

Executive Summary

For

**Proposes to set up 5 KLPD Mahua Flower/ Fruit based spirit
Distillery unit along with blending and Bottling of Spirit /
Liquor unit at A-12, MIDC Goregaon,
District Gondia, State Maharashtra.**

By

Project Proponent

M/s. Indus Organics

Project Summary

1. Introduction:

M/s. Indus Organics proposes to set up 5 KLPD Mahua Flower/ Fruit based spirit Distillery unit along with blending and Bottling of Spirit /Liquor unit at A-12, MIDC Goregaon, District Gondia, State Maharashtra.

Earlier Indus Organics had proposed the unit only for Potable Alcohol by blending and bottling at this site. Now proposing the modification in the project for Mahua Flower/ Fruit based spirit Distillery unit along with blending and Bottling of Spirit Liquor unit. This project requires prior environmental clearance under schedule 5 (g) of the Environment Impact Assessment Notification published by MoEF&CC vide S.O. 1533 dated 14th September, 2006 and its amendment till date and the project will be appraised as Category B1 and therefore undergo appraisal by the State Expert Appraisal Committee (SEAC-1) and the State Environmental Impact Assessment Authority (SEIAA), Maharashtra.

With the new unit, Proposed Establishment of 5 KLPD Mahua Flower/Fruit Based Spirit Distillery Unit along with Blending and bottling of Spirit/ Liquor Bottling unit of capacity 10,000 liters Capacity.

The proposed land has been allotted by MIDC, MIDC Goregaon, District Gondia, State Maharashtra to M/s. INDUS ORGANICS. Other basic requirements like water supply and electricity shall be provided by concerned authorities Goregaon, Gondia MIDC and MSEDCL respectively.

The infrastructure has been proposed internally like internal roads, storm water drainage, Effluent treatment plant, Storage Tanks etc. Green belt development shall be undertaken as per the guidelines within the plant area along with periphery of the plot boundary as well as in the surrounding area under social plantation activities. The project is conceptualized with sustainable development. The mitigation of environmental infrastructure has been considered at the designed stage itself.

2. Location of the Project

The proposed activity will be located at A-12, MIDC Goregaon, District Gondia, State Maharashtra. There is already a constructed structure of earlier unit, which will be used for proposed development as well.

The geographical location of the project site and the connectivity of the project site is described in Table 1. The project site on toposheet is shown in Figure 1.

