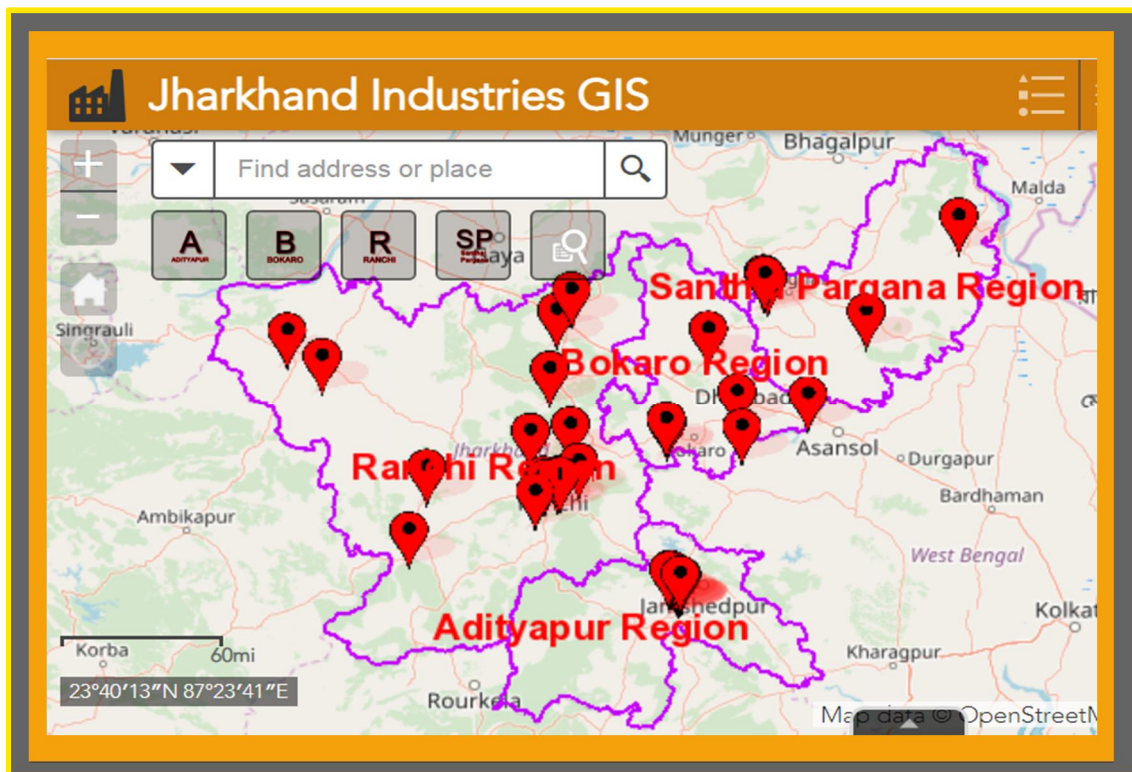


# GUIDELINE FOR GIS BASED INDUSTRIAL MASTER PLAN DEVELOPMENT, 2019

Jharkhand Industrial Area Development Authority (JIADA)



JANUARY 4, 2019

DEPARTMENT OF INDUSTRIES  
Government of Jharkhand

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## INTRODUCTION: PROSPECT OF GIS BASED INDUSTRY MASTER PLAN

In exercise of powers conferred by section 15 of the Bihar Industrial Area Development Authority Act 1974, Chapter III, Point 6, for development of Master Plan as adopted by the Government of Jharkhand vide Notification No. 339 dated 02.03.2001 issued by the Department of Science Technology, Information Technology and Industries, Ranchi, Jharkhand Industrial Area Development Authority, JIADA, with the previous approval of the State government of Jharkhand, made the regulations to carry out the purposes of the said Act being regulated through JIADA Regulation, 2016.

Formulation of “Industrial Area Master Plan” By Jharkhand Industrial Area Development Authority (JIADA) with the prospect of Competitive Industries Global Practice benchmarking of Government and Private Sector Development. This document has been prepared with the global standard practice of developing Industrial master plan and followed the guidelines of Industrial Park Rating System (IPRS), DIPP, Govt. of India and guidelines of Atal Mission for Rejuvenation and Urban Transformation (AMRUTH). It is part of a larger effort made by the Jharkhand Industrial Area Development Authority (JIADA), Department of Industries, Government of Jharkhand. Master plan development will have the assessment over Identification of park location; Identification of potential demand and overall dimensions; Procurement of land; Design and dimensioning (“master planning”) within the park; Financing and financial structuring and planning; Procurement of infrastructure building; Construction of infrastructure; Environment impact and ecology balance; Social Impact assessment; Job creation and impact over per capita income; Operation & maintenance; and Monitoring and evaluation. Where it will provide the robust and detailed information of Industrial lay out and industrial land bank under Industry GIS.

Draft copy and lay out base map for Master Plan to prepared after consultation with Ernst and young, JSAC and JIADA town planner under the guideline of Industrial park Rating System, Department of Industrial promotion and policy, Govt. of India IPRS, where parameters has been referred with Atal Mission for Rejuvenation and urban Transformation (AMRUTH) and IPRS to meet the global standard under global competitiveness. It is being put up after taking consultation of Jharkhand Space Application Centre (JSAC) for compliance of AMRUTH and IPRS recommendation for development of GIS based Master Plan.

### 1. OBJECTIVES:

The objective is to develop common digital geo-referenced base maps and land use maps using Geographical Information System (GIS) and Master Plan Formulation for entire industrial cluster/SEZ/Park/Area of 24 districts under four regions of JIADA as in Ranchi, Adityapur, Santhal Pargana and Bokaro.

## 2. RATIONALE:

The rationale for industrial parks/SEZ/area/Cluster has traditionally been twofold. First, the provision of functional infrastructure is much easier to plan in a geographically limited space, particularly for delivery constrained governments. Second, the concentration of firms can provide significant spillover effects both inside and outside the parks/SEZ/area/Cluster: information spillovers, including knowledge and technology; the specialization and division of labor among enterprises; the development of skilled labor markets; and the development of markets around the parks/industrial area.

Use of geospatial technologies is expected to contribute to industrial cluster/SEZ/Park/Area in the following ways:

- Formulate a master plan for decision-making;
- Effective land use management and utilization;
- Spatial growth management;
- Enable project planning and
- Urban management.

These GIS-based Master Plans will help in different types of urban planning exercises, e.g. preparation of master plan, development plan, zonal plan, utility plan, infrastructure plan, etc. to be simplified by using IT tools. The Jharkhand Space Application Centre provides Q-GIS on Industry GIS Portal and Single Window ([www.advantage.jharkhand.gov.in](http://www.advantage.jharkhand.gov.in)), which has basic source of maintaining metadata who provide source software and tools to prepare different types of plans. This will be made available for all Regional Office of JIADA including Central office of JIADA.

## 3. SCOPE AND COVERAGE

JIADA regulation and resolution of board mandate this reform. The Reform envisages covering all Districts of Jharkhand for industrial cluster and industrial land banks. The Jharkhand Industrial Area Development Authority who is the implementing agency may prioritise and convey their decision regarding industrial cluster/land bank to be taken up. The priority may be given to industrial cluster/land bank which do not have master plans and those industrial cluster whose Master Plans are about to expire till 2019.

