

Telangana State Industrial Infrastructure Corporation Ltd.,

(A Government of Telangana Undertaking)



Lr. No: EMP/TSIIC/55/EC-NIMZ/2017-18

Date: 11.01.2018

To

Member Secretary (EAC),
Ministry of Environment, Forest and Climate Change,
Indira Paryavaran Bhawan,
Room No. 503, 5th Floor,
Vayu Wing, JorBagh Road,
Aliganj, New Delhi-110003

Kind Attention: Shri Raghu Kumar Kodali

Subject: Environmental Clearance for development of Zaheerabad National Investment and Manufacturing Zone (NIMZ) in Sangareddy District of Telangana - Submission of Clarifications on ToR - Request for Approval – reg.

Reference: Minutes of 182nd EAC (Infra 1) Meeting Projects related to Infrastructure Development, Industrial Estate/Parks/Complexes/Areas, Export Processing Zones /Special Economic Zones/Biotech Parks, Leather Complexes held on 21st December, 2017.

Dear Sir,

The EAC while considering the subject proposal in their 182nd meeting held on December 21, 2017 has sought certain additional information vide above reference.

The point wise clarifications to the additional information sought were prepared for the consideration of the committee. We are herewith enclosing the clarifications to EAC observations for your consideration.

We request you to consider the subject project in the upcoming EAC meeting.

Thanking you,

Encl: As above.

Yours faithfully,


CHIEF ENGINEER

Clarifications to the queries raised during 182nd EAC (Infra 1) Meeting Projects related to Infrastructure Development, Industrial Estate/Parks/Complexes/Areas, Export Processing Zones /Special Economic Zones/Biotech Parks, Leather Complexes held on 21st December, 2017

1 Latest Toposheet map (1:50,000 scale) (on A0 size paper) showing reserve forest boundaries and the proposed industrial area and 10 km radius of proposed project site

The latest toposheets in 1:50,000 scale available with Survey of India were downloaded and proposed project site boundary is superimposed and 10 km radius from the project boundary is delineated and enclosed.

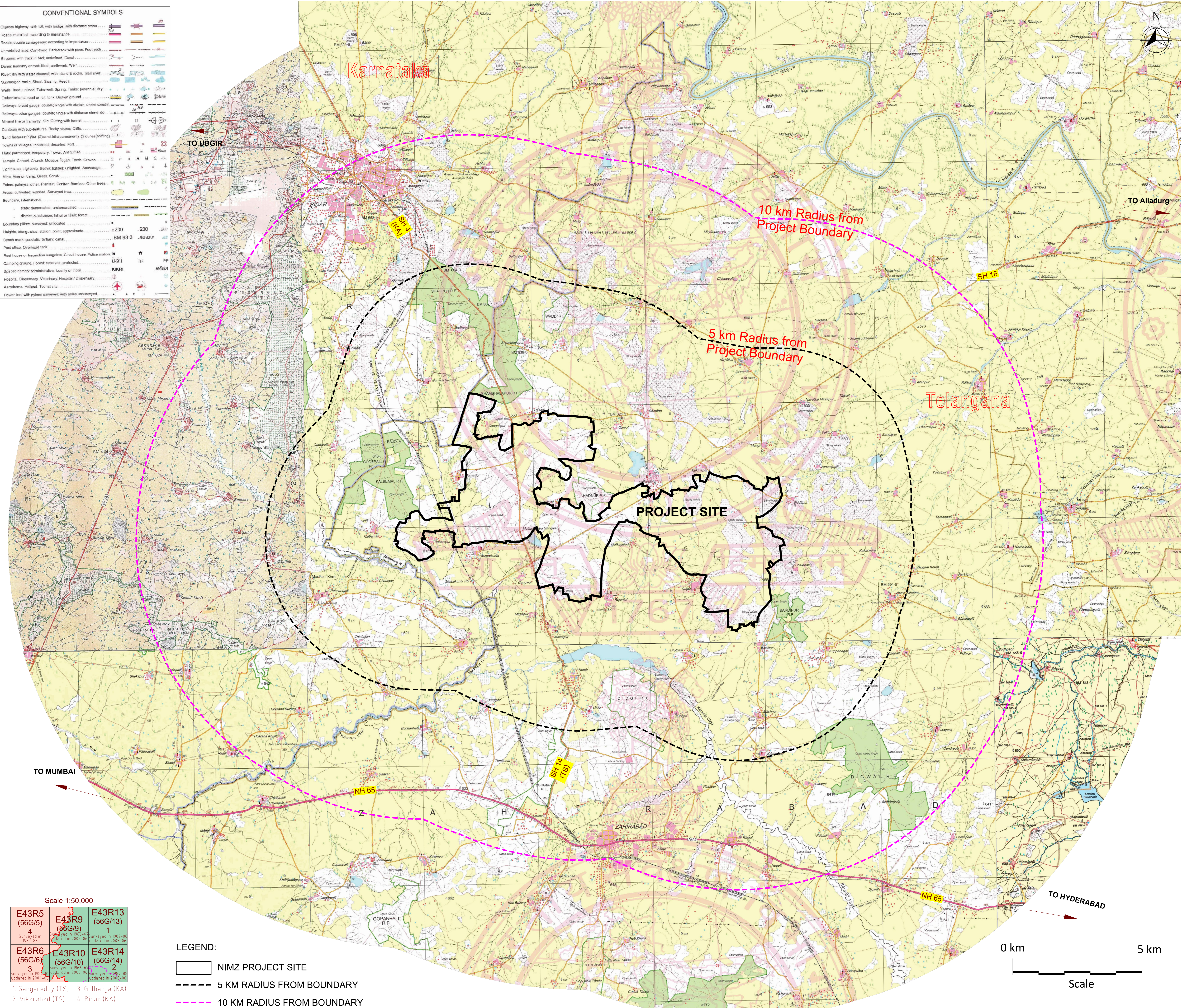
It is pertinent to mention that there is no forest land within the identified NIMZ Area.

The following are the Topo sheets with numbers covered under 10 km radius.

E43R5 (56G/5)	Surveyed in 1987-88
E43R6 (56G/6)	Surveyed in 1987-88 updated in 2004-05
E43R9 (56G/9)	Surveyed in 1966-67 updated in 2005-06
E43R10 (56G/10)	Surveyed in 1966-67 updated in 2005-06
E43R13 (56G/13)	Surveyed in 1987-88 updated in 2005-06
E43R14 (56G/14)	Surveyed in 1987-88 updated in 2005-06

CONVENTIONAL SYMBOLS

Express highway, with toll, with bridge, with distance stone	
Roads, metalled, according to importance	
Roads, double cartage-way, according to importance	
Unmetalled road, Cart-track, Pack-track with pass, Foot-path	
Streams, with track in bed, undefined, Canal	
Dams, masonry or rock-filled, earthwork, Wall	
River, dry with water channel, with island & rocks, Tidal river	
Submerged rocks, Shoal, Swamp, Reeds	
Wells, lined, unlined, Tube-well, Spring, Tanks, perennial, dry	
Embankments, road or rail, tank, Broken ground	
Railways, broad gauge, double, single with distance stone, 60"	
Mineral line or tramway, Kin, Cutting with tunnel	
Contours with sub-features, Rocky slopes, Cliffs	
Sand features (1' flat, (2) sand-hill/parliament), (3) dunes/shifting)	
Towns or Villages, inhabited, deserted, Fort	
Huts, permanent, temporary, Tower, Antiquities	
Temple, Chhatri, Church, Mosque, Igah, Tomb, Graves	
Lighthouse, Lightship, Buoy, lighted, unlighted, Anchorage	
Mine, Vines on trellis, Grass, Scrub	
Palms, palms, other, Plantain, Coriander, Bamboo, Other trees	
Areas, cultivated, wooded, Surveyed tree	
Boundary, International	
state, demarcated, undemarcated	
district, subdivision, taluk or B.M.A. forest	
Boundary pillars, surveyed, unlocated	
Height, triangulated station, point, approximate	
Bench-mark, geodetic, tertiary, canal	
Post office, Overhead tank	
Rest houses on Irigations, bungalow, Civil house, Police station	
Camping ground, Forest, reserved, protected	
Spaced names: administrative, locality or tribal	
Hospital, Dispensary, Veterinary Hospital / Dispensary	
Aerodrome, Halpud, Tourist site	
Power line, with pylons surveyed, with poles unsurveyed	



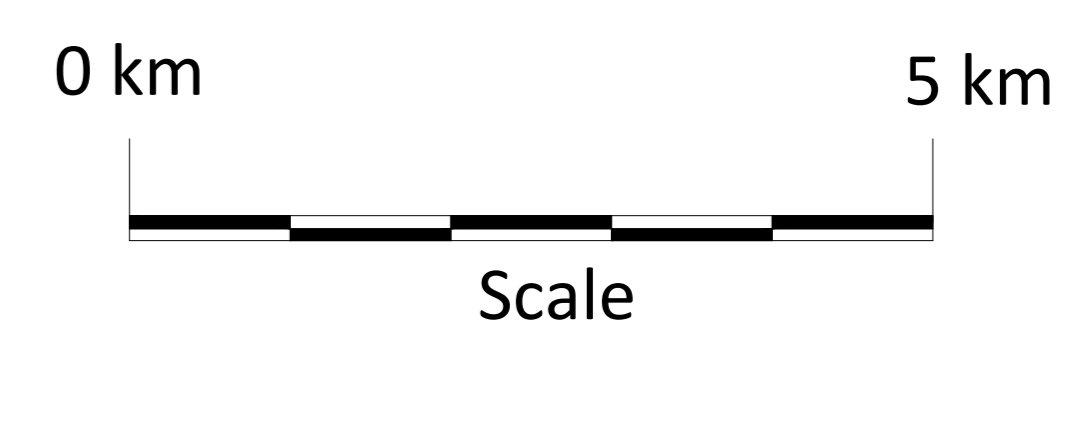
Scale 1:50,000

E43R5 (56G/5) 4 Surveyed in 1987-88	E43R9 (56G/9) 1 Surveyed in 1965-67 revised in 2005-06	E43R13 (56G/13) 1 Surveyed in 1987-88 updated in 2005-06
E43R6 (56G/6) 3 Surveyed in 1987-88 updated in 2005-06	E43R10 (56G/10) 2 Surveyed in 1965-67 revised in 2005-06	E43R14 (56G/14) 2 Surveyed in 1987-88 updated in 2005-06

