

I. Preamble

1.0 INTRODUCTION

Industries are growing at a faster pace in India. They have considerable potential for degradation of the environment. Installation of pollution control equipment will alone not help in abating the pollution problems from industries. Siting of an industry always involves a certain amount of risk. Industry occupies land i.e. land use. Also, an industry requires supporting land uses such as residential areas for housing, transportation network and facilities such as water supply, waste treatment and disposal facilities etc., which also occupy land. Unplanned and uncontrolled industrial development leads to incompatible land use patterns thereby increasing the risks on the receiving environment.

The protection of the environment can be achieved by proper planning and management of various spatial entities viz. water resources, land settlements, forests etc. and the developmental sectors in a most effective manner. Such a planning can be termed as 'environmental planning'.

Environmental Planning is a proven tool for reducing the impacts from risks associated with hap-hazard location of industries or industrial estates. Industrial estates have a tendency to attract related but environmentally incompatible land uses such as squatter settlements, commercial outgrowths etc.

The environmental management plan of industrial estate constitute layout planning of the estate with appropriate buffer zones around the estate, preparing a pollution abatement infrastructure needed to be commonly used by all the industries of the estate, green belt development and necessary land use controls.

Spatial planning that can help in achieving balanced and sustainable development, has limited existence in India. Haphazard and unplanned development has been leading to untold pollution problems, over exploitation of resources, poor land use compatibility, environmental risks and increased public interest litigation (PIL) against non-compliance with environmental norms and land-use incompatibility. Pollution control at source and the conventional environmental management techniques and regulatory mechanisms are having limitations in significantly reducing pollution problems and environmental risks.

The need for the environmental administration to become active in the field of environmental planning is founded in the Environment (Protection) Act, 1986. This Act authorizes the “Central Government” to have the power to take all such measures as it deems necessary or expedient for the purpose of protecting and improving the quality of the environment and preventing, controlling and abating environmental pollution". Measures under this clause may include planning and execution of a nation-wide programme for the prevention, control and abatement of environmental pollution". This task of environmental management includes also spatial (geographical) aspects as explicitly mentioned under section, “restriction of areas in which any industries, operations or processes shall not be carried out or shall be carried out subject to certain safeguards." This emphasis on a spatial approach in environmental management is further substantiated in the Environment (Protection) Rules which states that such restrictions should be carried out taking into consideration "Environmentally Compatible Land Use". Based on the Act, the Ministry of Environment and Forests has recently brought out (December 1999) draft rules regulating the consent procedures for operation of industries/processes that cause or are likely to cause pollution. These rules include a clause, that "the Central Government, State Government, State Board or Committee shall provide information regarding restrictions notified for certain areas and the river basins for regulation of siting of industries.”

The Central Pollution Control Board (CPCB) was looking for new concepts and approaches for protecting the environment while ensuring that the developmental targets are achieved and conducted pilot studies on industrial siting based on environmental planning in 1988. Having convinced of the outcome of the planning approach for environmental protection, CPCB was awaiting an appropriate time for introducing the technique. The situation for introducing spatial environmental planning was maturing by 1994, whereby the administration, the people, the industry etc. were all looking for a solution that can play a significant role in protecting the environment in a speedy and transparent manner.

1.1 INDUSTRIAL ESTATES - THEIR ROLE IN DEVELOPMENT

The important role of industries in the growth and development of India was realized in the early years of Independence. To encourage industrialization in selected areas and to curb unplanned growth of industries, the industrial estates, i.e. clusters of industries at a designated site with appropriate infrastructure facilities, have been set up in different parts of the country. The objectives of promoting industrial development in designated and developed industrial estates are:

- To provide appropriate infrastructure (roads, water, power etc.) for a conglomeration of industrial units at one site in order to minimise development costs and to optimise use of such facilities
- To encourage provision of common systems for effluent treatment thereby making them more affordable to smaller units for which installation of individual facilities would be technically or financially unfeasible
- To facilitate siting of complementary industries (upstream or downstream) in the same premises
- To use establishing of industrial estates in under-developed areas (e.g.