## 4. MAJOR DELIVERABLES

The major deliverables are:

4.1 Base Map & Thematic Maps: Final base maps in the form of user-friendly spatial products at the functional scale of 1:4000 having defined layers as per Design & Standards. City /town base map and thematic maps including existing land use map which is prerequisite for formulation of master plan and other plans.

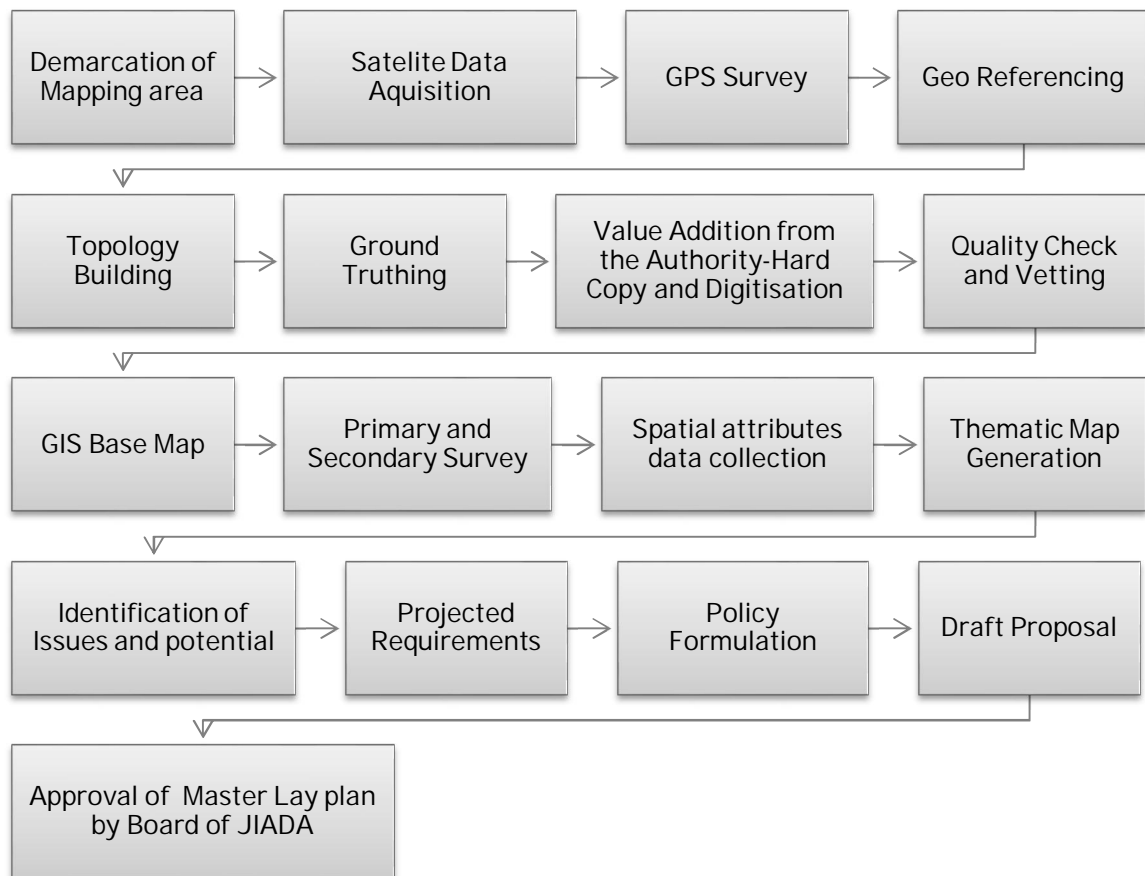
4.2 Industrial Database Creation: Sector-wise data collection and data analysis report of 25 aspects as per Design & Standards and guideline of IPRS, DIPP under global competitiveness.

4.3 Formulation of Master Plan: Formulation of Master Plan of city as per State Town & Country Planning Act, which includes demand assessment, identification of issues, projected requirements, development strategy and draft proposals on the GIS base map and sector wise data analysis.

4.4 Capacity Building: Build capacity among town planning, line departments and other concerned personnel at Regional Area office of JIADA and Central Office of JIADA to create a cadre of professionals proficient in the use of GIS technology for using and updating databases in Industrial Planning and GIS based master plan.

The training programmes will include hands-on training on the use of GIS software's including open source GIS/RS technologies, data-base generation and pupation for the formulation and updating of Master Plan etc. Operators, technicians, draftsmen, planning assistants, town planners and administrators will be trained during the program at different stages with regard to their role in implementing the scheme. The duration of the training imparted will depend on the role of the personnel.

### 5. PROCESS OF FORMULATION OF GIS-BASED MASTER PLAN



## 6. ROLES & RESPONSIBILITIES

6.1 Role of State Government: The Department of Industries through Jharkhand Industrial Area Development Authority will monitor and coordinate the implementation of the scheme besides preparation of Design & Standards and model RFP documents etc. for development of Industrial Cluster and for procurement for consultancy services for the Master Plan Formulation component. JIADA will coordinate the satellite data acquisition and final base map preparation at 1:4000 scale will be undertaken by JSAC Department of Information Technology, Govt. of Jharkhand or through selected consultant agency.

The identification of priority industrial cluster and demarcation of area of mapping will be done by respective State Directorate and Department of Revenue in consultation with State Town Planning Departments and the ULB/Zila Parishad concerned.

Department of Information Technology, Government of Jharkhand through JSAC will provide the technical support in developing GIS based Master plan and to comply the process flow for formulation of GIS based Industrial Master Plan.

### 6.2 Role of Jharkhand Industrial Area Development Authority (JIADA):

JIADA will be the nodal agency implementing the Industrial GIS Based Master Plan Reform at State level. The implementation will be by JIADA in consultation of JSAC and Department of Revenue, Registration and Land Reforms under the Board of JIADA.

The identification of priority industrial land bank and demarcation of area of mapping will be done by JIADA in consultation with JSAC.

- The first priority may be given to existing Industrial cluster park and new industrial cluster for which land allotment notification has to come and considered under priority. For these industrial cluster/park, the new planning process may be already in motion and will be easier to integrate.
- The authority keeping in mind the size and importance of industrial cluster/park and the status of existing plans or lack of it may decide further priorities.
- Ideally, the phasing should not go beyond three years to cover all Industrial Cluster in the four regional area of JIADA for the state of Jharkhand.

Jharkhand Industrial Area Development Authority in association with Jharkhand Space Application Centre (JSAC) will formulate the GIS based master/development plans. The Development of master plan and consultancy services for the master plan component (including spatial attribute data collection, urban/Industrial data collection, and preparation of draft master plan document) will be done by Jharkhand Industrial Area Development Authority in association with Jharkhand Space Application Centre (JSAC). The proposal has to be approved by JIADA Board Jharkhand Industry Master Plan Guidelines and should be included in

Industry GIS and SWS land application module for the purpose of Land allotment and real time access of data and map for setting up of business and expansion purposes.