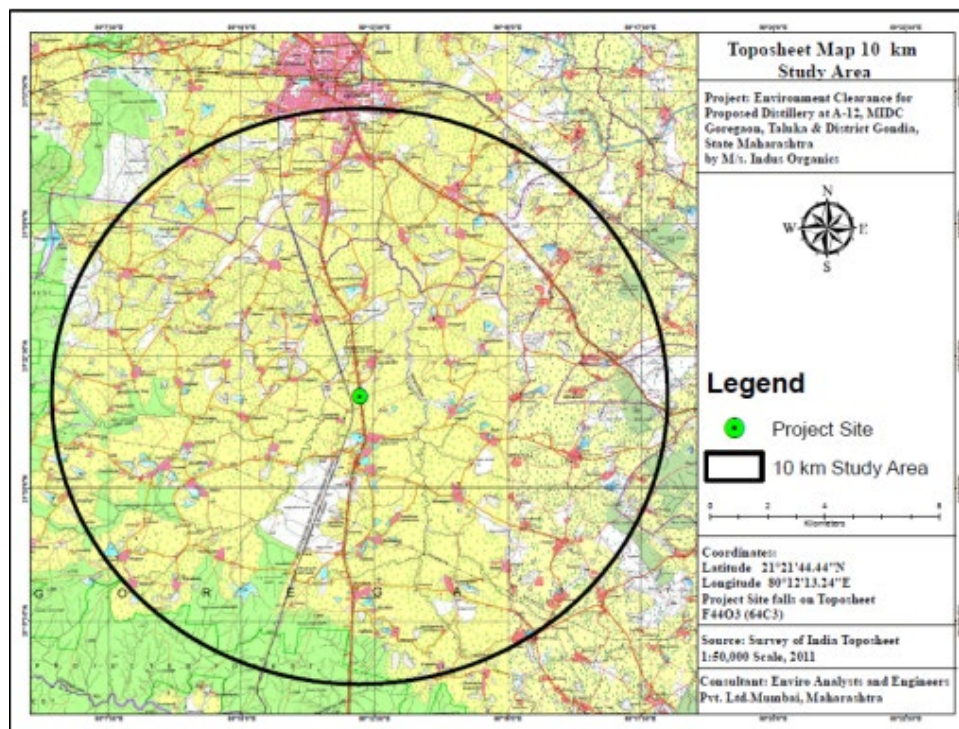


Figure 1: Toposheet of the Project Site

Table 1: Location and Connectivity of the Project Site

SN	Particulars	Details
1.	Site Location	
	Site Coordinates	Latitude/Longitude of Project Site: Latitude: 21°21'44.51"N Longitude: 80°12'13.24"E
2.	Water Bodies	Water Pond near Goregaon : 1.43 S Water Pond near Goregaon : 2.16 SE Charpurtole Kotangi Reservoir: 2.52 SW Katangi Reservoir : 4.35 SW Pangoli River : 1.85 E
3.	Forest	Goregaon Protected Forest : 8.10 S Dense Mixed Forest : 6.2 SW
4.	Nearest Eco sensitive Zone/ protected area	As per Notification S O 4132 (E) dated 20 September 2023 about 5.4 km
5.	Seismic Zone	The proposed project lies in Zone II (Least Active) as per Seismic Zone of India.
6.	Nearest Railway Station	Hirdamali Railway station is located at 4.9 km from proposed project site.
7.	Nearest Airport	Airport Gondia, Birs 30 km from project site
8.	Town/City/District head quarter	City : Gondia at 9.34 km from project site. District Head Quarter – None within 10 Km
9.	Nearest Habitation	Hirdamali village at 0.2 km from proposed project site.

3. Salient features of the Project

Table 2: Salient features of Project

Sr. No.	Particulars	Details									
1.	Name & Address of Company	M/s. INDUS ORGANICS At A-12, MIDC Goregaon, District Gondia, State Maharashtra									
2.	Schedule of project as per EIA Notification, 2006	5(g)(non molasses based)Distillery.									
3.	Category of Project	'B1' Category vide MoEF&CC EIA Notification 2006 and its amendments thereof.									
4.	Area Details (m ²)										
5.	Total Plot Area	1000 m ²									
6.	Green Belt	153.32 m ²									
7.	Parking Area	128.5 m ²									
8.	Total Built Up	425.5 m ²									
9.	Production details	<table border="1"> <thead> <tr> <th>Sr. No.</th><th>Name of Product</th><th>Quantity (T/M)</th></tr> </thead> <tbody> <tr> <td>1</td><td>Spirit (Mahua or Fruit Based)</td><td>5 KLPD</td></tr> <tr> <td>2</td><td>Blending and Bottling of Spirit/Liquor Liquor/Heritage Spirit</td><td>10000 liters</td></tr> </tbody> </table>	Sr. No.	Name of Product	Quantity (T/M)	1	Spirit (Mahua or Fruit Based)	5 KLPD	2	Blending and Bottling of Spirit/Liquor Liquor/Heritage Spirit	10000 liters
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1	Spirit (Mahua or Fruit Based)	5 KLPD									
2	Blending and Bottling of Spirit/Liquor Liquor/Heritage Spirit	10000 liters									
10.	Water Requirement of Project	• Process: 50 .01m³ • RO Plant: 10.5 • Blending & Bottling: 4.77 m³ • Boiler: 2.23 m³ • Cooling water: 12.36m³ • Drinking/Domestic: 1 m³ • Green Belt: 1 m³ • Fire Services: 20 KL to be used in emergency • Others (Floor washing): 2 KL Source- MIDC Water and ETP Recycle Water									
11.	Effluent generation	Total 49 m ³ /day									
12.	Effluent treatment	Spent wash, spent lees with other effluents will be treated in ETP consisting of Primary (Collection tank, Equalization tank, Primary Clarifier/Primary Settling Tank) followed by Secondary treatment Anaerobic Reactor, clarifier, aeration tank and Tertiary treatment tank. Treated effluent will be recycled into process for various purposes such as cooling, process with metering system so as to achieve Zero Liquid Discharge (ZLD). Domestic sewage generated will be sent in septic tank followed by soak pit.									
13.	ETP Details	ETP Capacity – 50 m ³ /d with Tertiary Treatment Facilities									
14.	Power Requirement	Proposed Connected Load: 100 kW; Source: MIDC Demand Load: 80 kW									
15.	Non-conventional Energy Resources	Solar PV Provisions to be made for: 5% of Demand Load i.e. 10.5 kW No. of Panels: 35 Nos. Per Panel Capacity: 300 watts Total Area Requirement: 105 Sq.mt.									
16.	D.G. Set capacity	125 kVA 1 No.									