1. Sangareddy (TS) 3. Gulbarga (KA)
2. Vikarabad (TS) 4. Bidar (KA)

LEGEND:

	NIMZ PROJECT SITE
	5 KM RADIUS FROM BOUNDARY
	10 KM RADIUS FROM BOUNDARY



Source : Survey of India Toposheets

2 Detailed land use plan for core (project site) and buffer (10 km radius around project site) zones

The Land Use/Land Cover (LU/LC) of NIMZ-Zaheerabad Proposed Project site and its corresponding 10km buffer area was prepared using the available National LU/LC Mapping on 1:50,000 scale using Resourcesat-2 satellite imagery of year 2011-12. No much variations are observed during the site visit conducted by project team, however land use and land cover based on latest satellite imagery will be presented in the EIA report.

2.1 Land use of Core (Project Site)

The proposed project site of Zaheerabad NIMZ is spread an area of 12,635 acres in Nyalkal and Jharsangam mandals of Sangareddy district, Telangana. The existing land use of the project site is shown in **Figure 2-1**.

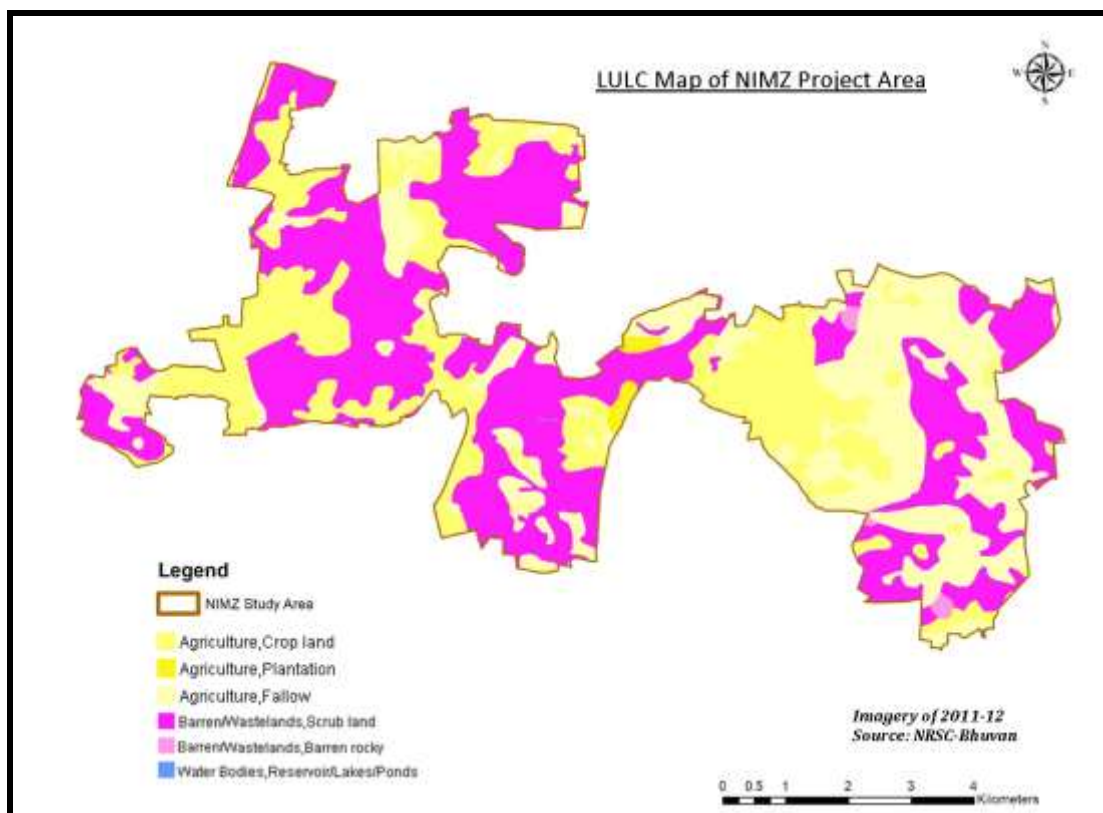


Figure 2-1: Existing Landuse of Project Site

The land use breakup of project site is given in **Table 2-1** and **Figure 2-2**.

Table 2-1: Existing Landuse of Project Site

S.No	Classes	Area (Ha)	Area (acres)	% of Area
1	Agriculture: Crop Land	1408.7	3481.0	27.55
2	Agriculture: Plantation	35.4	87.4	0.69%
3	Agriculture: Fallow	1354.9	3347.9	26.50%
4	Barren: Scrub Land	2291.6	5662.6	44.82%
5	Barren: Rocky	21.8	53.8	0.43%
6	Waterbodies: Pond/tank	0.9	2.2	0.02%
Total		5113.3	12634.9	100%

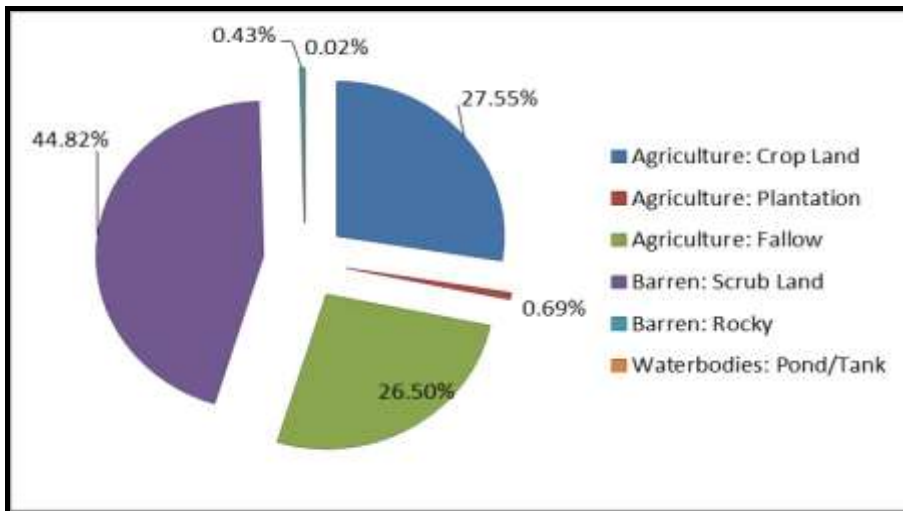


Figure 2-2: Graphical Representation of Existing Landuse of Project Site

Majority of the project site is falls under barren:scrub land (44.82%) followed by agricultural crop land (27.55%) and Agricultural fallow land (26.05%).

2.2 Land use of Study Area (10 km radius from Project Site)

The existing landuse of study area i.e., 10 km radius from project site is given in **Figure 2-3** and **Table 2-2**.

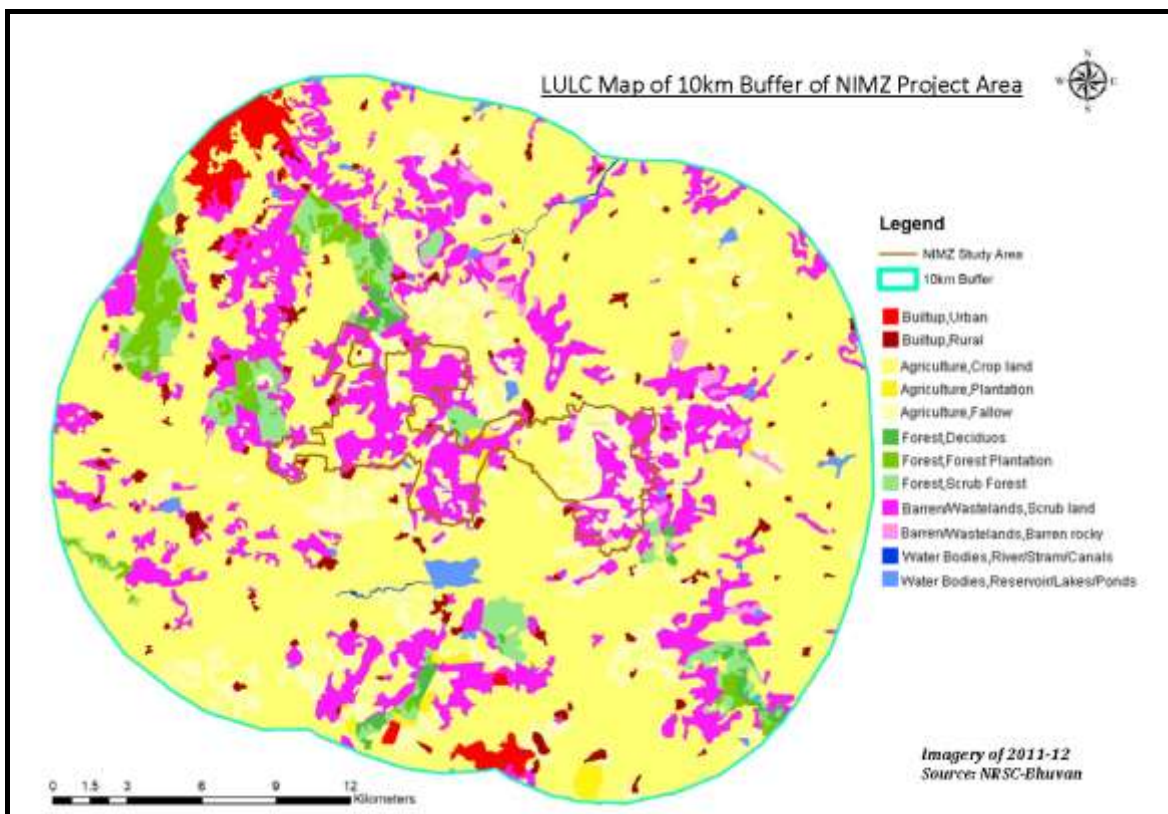


Figure 2-3: Existing Landuse of Study Area (10 km radius of Project site)