JIADA will do Industrial database creation including sector-wise data collection and data analysis report. There is a several aspects format provided in the manual (5A to 5C) for Design & Standards database prepared. JIADA will be responsible for the spatial attribute data collection and vetting of maps, in association with Jharkhand Space Application Centre (JSAC). Once prepared, JIADA will have the mandate to put these GIS based maps to maximum use for land allotment, land bank data base for the access of industries, planning, monitoring and other requirements.

## 7. DEFINITION: JIADA MASTER PLAN

Master Plan means industrial/business planning documents prepared under the Jharkhand Industrial Area Development Authority Act 2016, Jharkhand Industrial Park Policy 2016, amendments erstwhile town planning and improvement Trust Act-1951, industrial planning, rural planning, Jharkhand Building bylaws formulated amended time to time, ordinance or enactment to be formulated from time to time by the authority set up under the provisions of the above enactments or prepared in consistent with any relevant act Jharkhand Industrial Area Development Authority and notification by Government of Jharkhand. Incentives under the plan will be applicable Jharkhand.

### 7.1 Master Plan Types:

- Ø Overall industrial (covering multiple sectors): Park/SEZ/Industrial Area(Cluster)
- Ø Sector-specific
- Ø Issue-specific (SMEs, Priority Sector, Labour Intensive Industries, Pollution category industries (Red, Orange, White, Green) and other type of industries,)
- Ø Regional development plans
- Ø Technical blueprints

### 7.2. Required Features while developing Master plan and its' implementation:

- Ø Targets should be ambitious but realistic.
- Ø For compactness, relevance should be the criterion for inclusion of any materials.
- Ø All components should be logically linked.
- Ø Flexibility and adaptability—because all industries and countries are different. Implementation logic and relevance is crucial.
- Ø Effective, not superficial, stakeholder involvement in the entire process.

### 7.3 Legends of Master Plan Map:

Master plan will cover the parameter of Industrial Park Rating System (IPRS), Department of Industrial Promotion and Policy (DIPP), Government of India guideline and Jharkhand Industrial Park Policy.

Land Bank Details, Information, Infrastructure as per IPRS will be shown on Master plan as legends:

### 7.3 A Land Information: On click on plot

Area Details (in Ha.)	Total Geographical Area, Administrative Area, Common Facility Area, Net Industrial Area, Other Area, Land rate (Price) /Circle Rate of Industrial Area
Industry Category as per pollution level	Hazardous/ Polluting (Red/Green/ Orange), Non Hazardous/Non Polluting (White/Green), Mix Type of Industries
Land Marking based on Industry Type	For MSMEs and Large, Mega, Ultra Mega
Reserved/Earmarked for Type of Industries	Priority Sector, Labour Intensive Industries, Other
Scheme (GoI/State) under Industrial Area	Name of Schemes form which funding and development support provided
Land Price of Industrial Area	As decided by JIADA based on category of land

### 7.3 B Legends for Internal and External Infrastructure:

Internal Infrastructure	External Infrastructure
<ul style="list-style-type: none"> <li>Ø Power-Pole/Substation</li> <li>Ø Information Communication Technology (ICT)-Wifi Zone</li> <li>Ø Sewage Treatment Plant (STP)</li> <li>Ø Common Effluent Treatment Plant (CETP)</li> <li>Ø Water Supply/Water Treatment Plant</li> <li>Ø Storm Water Drainage: Covered/Open</li> <li>Ø Run off used for rain water harvesting</li> <li>Ø Roads</li> <li>Ø Gas Pipeline</li> <li>Ø CCTV</li> </ul>	<ul style="list-style-type: none"> <li>Ø Logistic Terminal:</li> <li>Ø Truck parking</li> <li>Ø Weighbridge</li> <li>Ø Power Substation</li> <li>Ø Solid Waste Disposal Site</li> <li>Ø Solid Waste Treatment Site</li> <li>Ø Bus Stop</li> <li>Ø Rail</li> <li>Ø Roads</li> <li>Ø Ports</li> <li>Ø Airports</li> </ul>



### 7.3 C Legends for Common Facility, Safety Facilities, Plot Status:

Common Facility	Safety Facilities	Plot Status
<ul style="list-style-type: none"> <li>Ø Common Facility Centre</li> <li>Ø Dormitory for labours/drivers</li> <li>Ø Bank Branch/ATM</li> <li>Ø Canteen/Restaurant</li> <li>Ø Weighbridge for Cargo/Freight</li> <li>Ø Truck Parking</li> <li>Ø Skill Development Centre</li> </ul>	<ul style="list-style-type: none"> <li>Ø Fire Safety: <ul style="list-style-type: none"> <li>-Fire Station</li> <li>-Overhead Tank</li> <li>-Underground water tank</li> </ul> </li> <li>Ø Air Quality Monitoring Station/devices</li> <li>Ø Water Quality Monitoring Station/devices</li> </ul>	<ul style="list-style-type: none"> <li>Ø Allotted</li> <li>Ø Vacant</li> <li>Ø In Production</li> <li>Ø Name of Anchor Company (Existing /New)</li> </ul>

### 08. BUDGET ESTIMATE:

JIADA has worked out unit cost norms and estimated expenditure for supporting this activity for existing and proposed industrial cluster/park in the state. These will be subject to approval by JIADA Board. As per the estimates, the total cost for to support this reform activity to be estimated of which geo-spatial database creation cost also to be provisioned, cost of plan formulation including data collection & analysis and capacity building will be the part of estimate. This will be met out of JIADA funds under relevant heads including “Capacity Building and Reforms Support” resources. Funding provision to be met by JIADA where support will be taken through various schemes under the norms of Government of India, Government of Jharkhand and other supporting global and national funding agencies for creation of infrastructure to meet the global standards of industrial master plan and unit costs to be set by the board of JIADA following Industrial Master plan.

### 09. STRUCTURE OF FUND MANAGEMENT

As per JIADA Rules and Regulation and Guidelines, funds under Industrial Master Plan will be allocated by JIADA, Department of Industries, Government of Jharkhand State and Central Government guidelines, amendments in Regulation, JIADA Board Resolution.

There are four main steps for achieving this reform:

1. Geospatial Database Creation
2. Plan Formulation Component
3. Capacity Building Component
4. Infrastructure Development

## 9.1 Funding for Geospatial Database Creation

JIADA, Department of Industries, Government of Jharkhand proposes to coordinate and facilitate procurement of satellite imagery including payments to Jharkhand Space Application Centre (JSAC), Department of Information Technology, Government of Jharkhand on pro-rata basis for the extent of area mapped as proposed and required by JIADA. Alternatively, if the states/Authority require, the responsibility of procuring satellite imagery through JSAC may be done directly by them. The schedule of release of funds will be as per memorandum of understanding between states, JIADA and NRSC.

## 9.2 Funding for Plan Formulation Component

The Jharkhand Industrial Area Development Authority will manage the funds for GIS-based Master Plan Formulation for the plan formulation component. The exact quantum of funds to be sanctioned and released will depend upon the following:

- The total number of cluster for which GIS-based Master Plan Formulation is being taken up and approved by Board (Apex Committee).
- Whether work is taken up by JIADA or it is outsourced to a Consultant.
- If it is outsourced to Consultant, then the cost quoted by the Consultant and approved by Board (Apex Committee) will be applicable.
- The cost quoted by the Consultant should roughly conform to the pro-rata estimate given in Annexure-1.
- The RFP document lays down a schedule of submission and approval of stage reports followed by fund release to the Consultant.