- backward areas) to foster development and to provide income thus contributing towards a more balanced development of the country; and
- To control industrial development at sites from an overall development perspective.

The problems of concern from the industrial estates are:

- Lack of planning/Improper siting;
- Lack of proper pollution control abatement infrastructure; and
- Absence of control on surrounding land uses.

1.2 ISSUES INVOLVED IN INDUSTRIAL ESTATE DEVELOPMENT

The main criteria in selecting the sites for an Industrial Estate Development are

- Optimum availability of good transport and communication facilities, water supply, electricity, proximity to raw materials or access to distribution network etc.
- Backward and rural areas which need a source of employment
- Areas where auxiliary or ancillary industries are easy to locate and link

For a new industrial estate development, the following are some of the issues which create implementation problems.

- Land acquisition and related litigations
- Costs of development (including cost of land, construction, infrastructure and utilities)
- Resettlement & Rehabilitation of displaced population
- Conservation value of the area
- Conflicts with present land use pattern
- Environmental impact issues

1.3 INDUSTRIAL SCENARIO – CHHATTISGARH STATE

Chhattisgarh state is full of natural endowment throughout its length and breadth. It is widely known as a rich land with vast potential, rich mineral, thick forests, abundant livestock and massive agricultural possibilities of development. However, this state is still industrially developing and is yet to attain the status of industrially developed state, which it obviously deserves. As many as 11 out of 16 districts are industrially backward. Only two districts had taken the benefits of the NO – INDUSTRY DISTRICT DEVELOPMENT PROGRAMME, of Govt. of India, in the past.

The concentration of small, medium and large scale industries exists only in Raipur, Bilaspur, Raigarh, Champa – Janjgir, Korba and Durg districts, whereas the other districts do not have any significant presence of industrial units. A few of the most important factors of the backwardness of other districts mainly constitute lack of awareness, unbalanced industrial growth in the region, inadequate infrastructure at urban level, underdeveloped infrastructure at rural level and unorganized urban-rural industry network.

Built - up of adequate infrastructure facilities is an essential perquisite to sustain and support all kinds of developmental efforts in the state. With a view to attain its prestigious programme of rapid industrialization, which would automatically generate opportunities for employment and self-employment in the state; the infrastructural development of Chhattisgarh has become the top priority of the state government. If compared with the national scenario with respect to all the indicators of the infrastructural development like per capita power consumption, net irrigated area, availability of postal, telecommunication and banking facilities etc., the Chhattisgarh region as a part of erstwhile undivided Madhya Pradesh fared very poorly in the past. The situation is dynamically changing now after the carving of the new state.

Infrastructural facilities could be provided to industries by means of Industrial Growth Centers, Infrastructure Development Centers, and Large Industrial Areas in an integrated manner. Considering the major blockage of industrial development in the state due to the absence of infrastructural facilities CSIDC has launched a drive for identification of suitable land, preferably adjoining the existing industrial areas or Industrial Growth Centers for development of new industrial areas.

1.4 GOVERNMENT INITIATIVES

Considering the major blockage of industrial development in the state due to absence of Infrastructural facilities CSIDC has launched a drive for identification of suitable land, preferably adjoining to its existing Industrial Areas or Industrial Growth Centres for development of New Industrial Areas.

1.5 INDUSTRIES IN CHHATTISGARH

Chhattisgarh State of India was formed on 1st November 2000 and the climate today is conducive for more Industrials activities than that of most of the other parts of the Country.

Chhattisgarh State has rich Agricultural, Forest, Mineral and Live Stock Resources and these are to be economically utilized for Industrial purposes. The State has as many as 2000 ancillary units of Bhilai Steel Plant (BSP), Bhilai; Bharat Aluminium Company (BALCO), Korba; Madhya Bharat Paper Mill, Champa; nine numbers of Cement Plants, South Eastern Coalfields Ltd., (SECL), National Thermal Power Corporation Ltd., (NTPC), IBP Co. Ltd., and South Central Railways (SECR). This sector is well known for its success during the last two decades.

The strong wave for promotion of Medium / Large Scale High Capital Investment Industries has again engulfed the State and the Core Sector Industries i.e.

