

III. Site & Surroundings

3.0 PHYSIOGRAPHY

The State of Chhattisgarh has the shape of Sea horse. Main physiographic components are the plains of Mahanadi Basin embanked by high plateaus and hills of Dandakaranya and Northern Hills. Overall the area looks like a very broad valley running west to east with a very gentle eastwardly slope.

The main physiographic regions are sub-divided into

- Mountains (27% of State Geographical Area)
- Plateaus & Pat regions (9.29% of State Geographical Area)
- Plains & River Basins (43% of State Geographical Area)

3.1 HYDROGEOLOGY OF BILASPUR URBAN AREA

The second important city of Chhattisgarh State – Bilaspur is situated on the bank of River Arpa. The urban agglomerate area (179 sq. km) covers city and adjoining villages. Central Ground Water Board, Raipur under its urban hydrogeological study started monitoring Ground Water level in the urban area through its 45 observation stations (mainly dug wells) spread over the area. The Bilaspur Municipal area is divided into 55 wards having a population of 2.72 lakhs with a population density of more than 321.6 / sq. km. The people living in the peripheries of the city are mainly engaged in agricultural activities by using ground water and from river Arpa.

Ground water occurs in the Dolomite, Argillaceous Dolomite and Shale formations of Upper Proterozoic age and Arpa River alluvium of Holocene age. The alluvium of Bilaspur area is constituted consists of fine to course sand, silt, clay, gravel and pebbles. The thickness of alluvium ranges between 19m and 30 m. clear-cut pebble horizon can be seen in the canal

section of Rajiv Gandhi diversion project in Torwa area and around Hapa village.

Ground water occurs under water table condition in alluvium but in semi confined to confined conditions in fractured calcareous rocks bellow alluvial zone. Small perched water condition is developed in alluvium due to clay lenses. The ground water development is mainly through dug wells, filter point wells and the flood plains of Arpa River,

DTW (depth to water) Range in Bilaspur Urban Area

Lithology	Depth to Water (m bgl)		Fluctuation (m)
	Pre-monsoon	Post-monsoon	
Dolomite	4.038 – 19.17	2.75 – 6.765	0.07 – 4.87
Alluvium	3.762 – 7.645	2.76 – 16.58	0.475 – 2.08

3.2 AGRO CLIMATIC ZONES

Chhattisgarh Plains: This belt comprises the central portion of the state covering the districts of Raipur, Durg, Rajnandgaon, Bilaspur, Dhamtari, Mahasamund, Korba, Raigarh, Janjgir (Chhampa) and Kanker. In Chhattisgarh plains the soil varies from laterite to heavy clay through sandyloam and clay loam types. The variations in the soil type are closely related to their position on the landscape. About 33.3% of its total geographical area is covered with forest.

Bastar Plateau: This belt comprises of the bottom most (southern part) portion of the State covering Bastar & Dantewada Districts. In this plateau, the land is undulating and hence the soil varies considerably from top of hillock to the valley. The soil type in Bastar greatly varies from Morhan (Entisols) to Gabhar (Vertisols). Gabhar is the valley portion of the undulating terrain. In between these two, Tikra (Inceptisols) and Mal (Alfisols) are found.

The forest area in this plateau contributes 62.5% of the total geographical area.

Northern Hills: This belt comprises of the uppermost (northern) portion of the state covering Surguja, Jaspur and Koriya Districts. Northern Hills portions comprise of the soils like eroded hilly soils, Chawar and Bahra soils which are identified locally on account of their occurrence, management and use. Eroded soils are mostly covered with forest while the Chawar soil is the low land banded fields used for rice production. Bahra soil is termed because water flows on continuously till January. The forest area in this belt is about 47% of the total geographical area.

3.3 THE STUDY AREA

Dagori– Bilaspur

Chhattisgarh State Industrial Development Corporation Ltd., (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 .

The proposed large industrial area Dagori falls in the second most developed district of the state-the “Nyaya Dhani” Bilaspur. It is situated only 30 kms from the district headquarters.

The selected location is ideal for the proposed LIA as it is in close proximity to the Industrial growth center Sirgitti, which is facing saturation. It would be able to generate ample opportunity for number of small & medium scale units based on core sector. The establishment of units for the manufacture of Iron and steel, Power generation through conventional, Non conventional or captive routes, food processing and need based service industries would also be possible. The very presence of the No. of sponge Iron Plants, Integrated & Non Integrated mini steel plants and rolling mills in and around the site opens multiple avenues for steel & power sector.

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**.

The proposed project envisages development of a Large Industrial Area and shall further augment the Industrial Growth & Development in Bilaspur District. A potential for Small & Medium Scale Industries already exists in the District and the availability of suitable and additional Infrastructure through LIA shall create an attraction for the Local Investors / Industrialists / Entrepreneurs for establishing SSIs / MSIs based on locally available resources and on the local Market Potential.