## 9.3 Funding for Capacity Building Component

JIADA will manage the funds for GIS-based Master Plan Formulation for the capacity building component. The convergence with existing schemes for capacity building will be ensured. The pattern for fund sanction and release for capacity building component of the Reform will be as per the cost and Schedule of training proposed by Authority or approved by Board under the overall framework for capacity building. No separate funds are being identified for this.

## 9.4 Fund Flow

The Scheme envisages a pattern of release of funds wherein as in case for procurement for consultancy services for the Master Plan Formulation component:

- 20% of the project cost will be released on approval of the SAAP, as an advance for data acquisition and collection of socio-economic data.
- 40% of the project cost for base map & thematic map creation, vetting, and data analysis report.

- Next 20% on submission of draft master plan and final 20% instalment on approval of final master plan
- Funds at every stage will be released subject to furnishing of the utilization certificate and physical progress of deliverables duly reported by competent authority.
- The Authority may specify the exact pattern of release of funds as per their requirements.

#### 9.5 Admissible Components:

Satellite data acquisition, data generation through primary, secondary and DGPS surveys, data analysis, value addition, vetting, capacity building and master plan formulation.

#### 9.6 Inadmissible Components:

Hardware & Software, Site development, wages & staff component, furniture and fixtures. Further the funding under the Scheme shall not include any recurring costs.

### 10. RELATIVE SCOPE OF GOVERNMENT VERSUS MARKET:

- Ø Proper domain of government depends on (i) industry characteristics, (ii) private sector capability; and (iii) policy capability.
- Ø For each sector and at each point in time, policy reach should be defined pragmatically – state and market must be mixed but with varying weights.

### 11. THE STEPS IN THE PROCESS OF SELECTION OF INDUSTRIAL LAND BANK BEFORE DEVELOPING GIS BASED INDUSTRIAL MASTER PLAN AND CONTEXT

The steps in the process of developing Industrial Master Plan broadly enumerated as:

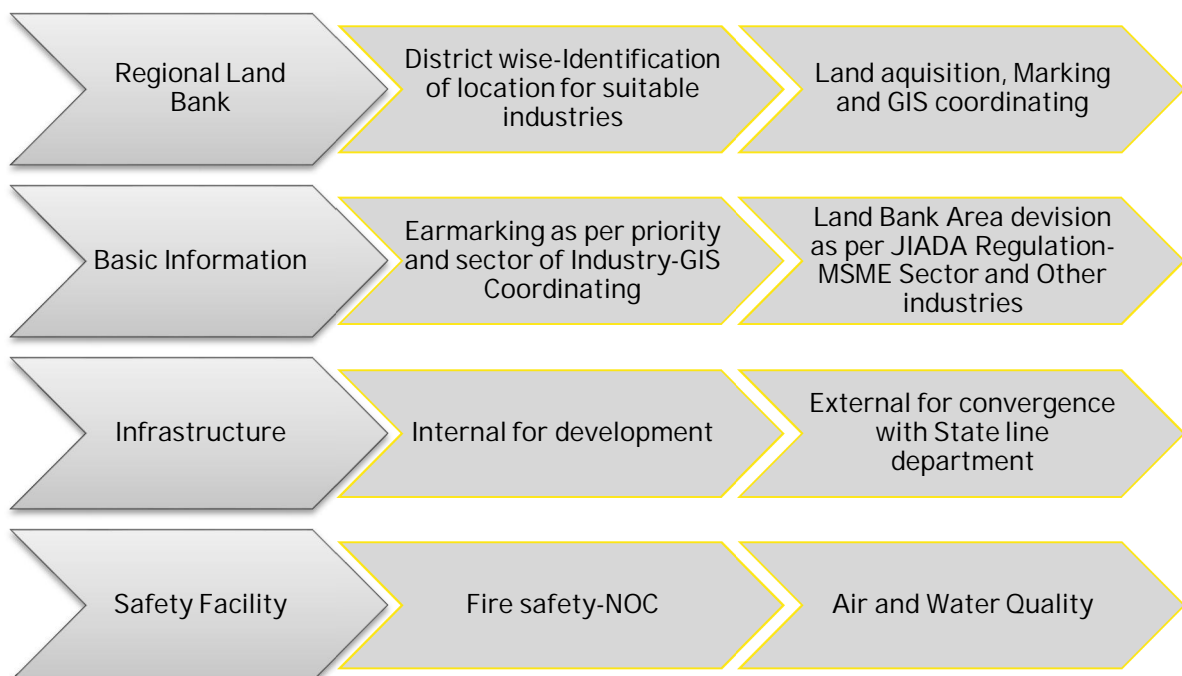
- i) Identification of park location and Mapping on GIS-Satellite imagery
- ii) Identification of potential demand and overall dimensions;
- iii) Procurement of land;
- iv) Design and dimensioning (“master planning”) within the park;
- v) Financing and financial structuring and planning;
- vi) Procurement of infrastructure building;
- vii) Construction of infrastructure;
- viii) Environment impact and ecology balance
- ix) Social Impact assessment, Job creation and impact over per capita income
- x) Operation & maintenance; and
- xi) Monitoring and evaluation.

Planned industrial areas are a necessity to promote sustainable and environment friendly industrial development. Industrial planning of investment nodes of the well planned industrial area, Industrial park (Private and Public), freight corridor, logistic terminals along with preparation of Master Plan and Zonal Development Plans for Jharkhand industrial area and Investment Region.

The outputs of industrial area planning activity included site selection, demand assessment, product component and mix identification, infrastructure provision and planning, master planning and design services, environmental and social assessment, financial feasibility and PPP structuring of the project, project implementation plan and strategy including project marketing strategy formulation, bid document preparation, GIS mapping among sub-activities.

- Ø Existing industrial area may consider as much as parameter defined in the layout points (refer Table no. 1 to 3) as much possible
- Ø New Industrial area planning should consider all the points, a vision behind developing the concept note is to verge with all the parameters being considered for developing industrial area planning and development.

12. Process Flow for Selection of area Development of Master Layout Plan as per Industrial Park Rating System (IPRS), DIPP, Gol guideline:

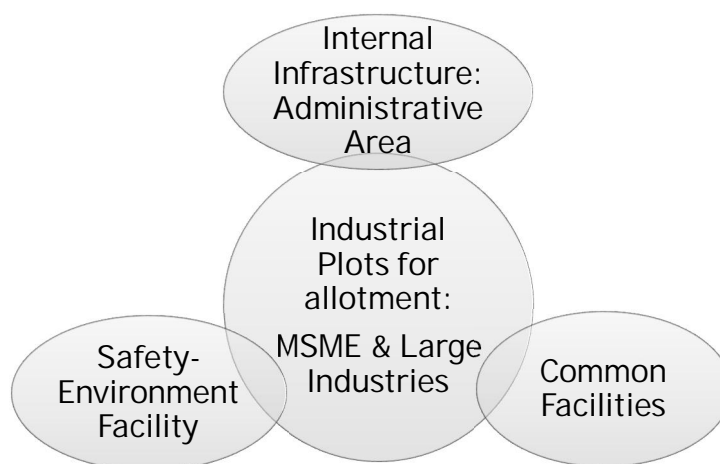


### 13. DESCRIPTION OF FIELD'S ATTRIBUTES/LEGENDS

Description of fields and area to consider while developing Master Plan and providing attributes/legends under Industrial Park Rating System (IPRS), DIPP, Gol guideline:

Each format described through Point no. 7.3A, 7.3B and 7.3C to be explored and filled, while developing the Master Plan for any industrial area/Park/SEZ. Describing each table will give clear picture and illustration of data will help in get the overview of master plan in GIS map to male better decision for department and investors as well.