Cement & Steel. The technology advancement in the field of Iron & Steel, making the possibilities of establishment of economically viable Sponge Iron Plants of lower capacities with the involvement of very low capital investment cost as compare to the similar plants of last decade, the rise in Export of Finished Steel and the overall Growth in Industrial Sector has prompted the prospective Investors / Entrepreneurs of Chhattisgarh for establishment of SSI's, MSI's and LSI's in the State. The concept of having Integrated Projects is becoming more and more popular. The Government of Chhattisgarh has been encouraging the Entrepreneurs to invest in Industrial Projects in the State and therefore, a climate for further Industrialization is building up in this newly formed state.

Since the State is very rich in natural resources, which can be utilized economically with a comparatively smaller investment hence, the chances of success of SSI/MSI are bright. The local investor has now gained a long time exposure to the trade & industry and is willing to invest in Industrial Ventures too. The choice for "Self Employment" is becoming popular in the educated youth. This has been observed during the last few years. In view of these indicators, a strong need for new Industrial Areas has been felt by the developing Agencies, the Association (s) of Industries and the Chamber of Commerce and Industry in the State.

The situation in the existing Growth Centres has made it virtually impossible to accommodate further new industries. Therefore, to accommodate the existing inquiries for the requirement of Land by prospective Entrepreneurs, CSIDC has proposed for the new Large Industrial Area at Dagori, Bilaspur district erstwhile known as Industrial Growth Centre.

The Industrial growth of Chhattisgarh is widely dependent upon following four core sectors:

- Ø Steel
- Ø Aluminium
- Ø Cement
- Ø Power

CITCON has carried out a comprehensive study of the Global, National & State level status of these four core sectors. It would be worthwhile to mention that other industrial sectors too make an impression in the economic & industrial growth of the state but their presence and influence can easily be judged by collating the growth in core sector.

1.5.1 The Steel Sector

The Steel Industry continues to become increasingly global, with steel trade assuming an ever more vital role in balancing supply/demand disparities by country and region. Global Steel trade grew by 71% from 1985 to 2002, amounting in 2002 to an astonishing 300 million tons (or 35% of the output of semi-finished and finished steel products). The growth in International trade from 1985 to 2002 was 192% for Billet and Slab, 132% for Hot rolled sheet, 69% for cold rolled sheet 232% for coated sheet, 50% for structural, 74% for wire rod, 39% for rebar and bar, 69% for rail and 14% for pipe/tube. WSD forecast is for an additional 7% rise by 2010 to 321 million tons.

Steel is core sector essential for the economic and social development of the country and crucial for its defense. The steel industry India was passing through a period of recession at the beginning of this century. With a view to revive the steel sector, the government has taken a number of initiatives. The results of such steps are visible. The installed capacity of steel production in India is

around 36 million tons. The production during the financial year 2001-2002 was 30.63 million tons recording a growth of 4.6% over the same for the year 2000-2001. This growth is continuing. The emphasis on the infrastructure development by both the central & State government has provided the much needed to the steel sector and has made it vibrant.

The following table 4.1 shows the production of steel in India from 1998-1999 to 2003-2004; the data speaks about the potentiality of demand of steel in India.

<i>Units: MT</i>						
Year	Bars & Rods	HR Coil	HR Sheet	CR coils/sheets	GP/GS sheets	Finished Steel
1998-99	7951200	4989800	405100	3030000	1177100	22387000
1999-00	8597511	6751161	525000	3424997	1380601	25712418
2000-01	9203500	8302000	457000	3971500	1544100	28717600
2001-02	9871200	7746200	586900	4410100	1941800	30035000
2002-03	10404800	8316400	492100	4743200	2483200	32312000
<i>Source: JPC, India: Info line Sector Data Base</i>						

The Production of Bars & Rods has registered a growth of **40%** in the year 2003-2004 as compared to the production of 1998-1999. The over all production of Finished Steel has registered growth of **58%** for the same period. The growth in production undoubtedly signifies the boost in demand of Steel. It is a very significant fact that, production and demand of Steel has gone up though the prices have also gone up. The present Installed Capacity of Steel Production in India is approximately **36.00** Million Tons