Sr. No.	Particulars	Details
17.	Fuel requirement	HSD: 30 lit./hr. for D.G Set Wood chips / Briquettes/ Charcoal: 2.7 TPD
18.	Boiler	1 No. Capacity 1TPH
19.	Pollution Control system	Bag filter, Stack proposed with 30m height
20.	Man power	20 Nos. during operational phase including all staff
21.	Project Cost	Rs. 2.00 Cr.
22.	CER Cost	As per the guidelines mentioned in the OM No 22-65/2017-IA. II (M) dated 1st May, 2018

4. Project Requirement:

4.1 Area Statements

The Site layout is designed as per the production requirements. Details of the area utilization is given in Table 3.

Table 3: Area Utilization

No.	Particulars	Area in m ²	% of Total Plot Area
1.	Built Up Area	425.5	42.55
2.	Parking Area	128.5	12.85
3.	Green Belt Area	153.00	15.33
4.	Other Areas	293.00	29.3
5.	Total Plot Area	1000	100%

4.2 Product Profile

Proposed Establishment of 5 KLPD Mahua Flower/Fruit Based Spirit Distillery Unit along with Blending and bottling of Spirit/ Liquor Bottling unit of capacity 10,000 liters Capacity.

Table 4: Proposed Product List

Sr. No.	Product / by product	Capacity
1	Spirit (Mahua or Fruit Based)	5 KLPD
2	Blending and Bottling of Spirit/Liquor Liquor/Heritage Spirit	10000 liters/day

4.3 Raw Materials

Following raw materials required to manufacturing proposed product. The unit is being procured from local market, and the transportation of raw material is mainly being done through road. The detailed list of raw materials is given in Table 5.

Table 5: Proposed raw material list

Raw Material/ Fuel	Quantity	Unit
Dried Mahua flowers/ Fruits/Grapes	15000	Kg/Day
Nutrients (Fertilizers Urea/ DAP)	5	Kg/KL
Biocides	0.1	Kg/Kl
Sulphuric acid	0.2	Kg/KL
Defoam agent	0.2	Kg/KL
Descaling agents	5	Kg/Day

4.4 Required Plant Equipment

Table 6: Plant Equipment

Sr. No.	Description	Capacity	Quantity
1	Screw crusher	1MT/hr	1
2	Plate and Frame Filter	5 m ³ /hr	1
3	Fermenters	25 m ³	6
4	Yeast Propagation Tank	1 m ³	1
5	Wash Still	15 m ³	1
6	Hybrid spirit still	15 m ³ /25 tray	1
7	Product Receivers	10 m ³	3
8	Condensers	suitable	10
9	Spirit safe	suitable	2
10	Boiler	1 TPH	1
11	Thermic Fluid Heater	4 lakh kcal/hr	1
12	DM+ RO Plant	5000L/hr	1
13	Cooling Tower	100TR	1
14	Chiller	10 TR	1
15	ETP	50m ³ /day	1
16	Blending Tanks	10 m ³	3
17	Sparkler Filter	5000 L/hr	1
18	Bottling Machine	60 Bottles/min	2

5. Water Balance:

Total Water Requirement: 76.87 m³/d

(Fresh- 18.45 + Recycled 49 + 7.5 spent lees + steam 1.92)

Source: MIDC Water and ETP Recycle Water

Water Requirement of Project	• Process: 50 .01m³ • RO Plant: 10.5 • Blending & Bottling: 4.77 m³ ~ • Boiler: 2.23 m³ ~ • Cooling water: 12.36m³ • Drinking/Domestic: 1 m³ • Green Belt: 1 m³ • Others (Floor washing): 2 KL • Fire Services: 20 KL to be used in emergency Source- MIDC Water and ETP Recycle Water
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6. Description of Environment – Baseline Environment

Considering the local and regional setting around the proposed project site. From the plot boundary surrounding area 10 km is considered for setting up the baseline monitoring and predict the impacts from the proposed project site as per the MoEFCC guidelines. Environmental monitoring was done during winter season for the meteorology, air quality, water quality, noise levels, and soil characteristics, by setting up monitoring stations and samples collected as prescribed. Further, existing ecological and socio-economic features also studied.