Figure I: Explaining the core Sector of Master Plan while planning layout after detailed survey of land and location



### 14. FORMATS FOR MASTER LAY OUT PLAN AND MASTER SHEET FOR GIS BASED MASTER PLAN MAP LEGENDS/FIELDS:

Region wise and Industrial area wise plan should capture the basic information and also should be earmarked on the Industrial Master Plan map as mentioned below in Table 14A1 to 14C3:

- Name of Regional Office of JIADA: .....
- Name of District: .....
- Name of Industrial Area: .....
- Name of Circle:.....
- Name of Block/Municipal Area:.....
- Name of Thana/s:..... Thana No:.....
- Name of Halka:.....
- Name of Mauja/s:.....
- Industrial Plots/ Revenue Plots and Khata No (Appendix):.....

## 14A. Industrial Area Basic Information:

Table 14A1: Basic Area details (In Ha.) and Rate

Total Geographical Area	
Administrative Area	
Common Facility Area	
Net Industrial Area	
Other Area	
Land Price Per Acre/Circle Rate per Acre	

Table 14A2: Industry Category for Industrial area to earmarked

Hazardous/Polluting (Red/Orange)	
Non Hazardous/ Non Polluting (White/Green)	
IT and ITeS industries	
Mix Type of Industries	
Park	
SEZ	

Table 14A3: Pollution Level (AQI Category-Index Value) Air, Water and Sound

Good(0-50)	
Moderate(51-100)	
Unhealthy for sensitive groups (101-150)	
Unhealthy (151-200)	
Very Unhealthy (201-300)	
Hazardous (301-500)	

Table 14A4: Industry Type and land earmarked as per size of industry

Micro	40% area of Industrial plot(for new allotment)
Small	
Medium	
Large	60% area of Industrial plot(for new allotment)
Mega	
Ultra Mega	

Table 14A5: Reserved/Earmarked for Type of Industries for SEZ/Area/Park

Labour Intensive Industries	Name and Area in Ha.
Textile, Garment, Footwear, Minor Forest Produce processing sector, Agri and Food processing sector, IT and ITeS sectors, Electronic System Design and Manufacturing (ESDM) sector.	
Priority Sector Industries	
Medical Health Education, Hospital, Nursing Institute, Higher Education Institute, Private University, Technical Institute, Sports Institute.	
Other Industries: Name	
Automobiles, Plastic etc.	

Table 14A6: Schemes and Project for infrastructure Development

Scheme (Gol/State) under Industrial Area	As per Applicability
1. .	
2.	
3.	
4.	
5.	
6.	

### 14B. Industrial Area Infrastructure and Facilities

Each format described under the category of Internal/External/Common Facility/Safety Facility through Point no. 7.3A, 7.3B and 7.3C to be explored and filled, while developing the Master Plan for any industrial area/Park/SEZ.

Describing each table will give clear picture and illustration of data will help in get the overview of master plan and convergence of department for external infrastructure development to meet the objectivity of Industrial area/park/SEZ.

Figure II



Table 14B1: Internal Infrastructure while developing Industrial area/Park/SEZ

Internal Infrastructure	Industrial Area/Park/SEZ Covers
Power- <ul style="list-style-type: none"> <li>Ø Electrical Pole</li> <li>Ø Substation</li> </ul>	
Information Communication Technology (ICT): Wi-Fi Zone	
Sewage Treatment Plant (STP)	
Common Effluent Treatment Plant (CETP)	
Water Supply-Pipeline and connection	
Water Treatment Plant	
Storm Water Drainage: Covered/Open	
Run off used for rain water harvesting	
Internal Roads	
Gas Pipeline	
CCTV	

Table 14B2: External Infrastructure to be developed with convergence of state govt. department, while developing Industrial area/Park/SEZ

External Infrastructure	<ul style="list-style-type: none"> <li>Ø Availability details and distance from Industrial Area/Park/SEZ</li> <li>Ø Status: Existing/Proposed</li> </ul>
Logistic Terminal: One stop platform which should be linked with Road-Rail-Port-Airport with facilities as; <ul style="list-style-type: none"> <li>Ø Truck parking</li> <li>Ø Logistic Weighing</li> <li>Ø Warehouse</li> </ul>	
Power Substation	
Solid Waste Disposal Site	
Solid Waste Treatment Site	
Bus Stop	
Rail	
Roads	
Ports	
Airports	



Table 14B3: Common Facility details to be covered, while planning/developing Industrial area/Park/SEZ

Common Facility	Availability Plan
Common Facility Centre	
Dormitory for labours/drivers	
Bank Branch/ATM	
Canteen/ Restaurant	
Weighbridge for Cargo/Freight	
Truck Parking	
Skill Development Centre	

Table 14B4: Safety Facility details to be covered, while planning/developing Industrial area/Park/SEZ

Safety facility	Availability Plan
Fire Safety: Ø Fire Station Ø Overhead Tank Ø Underground water tank	
Air Quality Monitoring Station/devices	

#### 14C. Industrial Area Plots details

Jharkhand can become the hub and favorite destination of many industries and sectors, need to overcome the challenge of land acquisition and better management and optimum utilization of available land bank.

In one hand there are crisis of land and acquisition of land for industrial and other development purpose is tough due to SPT act and CCNT act in Jharkhand lots of closed units and sick units have possession of land and doing no any industrial/business activity. Need to identify the status of each plot and unit existence and operational status, this will help in expansion of existing running units in the same locality or in adjacent plots or to bring new industry/investment to the state.

Table 14C1: Industrial Area Plot status and existing unit details.

Plots Category and Status of Units/Establishment	Plot and establishment status
Allotted	
Vacant	
Under Notification	
In Production: Name of Anchor Companies	
Closed	
Sick	

Table 14C2: Land Rate details as per Industrial Area/Park/SEZ

Uniformity of fixation of land rate in all regional area of JIADA is required, still regional area office of JIADA following the different regulation in fixation of land rate, while JIADA Regulation is effective.

Land rate (Price):	Per Acre ( Lakh)
Industrial area wise	
1. Sector Specific: Manufacturer	
2. Sector Specific: Service Industry	
3. Sector Specific: Business/Commercial	
4. Other	

Table 14C3: Applicable Incentive as per reservation/earmarked area/sector details as per Industrial Area/Park/SEZ

As industrial area will be identified as reserved/earmarked for which type of sector, applicable incentives to be detailed with the industrial area/park/SEZ details

Incentive on Land	As per applicability-Incentive description as per reservation and sector
Labour Intensive Industries	
Textile, Garment, Footwear, Minor Forest Produce processing sector, Agri and Food processing sector, IT and ITeS sectors, Electronic System Design and Manufacturing (ESDM) sector.	
Priority Sector Industries	
Medical Health Education, Hospital, Nursing Institute, Higher Education Institute, Private University, Technical Institute, Sports Institute.	