Past Steel Production

(In Million tons)

Year	Steel Production	
	Crude Steel	Finished Steel
1989 – 1990	13.370	14.118
1990 – 1991	15.838	14.370
1991 – 1992	16.758	14.830
1992 – 1993	17.456	15.00
1993 – 1994	17296	15.320
1994 – 1995	19.466	18.660
1995 – 1996	22.431	21.650
1996 – 1997	23.357	22.130
1998 – 1999	23.380	23.550
1999 – 2000	26.194	25.712
2000 – 2001	28.992	28.718
2001 – 2002	30.256	30.035
2002 – 2003	32.587	32.312
2003 – 2004	35.741	35.346

It is evident from above table that Finished Steel Production increased at an average growth rate of 5% during the last Ten years. Crude Steel Production recorded an average annual Growth Rate of 6%. Based on this Growth Rate the Finished Steel Demands for the years 2006-07, 2011-12, 2015-16 and 2020-21 respectively have been projected & furnished below

Projected Domestic Demand For Finished Steel

Year	Demand [in million tons]
2006 – 2007	38 – 40
2011 – 2012	45 – 48
2015 – 2016	65 – 70
2020 – 2021	95 – 100

For projecting the Finished Steel Demand in the year 2006-2007 and 2011-12 an annual average growth rate of around 8% to 10% could safely be considered with above projected Demand Estimates, as basis. This estimation is based on a

review of past and possible future trends in different factors, like yield from Crude Steel to Finished Steel, net Exports, future Plans of Steel Production etc.

The Production of Crude Steel by the Secondary Steel Sector i.e. Electric Arc Furnace/Induction Furnace Route (EAF /IF) had increased from the levels of 2.7 Million Tons in 1 988-99 to around 7.5 Million Tons in 1998- 99 representing an average annual growth rate of around **11%**. The share of the EAF/IF route thereby exhibited a corresponding increase from the levels of around 20% in the last decade to around **32%to 34%**currently.

Keeping in view the increasing importance of the Secondary Steel Sector the share of the EAF/IF route is expected to exhibit a steady Growth in future.

Status of Steel Sector in Chhattisgarh State

There are approx. **135** Rolling/Re-rolling Mills situated in Chhattisgarh and another 25 (approx.) are in pipeline. The yearly consumption of these Mills comes out to be around 16,50,000 Tons of Re-rollable Steel. In above data the consumptions of the Rolling Mills established by Integrated Steel Plants are not included. The huge Infrastructure Development and rapid & planned Industrialization have created new avenues for Iron & Steel Sector in the State. The establishment of number of Sponge Iron Steel Plants and Re-rolling Mills in Chhattisgarh State has converted the State as new "**Steel Mandi**" of the Country.

In Chhattisgarh the capacity built-up in Steel began with the establishment of Large Sponge Iron/Pig Iron Plants of the likes of Jindal, NECO, Raipur Alloys, Monet, Vandana etc. to name a few. The Technology upgradation opened the avenues for the Medium, Small & even Tiny (**50 TPD/25 TPD**) Scale Sponge Iron Plants in the State during the current decade. The proximities for forward integration by such Sponge Iron Plants were obviously explored sooner the Steel Consumption took its up ward stride. This forward integration of existing Units clubbed with joining of new

players at intermediate stages of either Steel making or Rolling/Re-rolling has taken the finished Steel Production level to the never before status. Moreover, the Co-generation of Power through the Waste Heat Recovery (WHR) Route has further added to the economic viability. The overall situation of all the Iron & Steel based Units of the State is quite healthy. Another encouraging factor in this context is the redeployment of the Internal Accruals by the Units in either Backward or Forward Integration, which is instrumental in the Industrial Development of the State.

Chhattisgarh Government is moving toward, multi-dimensional growth of the State. The basic infrastructure is being developed in a rapid pace. This will create additional demand of rolled product. In addition to this the Capital Project of Chhattisgarh State shall generate the demand, which will be greater than the existing capacities of the Rerolling Mills. The Demand for Ingot too would also be increasing simultaneously. The uninterrupted Supply of Iron Ore from the Mines situated at Barbil in Orissa and the grant of Lease by NMDC to the Industrialists has added to the Commercial Viability to the Steel Sector.