Table 2-2: Existing Landuse of Study Area

S.No	Classes	Area (Ha)	% of Area
1	Built-up: Urban	1210.77	1.70%
2	Built-up: Rural	1133.03	1.59%
3	Agriculture: Crop Land	44650.24	62.62%
4	Agriculture: Plantation	374.74	0.53%
5	Agriculture: Fallow	6985.46	9.80%
6	Forest: Deciduous	503.22	0.71%
7	Forest: Plantation	1348.41	1.89%
8	Forest: Scrub	2147.23	3.01%
9	Barren: Scrub Land	11946.24	16.75%
10	Barren: Rocky	418.66	0.59%
11	Waterbodies: Streams	53.99	0.08%
12	Waterbodies: Lakes	527.71	0.74%
Total		71299.70	100%

(Statistics as generated from LU/LC data of NRSC-Bhuvan: Cycle-2 [2011-12])

Major Classes:

The major land use classes in the 10km buffer of the Study Area are:

Agri: Crop Land – 62.62% Barren: Scrub Land – 16.75% Agri: Fallow – 9.80% together summing up to **89.17%**.

Minor Classes:

The other minor land uses classes in the 10km buffer of the Project Area constituting the 10.83% are:

Built-up: Urban - 1.70% & Rural – 1.59% **Agriculture:** Plantation – 0.53%

Forest: Deciduous – 0.71%, Plantation – 1.89% & Scrub Forest – 3.01%

Barren: Rocky – 0.59% **Waterbodies:** Streams – 0.08% & Lakes – 0.74%

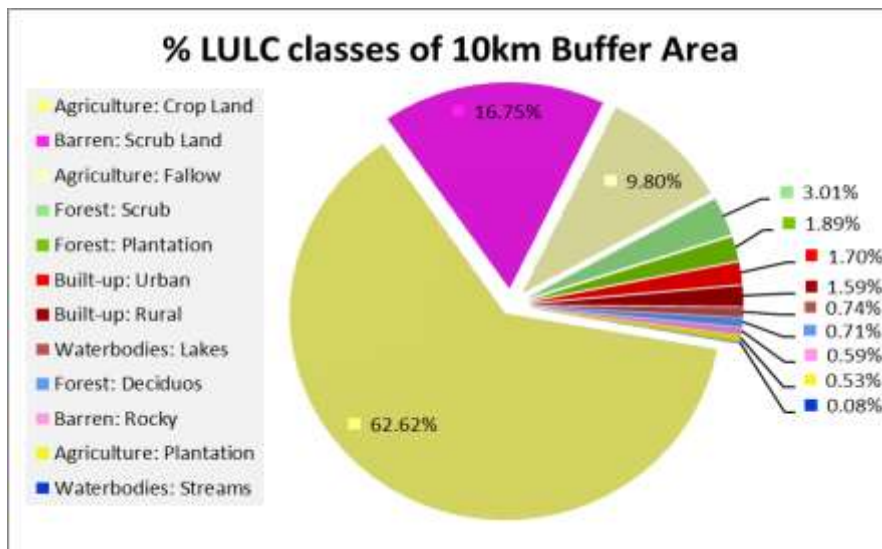


Figure 2-4: Graphical Representation of Existing Landuse of Study Area

3 Submit the details about proper criteria followed for selection of proposed site out of three alternate sites, as the proposed site is having 13 reserve Forests around it

Keeping in view the requirements as per the GOI's National Manufacturing Policy for NIMZs and future industrial requirements for the newly carved state of Telangana, TSIIC had identified three locations for development of NIMZ in the state and analysed to select the most suitable site location for development. The identified land parcels were preliminarily evaluated based on the following parameters.

The following important factors were also considered in site evaluation:

- As per the NIMZ policy, minimum size of land area shall not be less than 5000 acres.
- Minimise adverse environmental impacts
- Suitability of land in terms of topographical and geological aspects.
- As much as possible, Land shall be free from habitation, forest land agricultural activity, and archaeological/historical monuments
- Minimum Rehabilitation and Resettlement (R&R)
- Suitability for phased and integrated development
- Scope for future development
- Site slope and drainage pattern
- Connectivity:
 - **Road:** Transportation of goods and movement of people from/to the NIMZ to the hinterland. Further, connectivity to nearby State/ National Highways is desirable to provide cost effective and efficient transportation solutions.
 - **Seaport:** To provide an access to international markets in terms of import and export. Seaports providing dry bulk and break bulk cargo handling facilities with ample storage facilities to handle the cargo movement required for NIMZ.
 - **Rail:** Transportation of goods and movement of people from/to the NIMZ to the hinterland. Further, connectivity to nearby main railway line is desirable to provide cost effective and efficient transportation solutions.
 - **Airport:** Import and export of airborne cargo and movement of people.
- Availability of water and power
- Proximity to domestic markets: As the units in NIMZ will avail/provide goods from/to Domestic Tariff Area, it is important to consider easy access to domestic markets.
- Distance from Eco-sensitive areas: Site shall be devoid of eco-sensitive areas like wild life sanctuaries, national parks, biosphere reserves, etc., and shall be far away as much as possible.

Evaluation in accordance with project objectives and compliance with country laws, policies and legal requirements

Table 3-1: Evaluation of Alternative Sites

Detail	Site 1 (Siddipet District)	Site 2 (Nalgonda District)	Site 3 (Sangareddy District)
Location	In Cheriya and Kondapak Mandals Komaravalli and other (9) villages in Cheriya mandal and Kondapak and other (6) villages in Kondapak Mandal	In Chintapalli Mandal Vinjamur, Anaboinapalli, Ramanapadu, Muddapalli, Warukalu, Mallepalli, Ailapur, Kurmapalli of Chintapalli Mandal	In Nyalkal and Jharasangam Mandals 14 villages of Nyalkal and 3 villages of harasangam Mandal
Latitude	17°57'12.00"N	16°51'25.00"N	17°47'24.00"N
Longitude	78°55'26.00"E	78°48'43.00"E	77°39'1.00"E
Land availability (acres) - As per the NMP, Size of land for NIMZ (An NIMZ would have an area of at least 5000 hectares (12355 acres) in size)	~13,500 acres	~ 3,200 acres- contiguous land is not available more than 3200 acres	~12,635 acres
Land Use	Agricultural Fallow land, Agricultural Crop land	Agricultural Fallow land, Agricultural Crop land	Agricultural Fallow, crop & Barren/Uncultivable/Waste land. No Forest land is involved.
R&R Issues	Land acquisition and R&R (More) is envisaged. Land to be acquired from private parties Two to three settlements are within the boundary and R&R issues will be more	Land acquisition and R&R (Less) is envisaged. Site has smaller settlements/villages	Land acquisition and R&R (Moderate) is envisaged. About 3,500 acres of land is already in possession of TSIIC
Road	SH 1: adjacent SH 9: adjacent	SH 19: Adjacent Outer Ring Road: ~52km NH 65 : ~64 km	SH-14: Adjacent/passing through SH-16: Adjacent/passing through NH-65: ~10 km from Hyderabad Outer Ring Road: ~80km
Railway Line (in km)	Nearest SCR line: ~37 km, Nearest Station: ~35 km (Janagaon)	Nearest Station: Jadcherla ~117 km	Passing through the site. Nearest Station: Metalkunta ~1.4 km
Seaports (in km)	Machilipatnam Port: ~312km Krishnapatanm Port: ~426km Mumbai Port: ~645Km Mangaluru Port: ~710Km	Machilipatnam: ~263km Krishnapatnam: ~316 Mumbai Port ~665 Mangaluru Port ~610	Machilipatnam: ~420 km Krishnapatnam: ~465 km Mumbai Port ~510km Mangaluru Port ~612km
Airports (in km)	Hyderabad (aerial ~94 km)	Hyderabad (aerial ~53 km)	Hyderabad (aerial ~100 km)

