significant step forward in private sector funding in coming years. PPPs are expected to augment resources available as well as improve the efficiency of infrastructure service delivered.
The study further states that the performance in developing key infrastructure areas presents a mixed picture. The remarkable improvement is seen in power, petroleum, refinery, cement, railway freight traffic, domestic terminals and highways.

However, coal, natural gas, handling of export cargo at airport showed an unsatisfactory growth. The study states that India’s performance in infrastructure sector still dependent on public sector projects to a large extend.

While analyzing the challenges, the study states that the key to the global competitiveness of Indian economy lies in building world class infrastructure and providing service delivery at competitive rates.

Moreover, one of the foremost challenges in the coming years is to meet country’s growing energy requirements. The study concludes that the ability to meet these energy requirements would depend upon ability to expand domestic production in critical sub-sectors such as petroleum, natural gas and coal.

SikidarSujit (1993) conducted a research study on the topic entitled ‘A study of working of State Financial Corporation’. In the study, it was observed that flow of funds to state financial corporation is increasing but is suffering from the lacuna of more political interference with regards to allocation of term loans to various entrepreneurs. Nepotism was also observed in SFC’s, which is a hurdle in the success of SFCs.
Singh Sraupinder and Gill Praveen (2007) conducted a study on ‘Industrial sickness in Punjab: A case study of Punjab State Industrial Development Corporation’. The study states that the prosperity of the small scale sector to a large extent depends upon the success of large-scale industries because majority of small scale units serve as ancillaries to the large-scale sector. However, the number of large scale units is not increasing in proportion to increase in the small scale units.

The study further states that PSIDC is instrumental in promotion of large and medium scale projects in the State. However, while analyzing the factors effecting industrial sickness, besides technical, managerial and economic causes, the study emphasis on socio-political causes such as government controls as taxation, non-payment of subsidies, lack of physical and social infrastructure.

Srikumar Jailakshimi (2001) in her study titled ‘Gearing up to meet challenges of de-reservation and small scale industries’, has dealt with the aspects of relevance of small scale business enterprises to the nation’s economy. Moreover, it elaborates on industrial sickness and promotional strategy for robust growth. The study highlights the need for modernization of industrial estates as well as promoting the culture of industrial estates in the States of India.
Vohraprakash and Mehta, (2007) conducted a study on ‘Economic liberalisation and globalization’. The study focuses on the different aspects of globalization. The process of globalization needs to be placed in right perspective.

Liberalization provides the opportunities to producers to locate anywhere and yet retain access to their markets. Revolution in information network provides easy means by which customers can purchase and producers can coordinate production on a global scale.

Globalization suggests a world in which any and all goods and services could be delivered from one corner to any other corner. Hence, there is no hiding place, distance ceases to matter and price differences are rapidly competed away. Moreover, proximity to market no longer offers natural protection.

The study further states that the exposure to competition is an important part of the process. Productivity and growth may also increase through exports. However, the growth rate of manufacturing industries is largely determined by their ability to compete in the world. Quality research, development and innovations, besides needed infrastructure facilities as key drivers of productivity and competitiveness, have become ever more important for countries competing in global economy.
Assessment of reforms (Report on currency and Finance,RBI,2003), states that the major objective of reforms in the industrial sector was to attain faster industrial growth coupled by enhanced productivity and efficiency, so as to be competitive, domestically as well as globally.

The measures to achieve these objectives were removal of industrial licensing which abolishes restrictions on investments and capacity expansion, de-reservation of industries reserved for public sector, substantial opening of foreign direct investment and trade liberalization through elimination of quantitative restrictions. These measures resulted in removal of entry barriers and provided greater access to foreign technology and capital.

The report further elaborates that in Indian industries upgraded technology and product quality to a significant degree met the challenges of openness after being protected for decades. This was reflected in high growth of industrial sector in the initial stage and was reflected in high growth in investment. However, this growth process could not be continued.