The Market is not limited geographically. The Finished Steel produced in the State is sold Nation wide, with good potential for Export. The big producers like TISCO, ESSAR, MUKUND etc. are concentrating on Export Market. They have gone for vast Expansion Programmes for Steel production. Their orientation towards Export Market has left a big gap in supply in Domestic Market which will intern be open to Mini Steel Plants & Rolling Mills operating in the country. The never before Growth in Steel Sector has been experienced in Chhattisgarh State in past three to five years. The Trend still continues. It is evident from the No. of MoUs signed by the State Govt. with the prospective Investors, which include the likes of TATA, ESSAR and many others.

1.5.2 The Aluminium Sector

Like Steel Aluminium Sector too has shown an upward trend in past few Years and continues to grow. The Secondary Data pertaining to the Growth of Aluminium Sector is illustrated in ensuing paragraphs.

The Ore (Bauxite)

The Bauxite Ore is found worldwide. The details of Bauxite occurrences and reserves w.r.t. the International/National/State & Project area have been discussed in the ensuing paragraphs.

World Bauxite Mine Production, Reserves, And Reserve Base (Year 2000- 2001)

(in '000 Tons)

COUNTRY	Mine production	Reserves	Reserve base
Australia	53,800	3,800,000	7,400,000
Brazil	14,00	3,900,000	4,900,000
China	9,000	720,000	2,000,000
Guinea	15,000	7,400,000	8,600,000
Guyana	2,400	700,000	900,000
India	8,000	770,000	1,400,000
Jamaica	11,100	2,000,000	2,500,00
Russia	4,200	200,000	250,000
Suriname	4,000	580,000	600,000
USA	NA	20,000	40,000
Venezuela	4,400	320,000	350,000
Other Countries	10,200	4,100,000	4,700,000
Total (R/O)	136,000	24,000,000	34,000,000

Bauxite & Alumina Production

Country	% of Bauxite Reserves	% of Alumina Production
Australia	19.80	32.34
Brazil	9.80	7.22
India	7.23	5.62
Jamaica	4.90	7.42
Venezuela	2.82	2.89
USSR / CIS	1.35	8.68
USA	0.10	9.86
China	0.98	8.93

Bauxite Reserves in India

State / Union Territory	Bauxite Reserves (million tonnes)
Jammu & Kashmir	3.00
Bihar	45.00
M.P & C.G	105.00
Orissa and A.P	1614.00
Maharashtra, Karnataka, Goa	146.00
Tamilnadu	14.00
Kerala	13.00
Gujarat	100.00
Others	485.00
Total	2525.00

Aluminium industry uses Bauxite bearing 58 per cent Al_2O_3 . Slightly lower grades are also used for the purpose after blending. About one Lakh Tons of Bauxite is exported to countries such as China, Korea, Ukraine and Saudi Arabia. About **610,000 Metric Tons** of Aluminium Metal is produced in the Smelters of **HINDALCO**, Renukoot, **NALCO**, Angul, Sterlite Industries {erstwhile **BALCO**} Korba, **INDALCO**, Hirakund, Alupuram, Belgaum and **MALCO**, Mettur. India has resources of **2,525 Million Tons of Bauxite**. These reserves of Bauxite account for nearly 16% of the total known Global Resources, which are the fifth highest Bauxite reserves in the world. Although India is richly endowed in Metallurgical grade Bauxites, only 1% of the total recoverable reserves is of Refractory grade and 0.44% of Chemical grade. India produced about 6.5 Million Tons of Bauxite during 1998-99. Its internal consumption in the same period was estimated to be nearly 6.4 Million Tons. The balance was exported. In the same period, however, the country is also reported to have imported nearly 27,200 Tons of Calcined Bauxite (value Rs. 14 Crores app.) and almost 10,000 Tons of Alumina (value app. Rs. 26.5 Crores). About 85% of Bauxite mined in India is utilized for making Alumina (used for manufacturing Aluminum metal).