The development of small industries including ancillary industries based on the local raw material and other resources shall be accelerated by this LIA. The proposed LIA is aimed to bring approximately 300 Tiny/SSI/MSI units. Considering an average Direct employment of 10 persons/unit, the LIA shall be able to generate direct employment to around 3000 persons, besides indirect employment may be or 2000 persons or more in the local area within a time frame of 4 – 5 years after establishment.

Rapid Environmental Impact Assessment & Management Plan for the Proposed Large Industrial Area – Dagori, Bilaspur District, Chhattisgarh	Chhattisgarh State Industrial Development Corporation Limited (CSIDC)
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3.4 SALIENT FEATURES OF THE PROJECT AREA

GENERAL DATA	
Name of the site	LIA, Dagori, Bilaspur District, Chhattisgarh
Location	Villages: Udgan, Godhi, Kirari-Godhi, Bhaibod, Dodki, Dhaurabhatha, & Pandarwa, Bilaspur District [C.G]
Nearest City/Town	Dagori, Belha & Bilaspur
Nearest railway station	Dagori (Mumbai-Howrah) Railway line.
Nearest high way	Raipur-Bilaspur NH – 200
Promoters	Chhattisgarh State Industrial Development Corporation Ltd., [CSIDC]
CLIMATE	
Maximum Temperature	44 ⁰ C Max
Minimum Temperature	16 ⁰ C Min
Average Rain Fall	1813 mm.
Wind direction & Velocity	From North (Pre-monsoon 2006)
SITE CHARACTERISTICS	
Villages	Villages: Udgan, Godhi, Kirari-Godhi, Bhaibod, Dodki, Dhaurabhatha, Pandarwa & Sambalpuri, Bilaspur District [C.G]
Area	796 Hectares
Housing	Rural & Semi Urban Housing Available at site
Lang shaping	Nearly Plane with very little variation of contours
Type of soil	Stony and Murram land
LAND BEARING CAPACITY	
Possibility of Flooding	Very Low
Standing Water Level	Nil
TRANSPORTATION & COMMUNICATION	
Nearest Air Port	Raipur
National Highway	NH-200
Nearest Railhead	Dagori, Belha & Bilaspur

3.5 LAND USE IN THE STUDY AREA

As seen from the land use map majority of the land is built-up land. A few patches of double cropping areas are found in the northeastern and the southern parts. Single crops are seen in patches in study area.

3.6 DRAINAGE

The drainage pattern in this region is dendritic in nature due to the structural control. The study area is gently undulating land sloping towards south-east. The drainage of the study area is controlled by Shivnath River flowing from Southwest direction of the study area, which is passing from the southern side of the proposed Industrial Area. A large number of seasonal nallahs are also present in the study area which gets dried up during the dry seasons. Arpa River is present in the north east side of the study area. The study area is drained by many nallahs & nadis like; Gongha in the NNW direction, Rahan Nadi which flows from the extreme Northwest corner joins with Maniari River which is flowing from the northwest corner of study area.

Other rivers like Agar River from the NW side Turturia nala, Bherua Nadi and Tesua nadi from west join Maniari River which ultimately joins the Shivnath River.

Gokena Nallah and Gudguda Nallah joins Arpa Nadi flowing from the Eastern corner of the study area.

The Arpa Nadi which is flowing from the eastern corner and Shivnath River which is flowing at the southern side of study area confluences at the extreme south-eastern corner of the study area. Few other nallahs like Barchana, Linjua, Tilochan and Patiha etc flows into Shivnath River. However most of these nallahs gets dried up during the dry periods and becomes active only during the monsoon seasons.

3.7 SECTOR WISE CLASSIFICATION OF THE IDENTIFIED AREA

The entire piece of land has been classified into five sectors from A to D considering the junction of the LIA and the road connecting the LIA to the national highway No. 200 as the starting point. The details of the proposed sectors comprising of the number of plots and their area are illustrated as under:

S. No	Sector	Plots	No of Plots	Area (Acres)	Area (Ha)
1	A	01 – 12	12	448.0	181.3056
2	B	13– 24	12	287.0	116.1489
3	C	25 – 30	06	303.0	122.6241
4	D	31 – 40	10	275.0	111.2925
Total including amenities & excluding roads and culverts (as per site plan of CSIDC)			40	1313.00	531.3711
Allotable Area for Industrial Units				1313.0	531.3711
Area Proposed for Amenities				457.30	185.0693
Area Proposed for Roads & Culverts				196.70	79.6044
Total Area as per PPR & CSIDC Records				1967.0	796.0449

The perusal of the above table and its comparison with the tentative site plan reveals a marginal difference in the total area, which is attributed due to the non-availability of the correct sizes of the individual sectors. The difference could be ignored at the time of first stage planning; however, the same would certainly be rectified at the time of physical acquisition.

The four sectors in which the entire area has been classified have been denoted with the approximate plot sizes on the **site plan**.