## Annexure-1

### A. Cost of Mapping at 1:4000 scale for Industrial Cluster

Class	No. of Industrial Cluster/Park/SEZ	Avg. Area of Ind. Area (sq. km.) #	Total Area (Sq. Km.)	Mapping Cost * (Rs. in Cr.)
A. Less Backward				
B. Backward				
C. Most Backward				
Grand Total				

\* Cost includes satellite data acquisition, ortho-rectification and geospatial database creation and mapping at 1:4000 scale @Rs. 10000/- per sq. km (approx) as worked out by cost estimates committee of NRSC, JSAC or JIADA.

# Actual area will be worked out by JIADA for each Industrial Area/Park/SEZ and accordingly cost will be calculated.

### B. Cost of Plan Formulation using Geo-Spatial Database

Class	No. of Industrial Cluster/Park/SEZ	Plan Formulation Unit Cost (Rs. in lakh/Ind. Area)*	Plan Formulation Total Cost (Rs. in crore)
A. Less Backward			
B. Backward			
C. Most Backward			
Grand Total			

\*As per the rates obtained from JIADA

### C. Cost of Capacity Building for 500 AMRUT Towns

Class	No. of Industrial Cluster/Park/SEZ	Unit Cost of Capacity Building (Rs. in lakhs/town)	Cost (Rs. in Crore)
A. Less Backward			
B. Backward			
C. Most Backward			
Grand Total			

Total Cost of Formulation of GIS based Master Plan for .....no..... Industrial Area

No.	Component	Cost (Rs. In Crore)
1	Geospatial data creation at 1:4000 scale for ....No.....of JIADA Industrial Area	
2	Plan Formulation using Geospatial database	
3	Capacity Building	
Grand Total		

## Annexure-II

### 15. Description and Technical Specification of different Structures for Industrial Area/Park/SEZ

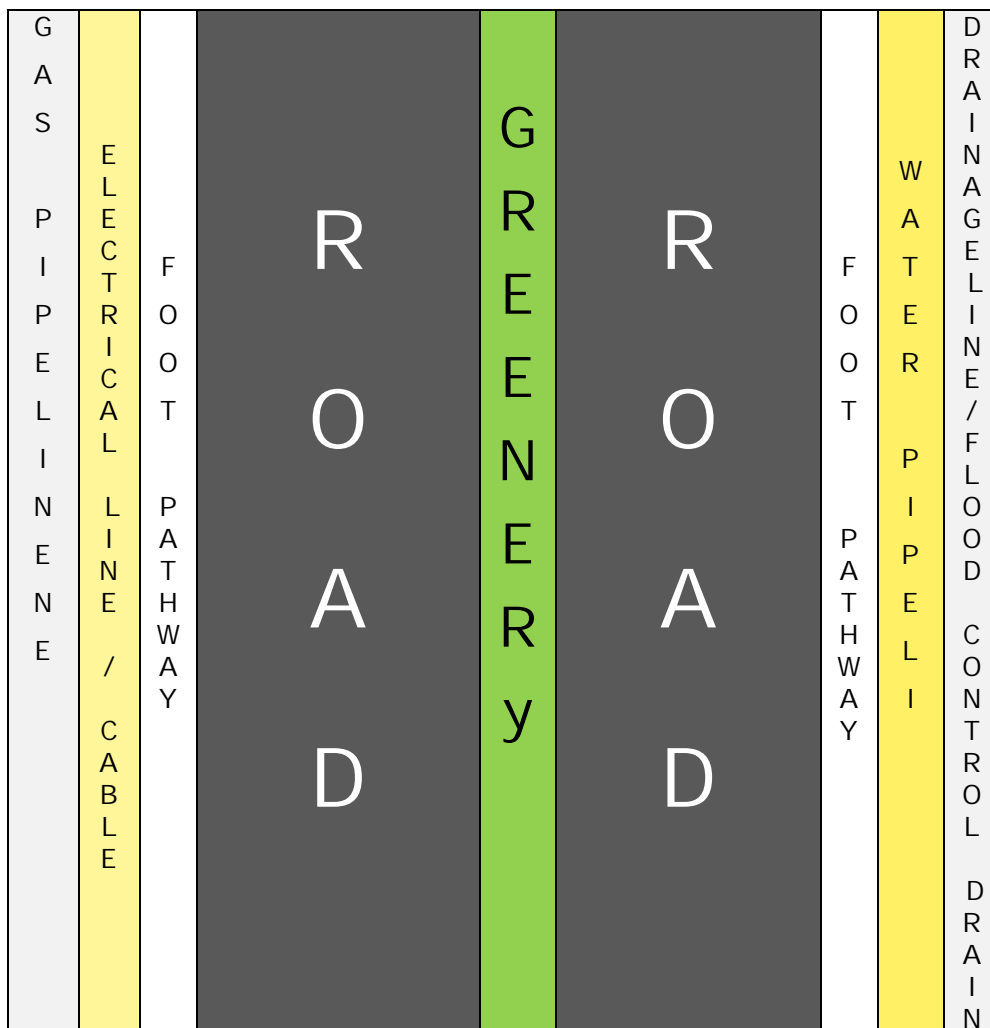
#### 15a. Road concept to be considered as Smart Road and future planning:

New Smart Road concept is being adopted in new industrial area/park, which help to overcome the challenge of maintenance while doing the maintenance work sometimes for water pipeline, electrical lines/flood management/gas pipelines. Paved Road concept should be adopted while planning for Road inside industrial area or outside industrial area.

Paved Road: Road surface or pavement is the durable surface material laid down on an area intended to sustain vehicular or foot traffic, such as a road or walkway.

Two way Road at Entry and Exit points:

Figure III



## 15b. Logistic Terminal:

The management of logistics facilities, such as ports, terminals, and warehouses in such a way that they contribute as best as possible to the efficient flow of goods, services and related information. Terminals can be defined as nodes in a shipper/carrier system and perform various functions to facilitate the movement of freight. Since all modes of transport use terminals in one context or another, a terminal can be any point within a transport chain where the movement of cargo is stopped or paused for a modal interchange, added value services, or both. Terminals can also be identified as nodes, interchange or articulation points, where different transport links meet.

The intermodal transport logistics terminal (TL T) must be treated as an individual element within the logistics (supply/distribution) chain. Thus it can be said that the terminal is a business unit that must serve the basic purpose for which it was built and at the same time it must be commercially attractive for the investor or operators. It must operate in accordance with the legislative and social norms and at the same time enable sustainable regional/local development.

Intermodal TLTs have a broad economic and social meaning.