Bauxite Reserves in Chhattisgarh

S. No	Ore	Reserves (in Million tons)
1	Bauxite	96.00

Area Wise Bauxite Deposits of Chhattisgarh

S. No	District	Name of Deposits	Reserves MT/Tons	Area (Ha.)	Grade	Remark
1	Sarguja	<u>Main Pat area</u> Nagardand	6.87	120	Metal	Forest
		Kandraja	10.00	610	Metal	
		<u>JAMIRAPAT AREA</u> Serangdand	14.26	-	Metal	BALCO & CMDC
		Chutai & jamirapat		-	Metal	
2	Jashpur	<u>PENDRAPAT</u> Datunpani	1.30	--	Metal	
3	Kanker	<u>KESHKAL</u> Kudarwahi	1.449	87.6	Refractor	Forest area
		Budhiarmari	5.000			
4	Bastar	Asna Tarapur	5.825	--	Metal	Forest area

A major part of Bauxite Reserves of Chhattisgarh is still untapped opening wide avenues for Aluminium based Industries in the State.

1.5.3 The Cement Sector

The availability of the Superior Grade Lime Stone in abundance throughout the Length & Breadth of the State has prompted the Investors to establish Mini as well as Large Cement Plants in Chhattisgarh.

The Lime Stone Deposits and the possible Sites for Cement Plants has been classified in the following table. This classification is in two categories, first having <80 Million Tons stone reserves and the other having >80 Million Tons.

Potential Sites for Major Cement Units

S.No	District	Area	Prospected Area (Sq.Km.)	Reserves (million ton)	Grade CaO% Av.)
1	Raipur	Maldi – Mopar Karmadhi	8.00	308.655	44.93
2	Raipur	Chandi area	6.20	86.88	42.10
3	Raipur	Gaitra area	2.40	105.30	45.62
4	Raipur	Mohra area	10.82	96.996	45.00
5	Raipur	Pharsabhader	6.12	216.382	46.03
6	Raipur	Kukardih	5.40	209.795	45.31
7	Durg	Achholi area	3.74	80.00	48.03
8	Durg	Matra Gota	11.15	121.04	45.00
9	Durg	semaria	3.60	98.00	45.73

Potential Sites for Mini Cement Plants & Others

S.No.	District	Area	Prospected Area (Km ²)	Reserves (million Tons)	Grade (CaO% Av)
1	Raipur	Basin area	5.64	10.758	45.79
2	Raipur	Nahardih	1.29	27.088	44.62
3	Raipur	Shuklabhata	2.59	31.777	45.00
4	Raipur	Ameri	2.12	1.829	45.27
5	Raipur	Amlidih	0.73	12.00	45.42
6	Raipur	Mohrenga	10.71	26.929	45.41
7	Raipur	Pauni	1.17	20.70	45.20
8	Durg	Ghotwani	1.40	21.04	45.58
9	Bastar	Chitpur	3.2	4.00	46.03
10	Bastar	Potnar	1.4	22.49	45.32
11	Bastar	Deorapal	-	19.00	BF Grade
12	Janjgir	Pamgarh	3.10	2.12	45.50
13	Janjgir	Bargain	4.40	30.00	45.36
14	Janjgir	Meubhata	-	4.35	45.02
15	Bilaspur	Tendua	1.50	11.947	46.13
16	Rajnandgaon	Charbhata	4.00	1.9071.907	45.70
17	Rajnandgaon	Tumribor	2.10	6.92	44.82
18	Kawardha	Ranjitpur	3.87	20.410	45.27