Detail	Site 1 (Siddipet District)	Site 2 (Nalgonda District)	Site 3 (Sangareddy District)		
Sensitive Areas such as National Parks/Wildlife Sanctuaries/Biospheres within 25 km Radius	Nil	Nil	Nil		
Nearest major Settlement distances	Siddepet ~11 km, Cherial ~3 km	Devarakonda ~20 km	Zaheerabad ~10km Bidar ~10km		
Areas which are important or sensitive for ecological reasons - Wetlands, watercourses or other water bodies, coastal zone, biospheres, mountains, forests	Reserve Forests (RF)		Reserve Forests (RF)		
	Godkondla no 1 RF		6.1 KM NW	Shamshalapur R.F (TS)	
	Takkallapalli RF		5.6 KM NW	Adjacent, N	
	Tirgandlapalli RF		7.5 KM N	Rajola R.F	
	Kurmapalli RF		2.9 KM N	1.1 km, W	
	Kondur RF		6.1 KM N	Kalbewal RF	
	Yeragandlappalli RF		11.2 KM N	Adjacent, W	
	Ghade gauraram RF		4.5 KM NE	Sahapur R.F (TS)	
	Krishtaram palli RF		2.6 KM NE	1.5 km, N	
	Edlugandi RF		3.7 KM NE	Godepalli R.F (KA)	
	Marrigudem RF		4.3 KM NE	2.8 km, W	
	Potti gutta RF		2.6 KM NE	Didgi R.F (TS)	
	Tungapati gauraram RF		2.3 KM E	2.8 km, S	
	Mudigonda no1 RF		6.7 KM SE	Digwal R.F (TS)	
	Mallareddipalli RF		6.4 KM SE	4.7 km, SE	
	Mudigonda no2 RF		8.8 KM SE	Zahirabad R.F (TS)	
	Vavilikole RF		7.5 KM SW	4.9 km, S	
	Sirsangandla RF		9.7 KM S	Chitta R.F (KA)	
				6.1 km, W	
				Tadapalli R.F (KA)	
			7 km, SW		
			Honnadi R.F (KA)		
			9.5 km, SW		
			Hadnuri RF		
			Adjacent, S		
			Badripur RF		
			0.1 km, SE		
Inland, coastal, marine or underground waters	Two streams are following through the site connecting to Chital Nala - Adjacent N Dumat Nala - Adjacent E Chital Nala - Adjacent E Oganiayan Cheruvu: ~3.0Km NE Siddipeta Vagu:	One stream is passing through the site Bhimanapalli Vagu: ~8.0km	No Major Streams are present in the project site. Madhura Nadi, 0.2 km, S Manjira River, 12.5 km, NE Kotturu reservoir, 13.7 km, SE Singuru Reservoir, 13.0 km, NE Narinja Reservoir, 1.5 km, S		

Detail	Site 1 (Siddipet District)	Site 2 (Nalgonda District)	Site 3 (Sangareddy District)
	~11.5kmN Oracheruvu: ~12km N Komati Cheruvu: ~12 km NW Kureli Vagu: ~13km W		
State, National boundaries	-	-	Telangana – Karnataka State Boundary adjacent to project site
Routes or facilities used by the public for access to recreation or other tourist, pilgrim areas	SH-1: Passing through project site SH-9: Passing through project site	-	SH-14; Passing through project site SH-16; Passing through project site NH-9 (NH-65), 8.4 km, S South Central Railway, passing across project site
Densely populated or built-up area	Siddipet: ~11.5km NW	Devarakonda: ~20km SE	Zaheerabad (Telangana State), 9 km, S Bidar (Karnataka), 8 km, NW
Environmental Setting for Manufacturing Activities	-	-	Existing industrial base near Zaheerabad will be added advantage. More favourable Eco System to setup manufacturing industries due to proximity to Hyderabad
Water Availability	No perennial surface water resource nearby	No perennial surface water resource nearby	Availability of Water from Singur reservoir
Areas already subjected to pollution or environmental damage. (those where existing legal environmental standards are exceeded)	Nil	Nil	Nil Patancharu which was declared as CPA is around 70 km away from proposed site
Areas susceptible to natural hazard which could cause the project to present environmental problems (earthquakes, subsidence, landslides, erosion, flooding or extreme or adverse climatic conditions)	Proposed development area falls under Seismic Zone II (Low Damage Risk Zone) as per IS 1893 (Part I).	Proposed development area falls under Seismic Zone II (Low Damage Risk Zone) as per IS 1893 (Part I).	Proposed development area falls under Seismic Zone II (Low Damage Risk Zone) as per IS 1893 (Part I).

Considering the sufficient Land availability, Minimal R&R, Involvement of Scrub land, Barren/Uncultivable/Waste land, Better connectivity and without Environmental Sensitive Areas, Site 3 (Near Zaheerabad) has been selected for the Development of NIMZ. Site 2 mainly not meeting criteria fixed in national manufacturing policy (NMP)

i.e., area of at least 5000 hectares (12355 acres) shall be minimum size of NIMZ area. Site 1 has more resettlement & rehabilitation, less government land availability and no reliable water resource is not a good option for this large scale development of NIMZ.

After selection of Site 3 at Zaheerabad, TSIIC along with their project consultants IL&FS Infrastructure Development Corporation (IIDC) has carried out thorough analysis of land delineation with an aim to eliminate R&R, to include mostly scrub land and waste land etc. It is pertinent to mention that there is no forest land involved in the area proposed for NIMZ development. Though there are Reserve Forests are observed in the study area, there is no Flora and Fauna of conservation significance is observed.

After elimination of unsuitable sites, the residue sites were assessed (with regard to connectivity, physical site features, impact on adjoining landuse, etc) for suitable integration to form into a single NIMZ region. In order to assimilate the land parcels into a contiguous land parcel, intermittent areas were identified, by excluding settlements / gaottan lands, and conforming to the NMP guidelines.

The land delineated for the NIMZ therefore primarily includes wastelands and government-owned lands. Areas in proximity to eco-sensitive zones like Manjira River and Singur Reservoir have been avoided and adequate buffer has been provided between the NIMZ lands and these eco-sensitive zones.

The selected site was approved by the High Level Committee (HLC) including Ministry of Environment and Forests, chaired by Secretary to GoI (DIPP) as per NIMZ Scheme and final approval for the Zaheerabad NIMZ was accorded on January 22, 2016.

The existing land use at the site as shown in Figure 2-1, is therefore primarily scrub land, followed by single crop agricultural lands. The government land constitutes of 31% and 69% of private land. The land acquired till date is 23% and ***The State Government has initiated processes for acquisition of Private Lands as per 'The Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation & Resettlement Act, 2013'***

4 Details of availability of water quantity from different sources, i.e., Singur reservoir and authorised water suppliers as mentioned by the Proponent.

Total water (one time) requirement for the proposed development is estimated as 110 MLD and 2.0 ML of fire water demand. Considering recycling of about 53 MLD into the system, net fresh water requirement is 57 MLD. The fresh water will be sourced from the Singur reservoir located at about 25 km. The Salient Features of Singur Reservoir are provided in below.

Table 4-1: Salient Features of Singur Dam

Singur Reservoir Salient Features	Details
River	Manjira
Village	Singur
Location	Latitude: 17°45"; Longitude: 77°56"
Gross Capacity	29.910 TMC
Water spread area	163.38 Sq.km
Present Water Users	(i) Mission Bhagiratha (ii) Water supply to canals of Singur project (iii) Irrigation Under Ghanpur Anicut (iv) Nizam Sagar for Irrigation etc.,
Water availability including Evaporation, Silting and Carryover capacity to Next Season	7.25 TMC



Figure 4-1: Singur Reservoir

Government of Telangana has proposals to allocate 10% of water from Singur Reservoir i.e around 3 TMC for meeting the industrial needs in the project region. The estimated NIMZ's ultimate water requirement is worked out to be around 1.41 TMC/Year (110 MLD) for which Singur Reservoir is found to be adequate. The application is submitted by TSIIC to Irrigation and CAD Department for the same and letter is attached.

5 Detailed catchment area plan of the proposed project site along with the Singur reservoir

Sub-continent of India is divided into 25 basins having 103 sub-basins which are further divided into 3448 watersheds by India – WRIS (Water Resource Information System). The proposed project of NIMZ-Zaheerabad falls in Manjira Sub-basin which is under Godavari basin.

Manjira sub-basin is divided into 44 watersheds of which 4 watersheds are considered for the assessment based on the proximity of the influence area of proposed project.