As such, they can be treated from different viewpoints:

- Ø From the viewpoint of location- here we consider the point of intersection of the transport routes/corridors and the area of the economic centre with powerful industrial and market hinterland where there are strong freight flows,
- Ø From the viewpoint of concentration of freight -around such a location there is a concentration of warehouse facilities and business areas, infrastructure and handling facilities, safety/security and maintenance services,
- Ø From the viewpoint of rationalization - with the concentration of freight and thus the concentration of all the activities in one place the rationalization of the whole transport increases,
- Ø From the viewpoint of sustainable development -building and operation of the intermodal terminals/nodes have an important role in the development of sustainable freight transport technologies and an increase in share of intermodal transport.

As by its definition, intermodal transport should consist of the major part of the transport performed by rail and the railway intermodal terminals are preferred.

Two main types of intermodal railway terminals can be distinguished:

- Ø Inland terminals (located in freight villages, transport and logistic centres, shunting stations, inland ports), and
- Ø Port terminals (located in maritime and inland waterway ports).

The development of regional intermodal transport logistics terminal requires a multidisciplinary approach consisting of three essential parts: transport logistics analysis, spatial-environmental evaluation and business-financial analysis. Transport logistics analysis represents the first step, in the preliminary phase, where terminal key sustainability/viability factors are considered: freight flows, location, infrastructure, terminal capacity//equipment and operation, etc. The influence of administrative and transport policy measures needs to be taken into consideration as well.

### 15c. Sewage Treatment Plan (STP):

Sewage treatment is the process of removing contaminants from municipal wastewater, containing mainly household sewage plus some industrial wastewater. Physical, chemical, and biological processes are used to remove contaminants and produce treated wastewater (or treated effluent) that is safe enough for release to the environment. A by-product of sewage treatment is a semi-solid waste or slurry, called sewage sludge. The sludge has to undergo further treatment before being suitable for disposal or application to land.

Sewage treatment may also be referred to as wastewater treatment. However, the latter is a broader term which can also refer to industrial wastewater. For most cities, the sewer system will also carry a proportion of industrial effluent to the sewage treatment plant which has usually received pre-treatment at the factories themselves to reduce the pollutant load. If the sewer system is a combined sewer then it will also carry urban runoff (storm water) to the sewage treatment plant. Sewage water can travel towards treatment plants via piping and in a flow aided by gravity and pumps. The first part of filtration of sewage typically includes a bar screen to filter solids and large objects which are then collected in dumpsters and disposed of in landfills. Fat and grease is also removed before the primary treatment of sewage.

Figure IV



## Process steps

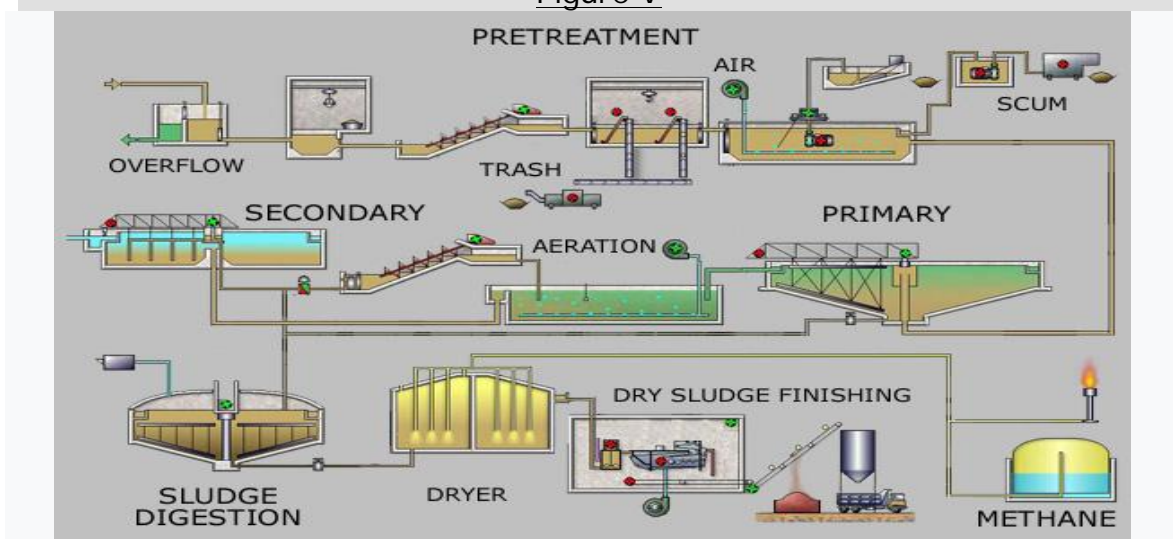
Sewage collection and treatment is typically subject to local, state and federal regulations and standards.

Treating wastewater has the aim to produce an effluent that will do as little harm as possible when discharged to the surrounding environment, thereby preventing pollution compared to releasing untreated wastewater into the environment.

Sewage treatment generally involves three stages, called primary, secondary and tertiary treatment.

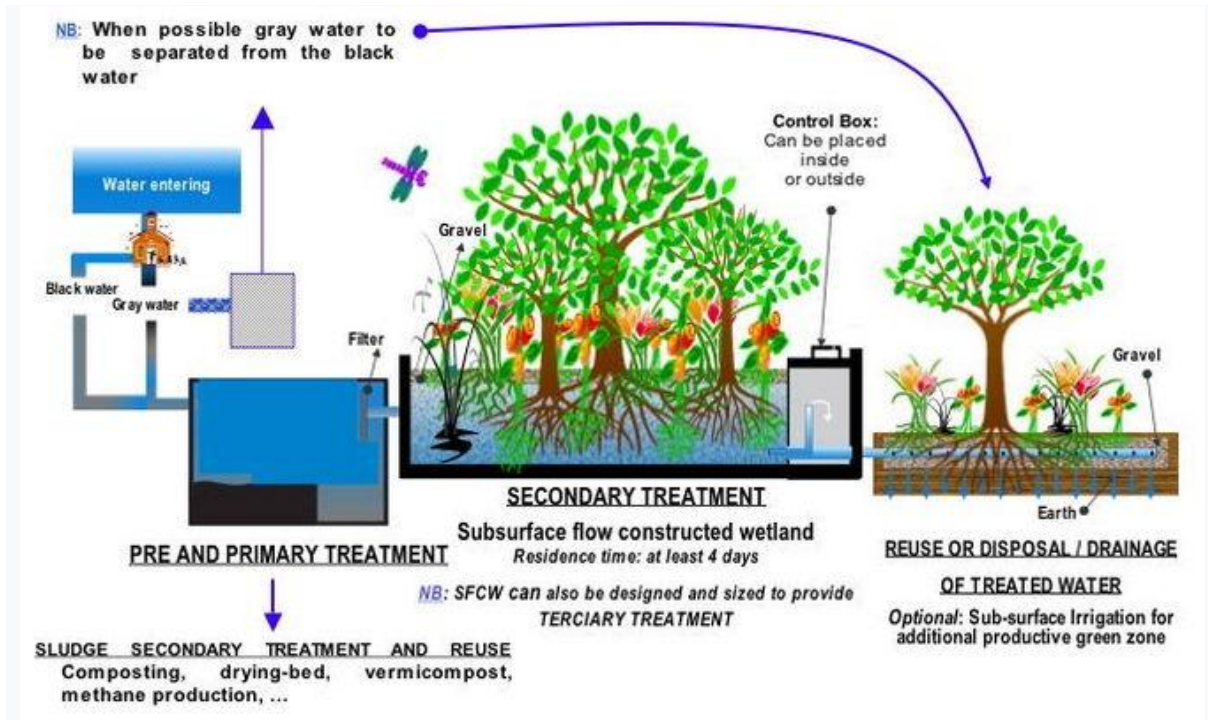
- Primary treatment consists of temporarily holding the sewage in a quiescent basin where heavy solids can settle to the bottom while oil, grease and lighter solids float to the surface. The settled and floating materials are removed and the remaining liquid may be discharged or subjected to secondary treatment. Some sewage treatment plants that are connected to a combined sewer system have a bypass arrangement after the primary treatment unit. This means that during very heavy rainfall events, the secondary and tertiary treatment systems can be bypassed to protect them from hydraulic overloading, and the mixture of sewage and storm water only receives primary treatment.
- Secondary treatment removes dissolved and suspended biological matter. Secondary treatment is typically performed by indigenous, water-borne micro-organisms in a managed habitat. Secondary treatment may require a separation process to remove the micro-organisms from the treated water prior to discharge or tertiary treatment.
- Tertiary treatment is sometimes defined as anything more than primary and secondary treatment in order to allow ejection into a highly sensitive or fragile ecosystem (estuaries, low-flow rivers, coral reefs,...). Treated water is sometimes disinfected chemically or physically (for example, by lagoons and microfiltration) prior to discharge into a stream, river, bay, lagoon or wetland, or it can be used for the irrigation of a golf course, green way or park. If it is sufficiently clean, it can also be used for groundwater recharge or agricultural purposes.