Moreover, in an increasingly global environment this sector continues to face structural constraints such as inadequate relatively inefficient and high cost infrastructure, high cost of borrowed funds, inflexibility in labour market and other institutional rigidities that inhibits the pace of industrial restructuring.
Ultimately, these factors impinge adversely on the cost structure of industry, thereby hampering its competitiveness. Further, the manufacturing sector is facing internal and external competition due to withdrawal of quantitative restrictions on imports and the continuing reduction in tariff levels.

Hence, in order to meet these challenges there has to be industrial restructuring through mergers and acquisitions, takeovers and technical collaborations. This would achieve investment reallocation gearing towards activities with comparative advantages.

Regarding infrastructure, the report states that growing infrastructure constraints highlights the inadequacy of infrastructure reforms. There is a concern for the declining trend in potential growth in output for a number of basic physical infrastructure services such as cargo handling and freight loading. Moreover, higher cost of operations of certain services such as power, railway, and shipment has spilled over manufacturing sector in the form of high input costs.

The industrial sector continues to suffer from unsuitable power supply and high costs. A carefully calibrated policy package with emphasis on contestability, enforceable contracts, proper pricing of infrastructure service and above all, transparent and non discriminate rules needed to be designed.
It is clear that there exists an extensive literature on problems of industrialization, growth of industries, state of business enterprises in different regions and States of India in the context of market economy. The research by and large has focused on socio and economic impact of industrialization, institutions instrumental to set up industrial units and challenges faced by business enterprises in de-regulated environment. However, in the State of Goa very few studies were conducted to study the industrial infrastructure provided to business enterprises established in Goa.

**STATEMENT OF PROBLEM**

The Goa-Industrial Development Corporation is established to promote and assist in the rapid and orderly establishment, growth and development of industries in the State of Goa. This will be achieved by providing industry an access to high quality infrastructure. With the setting up of the Goa-IDC, industrial activities in the State started picking up. The Corporation is doing its job over more than five decades. In fact, over the years, there has been many fold increase in its operations. In light of the above, endeavour of the Goa-Industrial Development Corporation in assisting industrialization in Goa is to be assessed. Hence, the statement of the research problem is ‘Working of Goa-Industrial Development Corporation during open regime: A critical study’.
RESEARCH OBJECTIVES

The following are the objectives of the study:

i. To examine the process of industrialization and growth of industries in Goa.

ii. To study the functioning of Goa-IDC.

iii. To analyze the role of Goa-IDC in industrialization in Goa.

iv. To examine constraints faced by the enterprises set up in industrial estates.

v. To assess the infrastructural facilities provided to the enterprises in the industrial estates.

vi. To assess the effects of constraints and lack of infrastructural facilities on performance of the business enterprises.

vii. To offer useful suggestions.

HYPOTHESES

The present study has formulated the following hypotheses:

A) Infrastructure

1. H0: There are no significant variations among business enterprises of different industrial estates in Goa with regard to infrastructure issues.

H1: There are significant variations among business enterprises of different industrial estates in Goa with regard to infrastructure issues.
B) **Constraints**

2. **H₀**: There are no significant variations among business enterprises of different industrial estates in Goa with regard to constraints.

**H₁**: There are significant variations among business enterprises of different industrial estates in Goa with regard to constraints.

C) **Performance**

3. **H₀**: There are no significant variations among business enterprises of different industrial estates in Goa with regard to performance scores.

**H₁**: There are significant variations among business enterprises of different industrial estates in Goa with regard to performance scores.

D) **Inter-relationship of infrastructure, constraints and performance.**

4. **H₀**: There is no correlation between constraints and performance scores of business enterprises of different industrial estates in Goa.

**H₁**: There is correlation between constraints and performance scores of business enterprises of different industrial estates in Goa.

5. **H₀**: There is no correlation between constraints and infrastructure issues of business enterprises of different industrial estates in Goa.
H₁: There is correlation between constraints and infrastructure issues of business enterprises of different industrial estates in Goa.