Figure 5-1: Basin map of India and Project Site's Basin

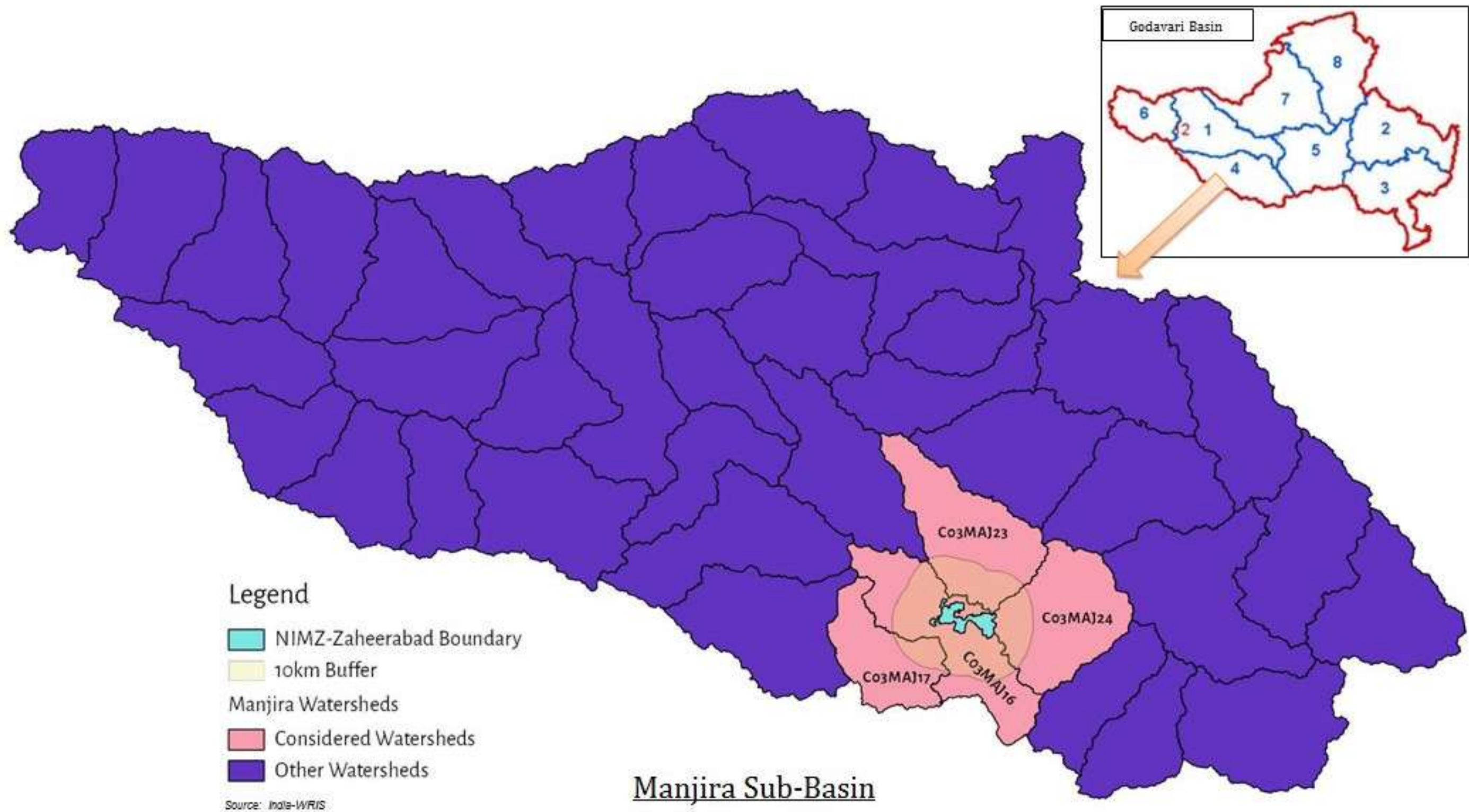


Figure 5-2 : Manjira Sub – Basin’s Watershed indicating NIMZ Proposed Site and its Study Area

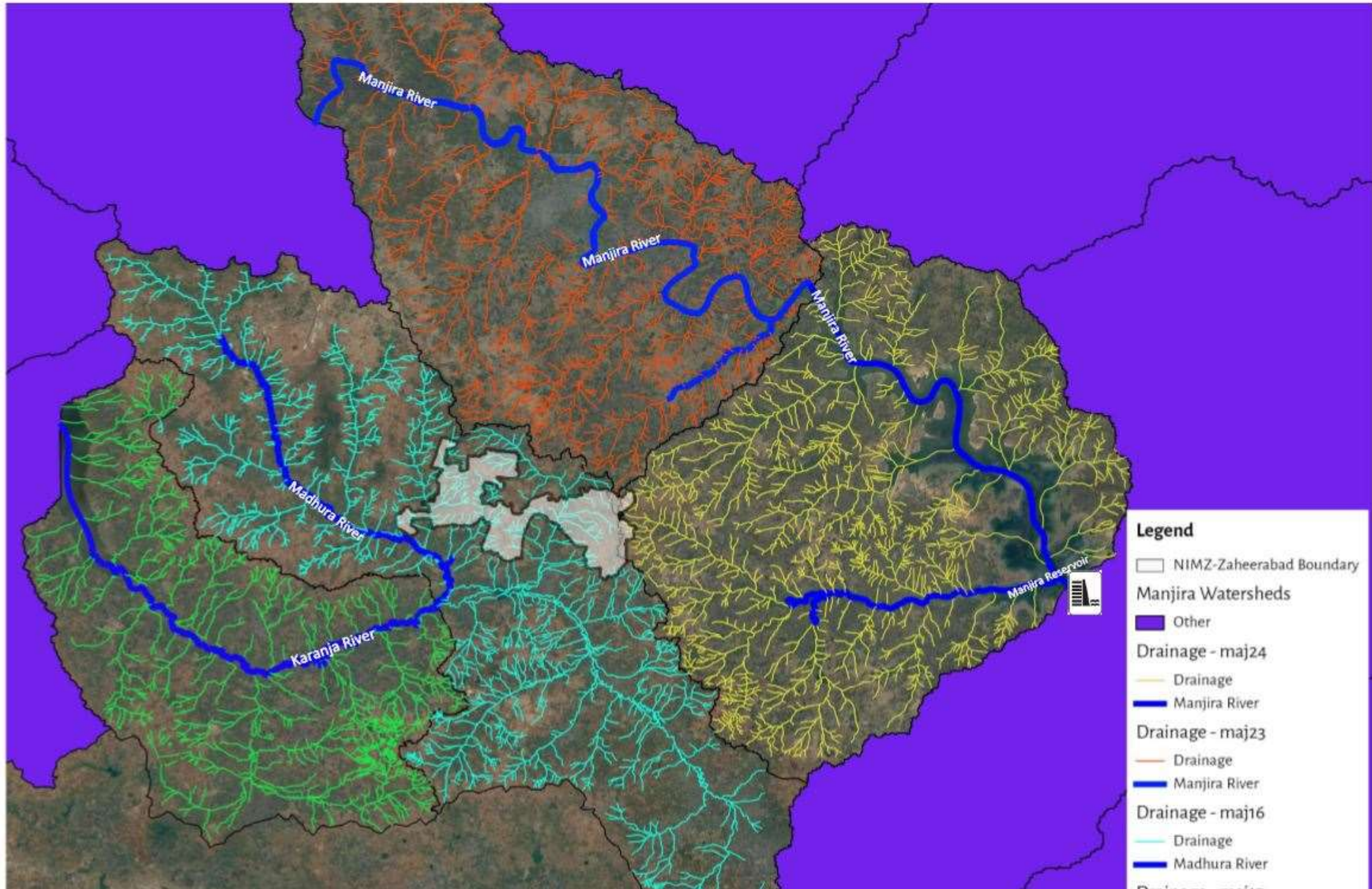


Figure 5-3: Drainage pattern of the Study Area Watershed Considered for Assessment

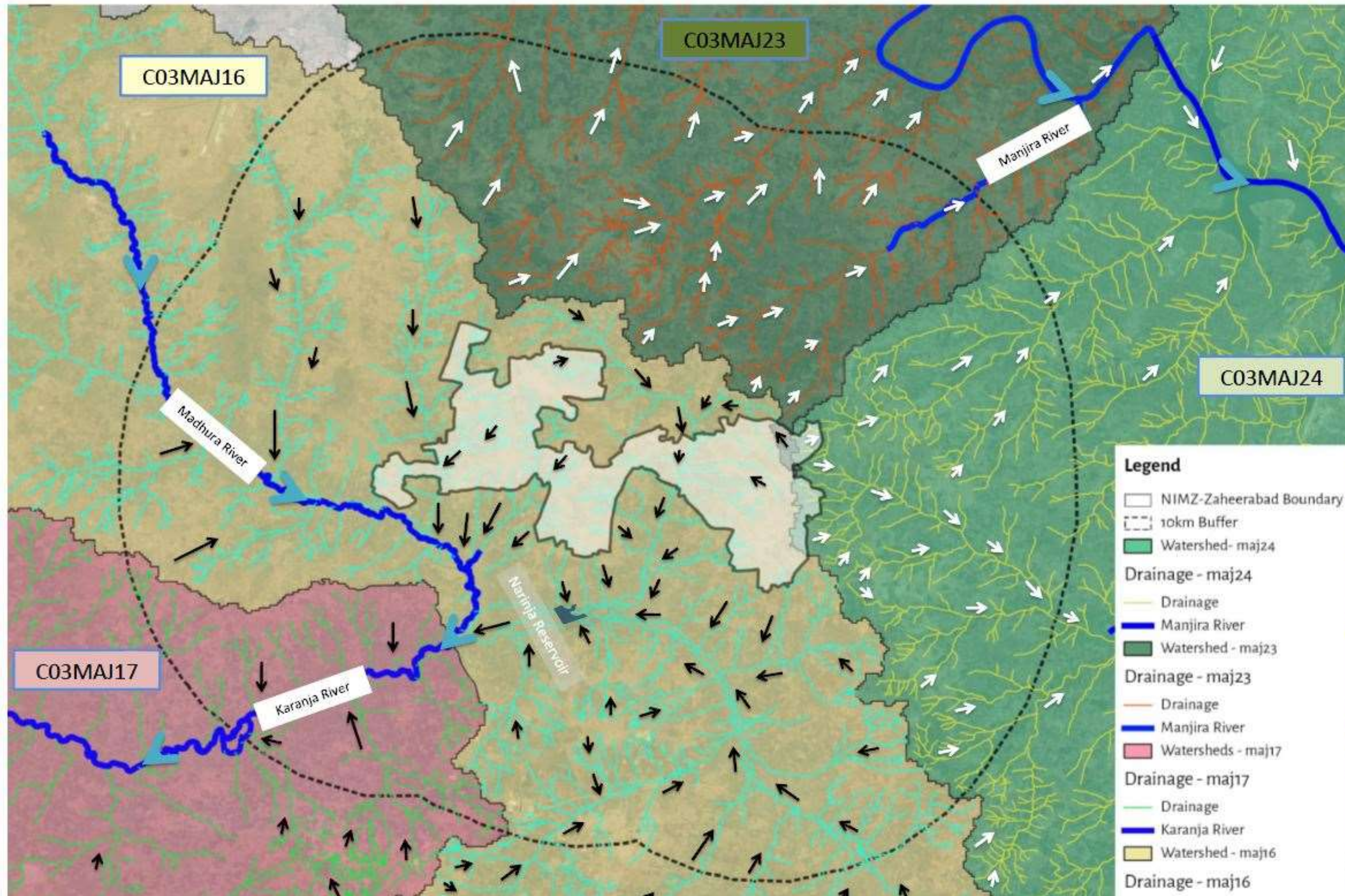


Figure 5-4: Drainage pattern of the Study Area Watershed Considered for Assessment along with Flow Directions

For clear understanding the 10km buffer area of the project study area is considered for detail flow assessment. Four watersheds namely – CO3MAJ16, 17, 23 and 24 have their divides falling in the buffer area. From the figure above it can be inferred that MAJ16 has Madhura River, MAJ17 has Karanja River and MAJ23 & 24 have Manjira River. The flow directions marked in black are to represent the drainage contributing to Madhura & Karanja Rivers whereas white direction heads are to represent drainage contributing to Manjira River.