Figure V



Simplified process flow diagram for a typical large-scale treatment plant

Figure VI



Process flow diagram for a typical treatment plant via subsurface flow constructed wetlands (SFCW)

15d. Process Flow for Common Effluent Treatment Plant (CETPs) and Schemes:

The Ministry has undertaken a Centrally Sponsored Scheme for enabling the Small Scale Industries (SSI) to set-up Common Effluent Treatment Plants in the country for installation of pollution control equipment for treatment of effluents.

Process Flow Chart of Effluent Treatment Plant (ETP):

Industries through waste liquor into rivers, canals etc. Before flowing this liquid to outwards, the plant which treats this effluent to a harmless form for the environment is known as Effluent Treatment Plant (ETP).



Fig: Effluent Treatment Plant



## Process Flow Chart of Effluent Treatment Plant (ETP)



All process of ETP are described below:

Collection Tank: Commencing part, waste from different section enter here.

Storage Tank: Several blower pipe in this chamber. Mixing properties are different with temp. as well.

Mixing & Cooling: Cooling tower is on paddle mixer used for mixing.

Neutralization: PH is controlled here.

Chemical Coagulation:  $\text{Fe}_2(\text{SO}_4)_3$ ,  $\text{Al}_2(\text{SO}_4)_3$  etc use for coagulation.

Biological Oxidation Tank: Artificially Eco-system established. Blowing air helps to live micro-organism.

Sedimentation & Separation of Sludge: The blanket of precipitations is skimmed off to another tank and remaining solution is removed to pressure filter.

Sludge Thickener: After exceeding the required level of recycling, sludge passed through thickening chamber.

Filtration: Filtration layer consists of sand rock which filter wet sludge to extract water rest in it.

Discharge to Drain: Release to environment with the check of final load of effluent in it.

The criteria for consideration for financial assistance for ETP are as follows:

- > CETPs should be in industrial estates or in a cluster of Small Scale Industrial units.
- > Central Assistance will be available only for clusters of SSIs.
- > Projects for assistance will be prioritized on the basis of toxicity of pollutants; Pollution load being generated and to be treated; and number of units covered.
- > The CETPs are to be set up and managed by the State Industrial Infrastructure Corporation (by whatever name known) or through an appropriate institution including a cooperative body of the concerned units as may be decided by the State Governments/SPCBs concerned.
- > The project should be self-supporting for repayment of the loan and meeting operation and maintenance costs.
- > The project must formulate adequate institutional arrangements for cost sharing, recovery of dues and management and ensure observation of prescribed standards.
- > The scheme must have the technical recommendation of the State Pollution Control Boards.
- > The CETP project should have the conveyance system from the individual units to the CETP.
- > Sludge characteristics (i.e. hazardous vs. non-hazardous) from the primary and secondary treatment of the CETP should be estimated. Therefore, the CETP should have a sludge management plan which should be prepared based on the sludge characterization and be documented in the feasibility report of the CETP project.
- > Possibility of recycling/reusing the treated effluent from the CETPs by the member units should be explored and be documented in the feasibility report of the CETP project.
- > Possibility of recycling/reusing the treated effluent from the CETPs by the member units should be explored and be documented in the feasibility report of the CETP project.
- > An environmental management and monitoring plan/programme to be prepared for the CETP and be documented in the feasibility report of the CETP project.
- > A legal agreement between the CETP Co. and its member units to be executed be reflected in the feasibility report of the CETP project.

- > The cost recovery formula developed for the CETP project should be ratified by all members and be documented in the feasibility report of the CETP project.
- > Necessary clearance be obtained from the concerned State Pollution Control Board for discharging the treated effluent and be reflected in the feasibility report of the CETP project.
- > All hazardous waste facilities associated with these CETPs should obtain clearance from the concerned State Pollution Control Board and be documented in the feasibility report of the CETP project.

Pattern of Financial Assistance and other related criteria:

- > State subsidy 25% of the total project cost;
- > Central subsidy 25% of the total project cost;
- > Entrepreneurs contribution 20% of the total project cost;
- > Loan from financial institutions 30% of the total project cost.
- > (e.g. IDBI, ICICI or any other nationalized banks, State Industrial Financial Corporation etc.)
- > If the CETP Co. does not desire to have loans from financial institutions/banks they may augment the same out of their own resources/contributions, i.e. the entrepreneurs would then contribute 50% of the project cost.
- > Central assistance upto 25% of the total cost of the CETP would be provided as a grant to the Common Effluent Treatment Plant(s) on the condition that a matching grant is sanctioned and released by the State Government. The CETP Company should meet the remaining cost by equity contribution by the industries and loans from financial institutions.
- > Central assistance will be provided only for the capital costs. No assistance will be provided for recurring costs. The assistance will be released in four equal instalments. The first instalment of 25% of the assistance will be released when a body has been identified for the purpose of implementing the project, financial arrangements have been tied up, institutional arrangements have been finalized, consent has been obtained from the State Pollution Control Board and State Government has committed its contribution.
- > It may be of advantage to combine some components of CETP with the municipal system. On such schemes, the municipalities have to pay their share of the cost.
- > An assessment may be made about the present physical and financial status of the CETPs. Funds released for the CETPs should be utilized for the CETP only and not for payment for debts/banks loans etc.
- > Large and medium scale industries other than 17 categories of heavily polluted industries may join the CETP after the primary treatment or as considered necessary by the State Pollution Control Board for the purpose of hydraulic load and for techno-economic viability of the CETP. The 17 categories of industries need to provide their own full-fledged effluent treatment facilities to conform to the prescribed standards before the effluent is discharged. However, the large and medium scale industries would not be entitled for any subsidy meant for SSIs.

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