1.5.4 The Power Sector

As a convenient and versatile form of Energy, Electricity has progressively assumed a critical role in the economic development of various Countries throughout the World. Like all developing countries, India's growth rate too has been slow in the past due to scarcity of Power, as capacity additions have not

kept pace with the burgeoning Demand over the past five decades. It is said that growth in Power availability should be 1.5 times the real growth in GDP. For instance, a 6% real growth in GDP should be accompanied by 9% growth in Power availability. The actual position remained reverse in the country. The addition in Power capacity was 4.67%, 4.73%, 3.70% and 2.47% during 1998-99, 1999-2000, 2000-01 and 2001-02 respectively as against GDP growth of 6.5%, 6.1%, 4.4% and 5.6% during these years. Poor infrastructure is one of the most frequently cited barriers to rapid growth in India. It not only hampers players in the domestic economy, it also holds them back when competing in international markets. The inadequacy of power infrastructure has also been cited as one of the impediments in country's development by McKinsey & Company in their report "India, growth Imperative" [Understanding the Barriers to Rapid Growth and Employment Creation]. The primary focus on investments in the Transmission Sector would be on the formation of the National Grid, in order to optimize the utilization of generation capacity through the exchange of power between surplus and deficit regions and exploit the uneven distribution of hydroelectric potential across various regions, by setting up interregional links, and the strengthening of regional and inter-state grids. The task of creating the National Grid is planned to be accomplished in phases over the next decade, i.e., by 2012.

The investment in the Transmission Sector is likely to increase significantly due to continuous emphasis improvement in T & D system. In addition, transmission systems associated with central sector power stations and mega power projects are also expected to be set up. Private investments in the sector are likely to be significant, as more emphasis during the current plan period will be on improvement and strengthening of transmission systems. This is likely to receive further boost with the enactment of the electricity bill – 2003.

Government on initiating reforms under transmission and distribution networks. Transmission sector is expected to attract higher investments from the public and private sector. The new investors are now evincing interest in transmission and distribution sectors rather than to go in for generation. The continued thrust on strengthening transmission and distribution system will provide boost to the related industries in the future.

The concentration of Power Generation Plants is in the vicinity of the Coal Fields of SECL. The existence of NTPC and Thermal Power Plants of CSEB in Korba are based on the uninterrupted Coal availability. The upcoming Plant of NTPC at Sipat near Bilaspur would augment the Power Generation in State.

Apart from the Conventional Source of Power Generation the Non-Conventional Resources like Bio-Mass (Rice Husk) too are being effectively utilized in the State for Power Generation.

1.6 PRESENT INDUSTRIAL SCENARIO

The newly formed State of Chhattisgarh is well known for availability of natural resources and the conditions in the state are now favourable for rapid advancement along a broad based Industrial front. This favourable outlook has been influenced by number of factors like:

a.	Comfortable Power Situation
b.	Availability of Land
c.	Availability of Cheap, Skilled & Friendly Labour
d.	Ideal Location w.r.t Transportation & Marketing Arrangements
e.	Political Stability
f.	Adequate Educational & Training Facilities
g.	Availability of Finance from Banks & Financial Institutions
h.	Concessions for Promotion of Industries
i.	Efficient Infrastructural Support

- Chhattisgarh ranks **FIRST** in investment inflow during year 2003-04 as per Reserve Bank of India Report. Investment inflow of Rs. 78 Billion. (\$ 1.77 Billion)
- Chhattisgarh ranks **FIRST** in the years 2005 & first quarter of 2006 in terms of Industrial Entrepreneur Memorandum filed with Govt. of India for Large & Medium Industries for proposed investment of Rs. 133.56 Billions. (\$ 3.00 Billion)
- Chhattisgarh ranked **THIRD** in 2004 in terms of Industrial Entrepreneur Memorandum filed with Govt. of India for Large & Medium Industries for proposed investment of Rs. 386 Billions. (\$ 8.77 Billion)
- 48 MOUs executed with various industrial groups for investment of Rs. 292.92 Billions (\$ 6.65 Billion) during last four years. Implementation against 41 MOUs already in progress.
- Developing as the power hub of the country. Implementation of power projects of 10,660 MW already in progress.
- Contributes 20% of the country's cement production.
- Contributes 22% of the country's Iron / Steel & sponge iron production.
- BALCO, Korba, is being expanded from 0.1 Million tpa to 0.345 Million tpa to be the largest Aluminium Plant in the country.
- Bilaspur railway Zone is highest freight loading railway zone in India, contributing 1/6th of total revenues of Indian Railways.
- Sites for development of 4 mega industrial areas totaling 15000 acres identified.
- Product specific industrial parks i.e. Aluminium & Metal Park, Apparel Park, Food Park and Herbal Park being developed.