Watershed divides are always delineated to mark the division of flow as per slope. From the assessment it is evident that the drainage (*red and yellow*) contributing to Manjira River (*flow arrows white colored*) is well within MAJ23 and MAJ24 watersheds which have no flow through the proposed project area and is not hindering any natural drainage of Manjira catchment. A very negligible part in the Eastern end of the proposed boundary has shoots of drainage originating (lower order) into MAJ24 and shall have least impact on the natural discharges in to Majira reservoir.

MAJ16 can be considered as the project influenced watershed which covers the complete proposed project boundary. The flow from MAJ16 & MAJ17 watersheds contribute to Madhura River and Karanja River and the flow directions are given in black color in the figure above.

On Eastern and Central Portion (partly) , It is observed that drains of lower order is originating from the project site as well as crossing through project site connects to the Narinja reservoir and has its overflow into Karanja River. The rest of Project area (Western and Part of Central Portion) also has drains of lower order and drains crossing through project and has its flow contribution into Madhura River.

The detailed study on the drainage pattern of the study region will be carried out and mitigation measures if any will be provided as a part of EIA Study.

6 Detailed information about types of industries/activities proposed along with the use of raw materials/chemicals and processing details for precise assessment of impact on environment

Detailed information about types of industries/activities proposed along with the use of raw materials and its pollution potential with respect to EIA Notification 2006 (As amended) and CPCB Categorization of Industries is given below.

#	Possible Sector	Anticipated Types of industries/activities	Categorisation of Industry as per EIA notification, 2006	Anticipated Raw Materials	Categorization as per CPCB	Pollution Potential
1	Electrical equipment	Manufacture of electric motors, generators, transformers and electricity distribution and control apparatus (includes electric motors, generators and motor generator sets, switchgear and switchboard apparatus etc.)	Not Applicable	Wirings, shafts, castings, rotors, filters, exciter, capacitors, bearings, laminations.	Orange	A1C, HW3 & HW 4
		Manufacture of batteries and accumulators (includes batteries, rechargeable batteries, etc.)		Chemicals depending on the type of battery, casing, electrolytes, resistor, sensors, fuse, connector, gauges.	Red and Orange	A1E,F,G, W12, HW3 & HW 4 W11, A1D, HW3 & HW 4
		Manufacture of wiring and wiring devices (includes wires for live transmission, optical cables)		Material (copper, zinc, PVC, PE, Nylon), straight blade, joints, switches, wiring boards.	Orange	W13
2	Metals	Manufacture of basic iron and steel (Ferro alloys, wire of steel by cold drawing, tube and tube fittings etc.)	Category A and B	Iron ore, coke, sinter, limestone, and other metals, recycled steel, coal.	Orange and White	A1D, A2F2, HW3 & HW4
		Manufacture of basic precious and other non-ferrous metals (includes manufacture of copper from ore, lead etc.)		Sulfide ores, acids, carbonates, pine oil, alum, lime, xanthate, coke.	Red and Orange	A1C,E,F,G,W11, W2, HW1 A1D, A2F2, HW3 & HW4
		Casting of metals (includes manufacture of tubes, pipes and hollow profiles, casting of non-ferrous metals)		Steel billet, PVC resin, DOP, Stabilizers, Processing acids, Lubricants, Colors, Fillers, Fittings.		
3	Food and Agro Processing	Processing and preserving of meat (includes production, processing and preserving of meat and meat) products, aqua food related processing (fish and prawns etc.)	Not Applicable	Different types of animal meats, freezers, spices, emulsifiers, animal proteins, fibres	Red	W12,W2
		Manufacture of dairy products (includes manufacturing of milk, milk powder, ice cream etc.)		Feed, cream powder, sweet whey powder, dry cottage cheese whey	Red	A1C, A2F2, W13 & W2
		Manufacture of grain mill products, starches and starch products (includes flour milling, rice milling, milling of other grains)		Wheat, barley, corn, rice, maize, and few other crops	Orange and Green	W12, A1C, D, E, A1F & A1G
		Manufacture of other food products (includes manufacture of bakery products, noodles, Processing of edible nuts etc.)		Flour, rice, yeast, salt, flavors, stabilizers, dairy concentrates, margarine and other oils, custard powder	Orange	W13 & A1D
		Manufacture of prepared animal feeds (manufacture of cattle feed, poultry feed, feed for pets etc.)		Soyabean, millet, oil cakes, grass, maize strew, wheat strew, grain	Orange	A1C
4	Non-metallic minerals (except Glass)	Manufacture of non-metallic mineral products etc. (Includes manufacture of refractory products, clay building materials-bricks, tiles, ceramic products, AAC blocks, kerb stones, etc.)	Not Applicable	Potassium Feldspar, Kaolin Powder, Activated Alumina, Bone China Frit, chemical additives	Orange and Green	A1C A1E, A1F & A1G
5	Automobile	Manufacture of motor vehicles (such as manufacturing of Tractors, Buses etc.)	Not Applicable	Iron, steel aluminum, glass, petroleum products, plastics, rubber, copper, cobalt	Red	A1C; W11; HW3 & HW4
		Manufacture of parts and accessories for motor vehicles (includes parts such as brakes, gearboxes, axles, seats, tyres, rubber products etc.)			Orange and Green	W17, A1C A1E,F,G
6	Machinery	Manufacture of general purpose machinery (includes manufacture of hydraulic and pneumatic components, pumps, compressors, taps, valves, lifts, etc.), construction machinery, power machinery.	Not Applicable	Motor, Impeller shaft (made of heat treated Stainless Steel), cast iron, wear rings (bronze casing), ceramics; condenser, evaporator, insulator, fan, thermostat (made from different materials: Plastic, copper, steel, cast iron, rubber, Styrofoam, fiber glass, aluminum, Formica)	Red, Orange and White	W17, A1C, HW3 & HW4
		Manufacture of special-purpose machinery (includes manufacture of agriculture implants, machine tools for drilling, milling, industrial machinery etc.)		Stainless steel, cast iron, copper, rubber, plastics, pig iron, carbon and alloys		
7	Transport equipment	Manufacture of Railway locomotives and rolling stock	Category A and B	Stainless steel, cast iron, aluminum, copper, brakes, lighting, seats, propulsion, traction motors	Red	A1C; W11; HW3 & HW4
		Manufacture of Military fighting vehicles		Metals, stainless steel, iron ore, aluminum, titanium, ceramics, magnesium, alloys		

Source: As per CPCB classification of industries dated February 29, 2016

Where

Water Pollution

W11 - Waste-water which is polluted and the pollutants are -

- not easily biodegradable (very high strength waste waters having BOD > 5000 mg/l); or
- toxic; or
- both toxic and not easily biodegradable.

(Presence of criteria water pollutants having prescribed standard limits up-to 10 mg/l or having BOD > 5000 mg/l). For details appendix 1 may be referred)

W12 - Non-toxic high strength polluted waste-water having BOD in the range of 1000-5000 mg/l and the pollutants are biodegradable.

(Presence of criteria water pollutants having prescribed standard limits from 11 mg/l to 250 mg/l and having BOD strength in the range of 1000-5000 mg/l) . For details appendix 1 may be referred)

W13 - Non toxic- polluted waste-water having BOD below 1000 mg/l and the pollutants are easily biodegradable. (Presence of criteria water pollutants having prescribed standard limits from 11mg/l to 250 mg/l and having BOD strength below 1000 mg/l). For details appendix 1 may be referred)

W14 – Waste-water generated from the chemical processes and which is polluted due to presence of high TDS (total dissolved solids) of inorganic nature. (Presence of criteria water pollutants having prescribed standard limits more than 250 mg/l. For details appendix 1 may be referred)

W15 – Waste-water generated from the physical unit operations / processes and which is polluted due to presence of TDS (total dissolved solids) of inorganic nature and of natural origin like fresh-water RO rejects, boiler blow-downs, brine solution rejects etc. (Presence of criteria water pollutants having prescribed standard limits more than 250 mg/l. For details appendix 1 may be referred)

W16 – Non-toxic polluted waste-water from those units which are:

- Having the overall waste-water generation less than 10 KLD and
- The pollutants are easily bio-degradable having BOD below 200 mg/l which can be easily treated in a single stage ASP (activated sludge process) based Effluent Treatment Plant.

Note : This is a special category and is applicable to only those units having over-all liquid waste generation less than 10 KLD with low strength organic load.

W17 – Waste-water from cooling towers and cooling-re-circulation processes

W2 – Industry having overall liquid waste generation of 100 KLD or more including industrial & domestic waste-water.

Air Pollution

A1A – Presence of cri teria air pollutants having prescribed standard limits up - to 2 mg/Nm³

A1B – Presence of criteria air pollutants having prescribed standard from 3to10 mg/Nm³

A1C – Presence of criteria air pollutants having prescribed standard from 11 to 50 mg/Nm³

A1D – Presence of criteria air pollutants having prescribed standard from 51 to 250 mg/Nm³

A1E – Presence of criteria air pollutants having prescribed standard from 251mg/Nm³ & above.