6. H₀: There is no correlation between performance scores and infrastructure issues of business enterprises of different industrial estates in Goa.

H₁: There is correlation between performance scores and infrastructure issues of business enterprises of different industrial estates in Goa.

7. H₀: Performance scores are not sensitive to infrastructure issues of business enterprises of different industrial estates in Goa.

H₁: Performance scores are sensitive to infrastructure issues of business enterprises of different industrial estates in Goa.

8. H₀: Performance scores are not sensitive to constraints of business enterprises of different industrial estates in Goa.

H₁: performance scores are sensitive to constraints of business enterprises of different industrial estates in Goa.

RESEARCH METHODOLOGY:

a) Period covered:

The present study covers a period from establishment of the Goa IDC i.e., 1966 to 2010.
b) Nature and Sources of Data

The study is based on both primary and secondary data. The primary data have been collected from business enterprises set up in industrial estates located in Goa. The Secondary data have been obtained from North and South census hand book of Goa, Goa-IDC publications, Directorate of Industries, Economic survey of Government of Goa, the Directorate of Planning and Statistics, Government of Goa and publications of GCCI and GSIA.

c) Sample Design

The study is confined to industrial estates operating in Goa State, managed by the Goa-IDC. Out of twenty industrial estates seventeen industrial estates are selected for the research study. The field study aimed at collecting responses from sample units about infrastructural issues, constraints, performance by administering a structured interview schedule. The details relating to number of industrial estates selected, the number of units working in each industrial estate and total sample size for the study are enumerated in Table1.
Table1 : Number of industrial estates selected, the number of units working in each industrial estate and total sample size

<table>
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<tr>
<th>Industrial Estate</th>
<th>Total no. of working units</th>
<th>Sample units</th>
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<tbody>
<tr>
<td>Corlim</td>
<td>85</td>
<td>22</td>
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<tr>
<td>Margao</td>
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<td>25</td>
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<tr>
<td>Sancoale</td>
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<td>33</td>
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<tr>
<td>Mapusa</td>
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<td>07</td>
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<tr>
<td>Tivim</td>
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<td>Bicholim</td>
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<td>Honda</td>
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<td>Bethoda</td>
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<td>Kundai</td>
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<td>Colvale</td>
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<td><strong>Total</strong></td>
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<td><strong>339</strong></td>
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d) Tools of Data Analysis

The data collected have been analyzed with reference to the objectives and hypotheses of the present study by performing differential analysis including one way ANOVA followed by Tukeys multiple comparison post hoc procedure, Pearson’s correlation coefficient as well as simple linear regression.
analysis by using SPSS 20.0 statistical software and the results obtained thereby have been interpreted.

1. Correlation Analysis: The relationships were estimated between different independent variables and significant dependent variables. The relationships were calculated by Carl person’s Correlation Coefficient Technique.

2. Regression Analysis: The regression analysis has been used to know the effect of independent variable on dependent variables.

3. One way ANOVA: This is used for testing significant differences among mean of different groups.

RESEARCH DESIGN

The theme of the entire thesis has been presented in six chapters:

The first chapter, which is an introductory chapter deals with the industrial scenario in open regime and literature on industrial infrastructure, significance of the study, statement of problem, objectives of the study, hypotheses, methodology, and research design.

The second chapter is confined to study industrialization in Goa, industrial scenario pre and post liberation, growth of industries, different institutions established to assist the process of industrialization and their role, and State’s infrastructure scenario.

The fourth chapter studies infrastructure issues pertaining to industrial estates, constraints faced and different aspects of performance of business enterprises of different industrial estates in Goa.

The fifth chapter presents comparative analysis on the constraints, infrastructure issues and performance scores of business enterprises of different industrial estates in Goa.

The sixth chapter deals with the summarization of findings and, suggestions based on the present study, for enhancement of quality of industrial estates in Goa.

**LIMITATIONS OF THE STUDY:**

The study is confined to units functioning in industrial estates in the State of Goa and it is subject to sampling error.