1.7 CHHATTISGARH STATE INDUSTRIAL DEVELOPMENT CORPORATION

Chhattisgarh State Industrial Development Corporation commonly known as CSIDC is involved in identifying the potential sites for establishing industrial estates for the industrial growth and sustainable development of the newly formed state.

The saturation in the existing growth centers has made it virtually impossible to accommodate further new industries. Therefore to accommodate the existing inquiries for the requirement of land by perspective Entrepreneurs, CSIDC has proposed for the development of a Large Industrial Area at Dagori in Bilaspur district, covering seven villages namely- Udgan, Godhi, Kirari-Godhi, Bhaibod, Dodki, Pandarwa and Dhaurabhatha falling in the basin of Sheonath river of the state.

1.8 LARGE INDUSTRIAL AREA – DAGORI

CSIDC has selected a site for development of Large Industrial Area on the basis of assessed requirement of the industrial land in Bilaspur District of Chhattisgarh State. The site of the LIA is located at a distance of about 30 Kms from the district headquarters Bilaspur. The LIA is proposed to be spread over an area of Non Agriculture and stony land admeasuring 796 hectares, located at a distance of 4kms from the National Highway-200.

The LIA is proposed to accommodate Industrial plots of various types suitable for Tiny/small/Medium/Large scale industrial units and also the amenities, commercial facilities, Banks, Dhabas & Restaurants, Petrol Pump, Police station, Post office, Weigh Bridge, Dispensary, Telephone exchange, Fire Brigade station, Small ware house facility, small village Hat (shopping) center, Preliminary Health Centre & Green Park. A tentative layout has been prepared

by CSIDC. The LIA is proposed to provide developed land for about 300 industrial units.

CSIDC has already taken up the project related activities and the initial surveys of land have been completed by the revenue authorities. The process for the acquisition of the identified piece of land has already been initiated. The plans for the development of Land and basic infrastructure have also been worked out by CSIDC.

1.9 NEED FOR ENVIRONMENTAL IMPACT ASSESSMENT STUDIES

The CSIDC proposes to develop a Large Industrial Area (LIA) in Bilaspur district by acquiring approximately 796 Hectares (Ha) i.e. 1967 Acres of land falling in seven revenue villages of the district namely (1) Udgan, (2) Godhi, (3) Kirari-Godhi, (4) Bhaibod, (5) Dodki, (6) Dhaurabhatha and (7) Pandarwa.

In all industrial estates, the activities must co-exist satisfactorily with its surrounding environment so as to reduce the environmental impact caused due to these activities. To control the adverse impacts, sound and safe environmental management plan has to be implemented by the proponents, which makes environmental protection as essential requirement along with production profits.

In order to assess the likely impacts arising out of the proposed project on the surrounding environment and evaluating means of alleviating the likely negative impacts, if any, from the proposed project, CSIDC has retained **M/s Bhagavathi Ana Labs Ltd. (BALL) Hyderabad** as their environmental consultant in order to assess the likely impacts arising out of the proposed project. BALL had carried out the Rapid Environmental Impact Assessment (REIA) studies for various environmental components during pre-monsoon season 2006 and the results are incorporated and used in the preparation of the report.

1.10 SITE SELECTION CRITERIA

The efficient functioning depends on the availability of the basic requirements. Apart from this, the suitability/compliance of the site with respect to the guidelines of the Ministry of Environment and Forests has been evaluated. The reasons for selection of site are given below:

- Ø Availability of land and water
- Ø Compliance of the site with the sitting guidelines of MOEF
- Ø Availability of road to facilitate and transportation of the equipment, raw material and product
- Ø Availability of labour force during construction and operation phase
- Ø Accessibility of the site from environmental aspects
- Ø No national park or wild life sanctuary exists within 25 km of the project site.
- Ø There are no sensitive places of archaeological, historical, cultural, and religious or tourist importance within 25 km of the project site.