A1F – Generation of fugitive emissions of Particulate Matters which are:

- Not generated as a result of combustion of any kind of fossil-fuel.
- Generated due to handling / processing of materials without involving the use of any kind of chemicals.
- Which can be easily contained /controlled with simple conventional methods

A1G – Generation of Odours which are:

- Generated due to application of binding gums / cements /adhesives /enamels
- Which can be easily contained /controlled with simple conventional methods

A2F1 – All such industries in which the daily consumption of coal/fuel is more than 24 MT/day and the particular (Particulate/gaseous/process) emissions from which can be controlled only with high level equipments / technology like ESPs, Bag House Filters, High Efficiency chemical wet scrubbers etc.

A2F2 – All such industries in which the daily consumption of coal/fuel is from 12 MT/day to 24 MT/day and the particular (Particulate/gaseous/process) emissions from which can be controlled with suitable proven technology.

Hazardous waste

HW1 – Land disposable HW which require special care & treatment for stabilization before disposal.

HW2 – Incinerable HW

HW3 – Land disposable HW which doesn't require treatment & stabilization before disposal. High volume low effect wastes such as fly-ash, phsphogypsum, red-mud, slags from pyro-metallurgical operations, mine tailings and ore beneficiation rejects)

HW4 – Recyclable HW, which are easily recyclable with proven technologies.

7 Detailed industrial estate/SEZ layout plan showing all industrial sectors and amenities like road, storm water drains, parking, CETP, STP, solid waste disposal facilities and plantation/green belt etc.

Planning Brief:

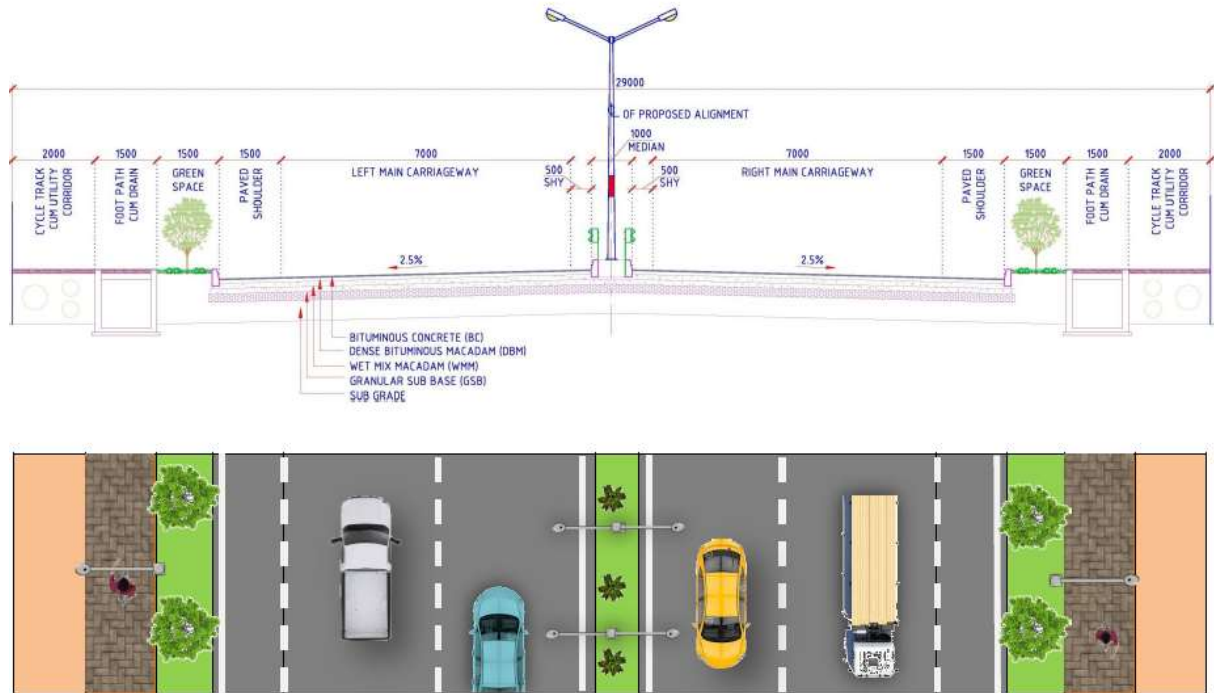
The core principles for evolving the project is based on the overall vision laid out for NIMZs in the National Manufacturing Policy, 2011. They are briefly described below

- Sustainable Development Plan for Work, Live and Learn: The site master plan is prepared to integrate these aspects – work (industrial zone), live (Housing, education, health, recreation, cultural) and learn (training institute, vocational institute, etc.)
- Inclusive Planning: The proposed NIMZ is envisaged to be developed not only keeping in mind the population living and working in NIMZ but also the surrounding population. This will be achieved by providing/improving the road links between the surroundings, improvement and provision of social infrastructure, technical infrastructure benefitting the local population, etc.
- Cluster approach to industrial zoning: This will result in segment/cluster specific requirements addressed collectively to leverage benefits.
- Eco-friendly integration of national features and cultural spaces: Existing site features that are identified to be protected shall be effectively integrated in to the master plan in an environmental-friendly manner.
- Disaster-Risk Consideration: The probable risk related to industrial disasters, and the large land spread of the project, multiple evacuation points are planned. The zoning of the non-processing area is planned in Upwind direction of processing zone with adequate green buffers and lung space.
- Conservation of resources: NIMZ is planned with water recycling, waste management, rain water harvesting, minimal gradation of terrain, use of non-renewable energy like solar powered street lights, etc. for efficient use of resources.
- Green Space/Lung Space: NIMZ is planned with green spaces based on the need of the particular zone. Adequate buffer are left around the water bodies, existing habitation, etc.

Conceptual Master Plan

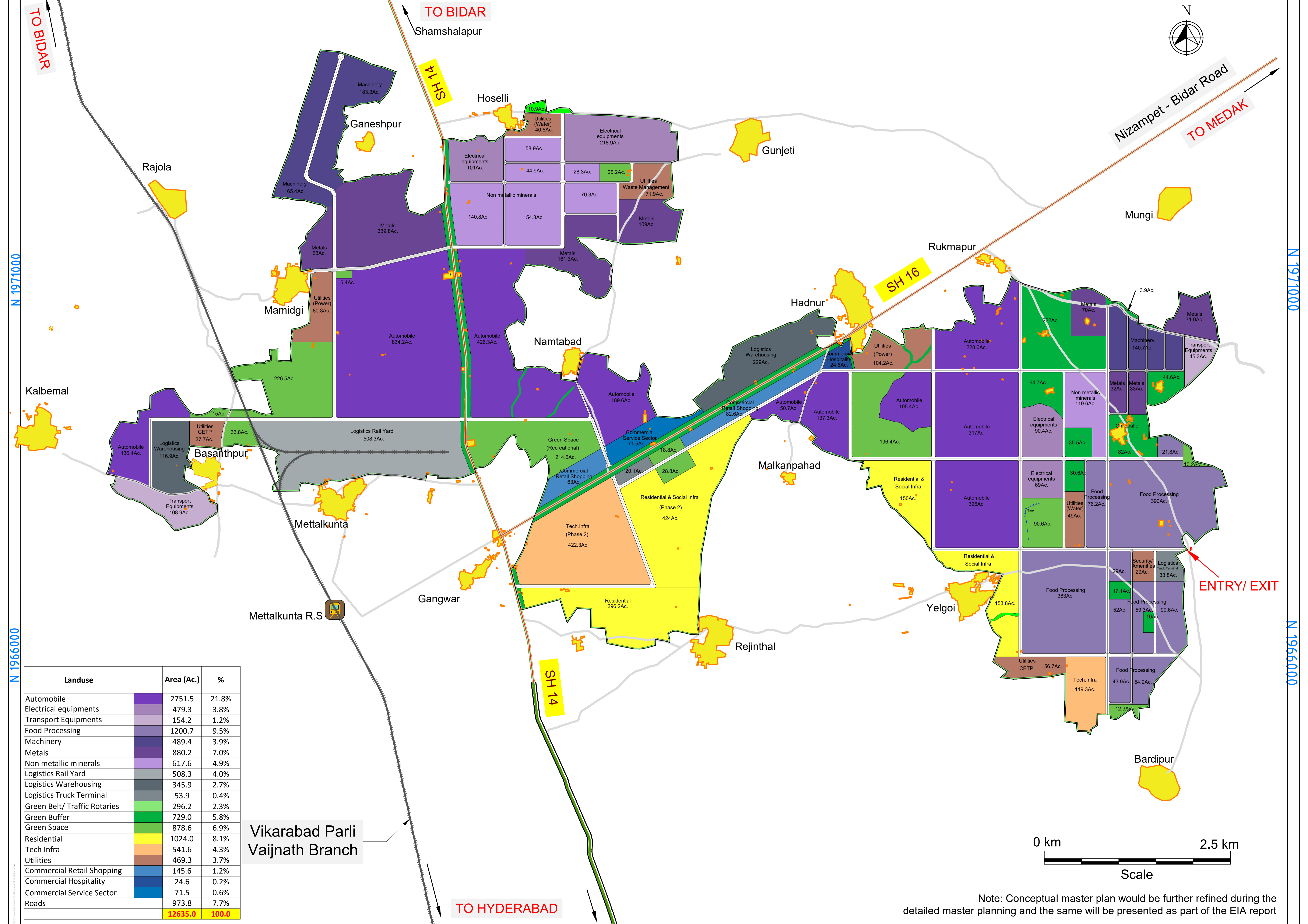
The proposed zoning for conceptual master plan includes manufacturing, integrated physical and social infrastructure, housing and technical infrastructure. Manufacturing zone is planned in the eastern and western large parcels of land whereas the integrated physical & social infrastructure, housing and technical infrastructure is planned in the central region giving adequate access to the entire site. Meteorological and terrain conditions have been taken into consideration during the zoning exercise. Physical infrastructure includes

- Manufacturing Zone which will include industrial plots for automobile, transport equipment, electrical equipment, food processing, machinery, metals and non mineral metals. Apart from this logistic zone will include railway yard, warehousing and truck parking space.
- Internal roads with primary roads of 60m wide RoW and next hierarchy of roads from the primary internal roads will be of 45m and 30m RoW. The internal roads will include all the storm water drains along the roads, primary utility pipelines (water, wastewater, recycled water, etc.) and infra cables (power, ICT, etc.). Typical cross section for 30m RoW is attached herewith



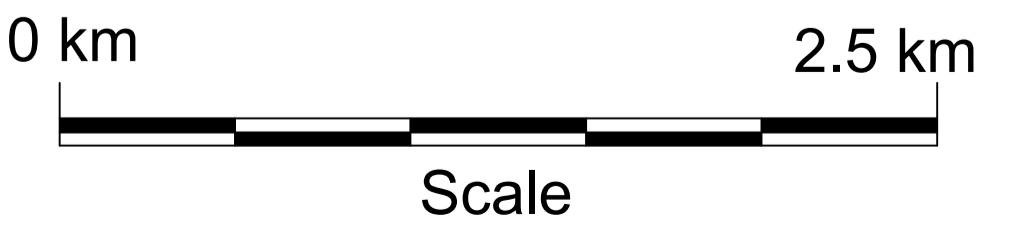
- Utilities such as power sub-station, water supply facilities, wastewater treatment facilities, waste management facilities, cold storage, raw material bank, etc. are planned and zoned based on their requirement (Terrain, elevation, etc.). Further allied facilities like business centre, hotels, trade facilitation centres, commercial space, office and administrative block, space for service providers, food courts, restaurants, socio-cultural facilities, fire station, police station, etc. as amenities will also be provided.
- Technical Infrastructure area will include institutes for vocational and professional education, R&D centres, certification and testing facilities, product design and validation centre, skill development centre, etc. to support the overall NIMZ development
- Housing and allied infrastructure to include educational and health care facilities, crèche, recreational facilities, commercial and shopping, internal roads, green /open spaces, general distribution services to support the population.
- Logistics Zone will include warehousing and storage facilities, container terminal, truck terminal with support amenities, auto workshops, Weigh Bridge, railway siding infrastructure, office space for service providers, food courts, fuel station, etc.
- Adequate green peripheral 15m wide buffers are provided all along the project boundary and 50m along state highways. Adequate additional buffers are provided near settlements, water bodies, etc. landscaped green spaces will be provide will serve as lung space for the NIMZ.

The conceptual master plan is enclosed which would be further refined during the detailed master planning stage and the same will be presented as part of the EIA report



Landuse	Area (Ac.)	%
Automobile	2751.5	21.8%
Electrical equipments	479.3	3.8%
Transport Equipments	154.2	1.2%
Food Processing	1200.7	9.5%
Machinery	489.4	3.9%
Metals	880.2	7.0%
Non metallic minerals	617.6	4.9%
Logistics Rail Yard	508.3	4.0%
Logistics Warehousing	345.9	2.7%
Logistics Truck Terminal	53.9	0.4%
Green Belt/ Traffic Rotaries	296.2	2.3%
Green Buffer	729.0	5.8%
Green Space	878.6	6.9%
Residential	1024.0	8.1%
Tech Infra	541.6	4.3%
Utilities	469.3	3.7%
Commercial Retail Shopping	145.6	1.2%
Commercial Hospitality	24.6	0.2%
Commercial Service Sector	71.5	0.6%
Roads	973.8	7.7%
Total	12635.0	100.0

Vikarabad Parli Vajinath Branch



Note: Conceptual master plan would be further refined during the detailed master planning and the same will be presented as part of the EIA report

8 Detailed justification for water requirement of 110 MLD for industrial sectors wise, non-processing area as well as common utilities and greenbelt

8.1 Approach to Water Supply System Planning

The design approach for water supply system follows a logical sequence as below:

- Estimation of potable and non potable water demand based on the type of industries as per market demand estimation and landuse pattern as per master plan
- The sourcing and conveyance of the required quantity of fresh water
- Storing, treatment and distribution

8.2 Land use pattern

Based on the Conceptual master plan the following land use pattern depicted in is considered for providing the water supply system.

Table 8-1: Land Use Pattern of the Conceptual Master Plan

S.No.	Land use	Area in acres	Area in %
1.	Manufacturing Zone	6572.9	52.1%
2.	Logistics hub	908.1	7.2%
3.	Technical Infrastructure	541.6	4.3%
4.	Township	1024	8.1%
5.	Roads	973.8	7.7%
6.	Amenities and utilities	711.0	5.6%
7.	Greenery	1903.8	15.0%
	Total	12635	100.00%

8.3 Demand Estimation

The proposed NIMZ will comprise of various categories of consumers namely Industrial, residential, commercial, Institutional and others. The water requirement for each of these categories of consumers is different. As there is no “one fit for all” demand estimation model, the water demand for various categories of consumers is derived/calculated based on the following methods.

Potable water - For Industrial, residential, logistics hub, commercial, Technical Infrastructure, amenities & utilities – on per capita basis at 66% of the recommended LPCD as per National Building Codes (NBC) norms.

Non Potable water - For Industrial, residential, logistics hub, commercial, Technical Infrastructure, amenities & utilities – on per capita basis at 33% of the recommended LPCD as per NBC norms.

Process water – For Industries – On acreage basis

Process support water (Non potable) – For cooling, heating and other similar usage in Industries – On acreage basis

8.4 Assumptions/Norms Considered

The norms considered for arriving at the water demand is depicted in **Table 8-2**.

Table 8-2: Assumptions/ Norms Considered

Description	Demand	Source
Industries - process water (Manufacturing zone)	14 cum / ha / day	Consultant's in house data
Industries - process support water (Manufacturing zone)	14 cum / ha / day	Consultant's in house data
Manufacturing zone & Logistics hub	45 litres per capita – domestic water demand	CPHEEO
Technical Infrastructure	45 litres per capita	CPHEEO
Township	135litres per capita	CPHEEO
Amenities and utilities	45 litres per capita	CPHEEO
Roads	1.8 cum / ha / day	Consultant's in house data
Greenery	1.8 cum / ha / day	Consultant's in house data

Potable water has been considered to be used for processing, bathing and washing clothes, cooking, drinking and washing vessels.

Non potable water has been considered to be used for gardening, cleaning, cooling and toilet flushing.

8.4.1 Fire protection demand

The fire water requirement in Kiloliters per day has been calculated based on the following formula as per the guidelines of CPHEEO manual.

$$\text{Fire demand} = 100 \sqrt{P}$$

where,

P = Population in thousands

As per Consultant's calculation the population projection is 455670 at 100 % occupancy. Accordingly, the fire water requirement works out as below:

$$\text{Fire demand} = 100 * \sqrt{(455670/1000)}$$

$$\text{Fire demand} = 2325.30 \text{ KL}$$

In terms of the manual it is proposed to consider the service storage capacity of one third of the above calculated volume of fire water requirement. Hence the capacity of the service storage reservoir works out $2325.30/3 = 775.10$ KLD. The balance requirement will be distributed in several static tanks at strategic points. These static tanks have to be filled from the nearby ponds, streams, or canals by water tankers wherever feasible.

Non-potable water is considered for meeting the above calculated fire water requirements. The scope of developer / park authority is to ensure the provision for filling up of fire tenders, it is proposed to provide stand post with valves in the non potable water network at every 500 m interval along the road network wherever feasible. Fire tenders will be able to refill the fire water tanks as necessary from the above provided stand post points.

8.5 Average water demand

Based on the computation and analysis, the total average water demand for overall development area & phase I area are estimated and presented in **Table 8-3**.

Table 8-3: Water Demand Estimation

Description of Landuse	Extent of Allocation		Total Population	Process water demand For Industrial sector	Domestic demand	Flushing Demand	Total water demand (incl losses)
	Area			Total water Demand From Potable Water Network			
	In acres	In %		Numbers			
Manufacturing zone	6572.90	52.1%	329232.00	72506.34	9876.96	4938.48	96053.96
Automobile	2751.50	21.8%	135929.00	29934.7	4077.87	2038.94	39657.76
Electrical equipment's	479.30	3.8%	24242.00	5338.74	727.26	363.63	7072.59
Food Processing	1200.70	9.5%	60736.00	13375.82	1822.08	911.04	17719.82
Machinery	489.40	3.9%	24758.00	5452.38	742.74	371.37	7223.13
Metals	880.20	7.0%	44528.00	9806.28	1335.84	667.92	12991.02
Nonmetallic minerals	617.60	4.9%	31238.00	6879.52	937.14	468.57	9113.76
Transport equipment	154.20	1.2%	7801.00	1717.94	234.03	117.02	2275.88
Logistics hub	908.10	7.2%	17951		538.53	269.265	888.57
Technical Infrastructure	541.60	4.3%	99089		2972.67	1486.339	4904.92
Township	1024.00	8.1%	27628		2486.52	1243.26	4102.76
Roads	973.80	7.7%				773.34	850.68
Amenities and utilities	711.00	5.6%	16259		487.77	243.88	804.81
Greenery	1903.80	15.0%				1386.00	1524.60
10% Visitors (From Township)			2763		248.652	124.326	410.28
Over all total	12635.00	100%	492922	72506.34	16073	10196	109541