Table 7: Baseline Monitoring stations

Sr. No.	Environmental Parameters	Stations/Samples (Nos.)	Results
1	Ambient Air Quality	8	Within the prescribed limit
2	Ground water	8	Results are found to be satisfactory
3	Surface water	8	Results are found to be satisfactory
4	Noise	8	Within the prescribed limit
5	Soil	8	Results are found to be satisfactory
6	Ecology	Study area	
7	Socio-economic	Study area	

Table 8: Baseline Monitoring Results- Soil, Ground Water, Surface Water, Air and Noise are given below;

S. No.	Parameters	Interpretations
1	Air	The indicates that the maximum and minimum values of PM10 are in the range of 88.40 µg/m³ and 44.60 µg/m³ at Fulchar Peth and project site resp., whereas the PM2.5 are in the range of 45.20 µg/m³ and 20.80µg/m³ at Fulchar Peth and Goregaon resp. The SO₂ concentrations within the study area are in the range of 13.60µg/m³ and 5.10 µg/m³ at at Fulchar Peth and Manrgaon resp. NO_x are in the range of 32.60 µg/m³ to 10.80 µg/ m³ at at Fulchar Peth and Mundipar. CO in the study area were recorded as 2.50 mg/m³ and 0.55 mg/m³ at project site and Manegaon resp. The parameters were observed to be within the permissible limit compared to NAAQS standard. Major source observed was vehicular traffic and other urbanized activity.
2	Ground water	The quality of ground water shows that the pH for the ground water sample ranged from 7.25 to 7.84 indicating slightly alkaline in nature. The TDS were found to be in the range 232 mg/l – 1236 mg/l which is found within the acceptable limit 500 mg/l. Total Hardness of ground water samples in the study area was found to be 130 mg/l – 732 mg/l which is higher than the acceptable limit. Alkalinity indicates better buffering capacity of water and range between 116.60 mg/l to 264 mg/l. The alkalinity of the ground water is within the acceptable limit.

S. No.	Parameters	Interpretations
3	Surface water	The result of surface water analysis that indicates the pH in the range of 7.1 to 7.64, it shows increasing of alkalinity slightly. Dissolved oxygen was observed from 6.2 mg/l to 6.6 mg/l, it is more than the tolerance limit of Class A. Electrical conductivity of the surface water samples was found to be in the range of 174.00 μS/cm to 710.00 μS/cm, analysis result is very low as per tolerance limit of Class E. Total hardness of the surface water was found to be in the range of 60.2 mg/l to 172.00 mg/l, the it is very less as per tolerance limit of Class A. TDS data was found to be in the range of 92.00 mg/l to 412.00 mg/l under the tolerance limit of classification of surface water. Chlorides were observed in the range of 7.50 mg/l to 18.2 mg/l, it is very less as per tolerance limit of Class A, C & E. Nitrates were observed in the range of 0.2 mg/l to 3.6 mg/l, it shows value is less than the tolerance limit of Class A & C. Total Coliform was found to be in the range of 110 MPN/100 ml to 900 MPN/100 ml, as per classification the values are under of Class B & C. The quality of surface water falls under Class B & C IS: 2296-1982, the tolerance limits of parameters.
4	Soil	The available moisture contents in all soil samples are in the range 7.84 % to 9.03 %, it indicates low precipitation and high temperature, this can be lead high evapotranspiration. The bulk density of soil has calculated in between 1.32 gm/cm³ to 1.38 gm/cm³, the values indicate the soil is mineral and this range falls under medium density as per Soil Health Index. Total Organic carbon of soil is low and ranges in between 0.34 % to 1.0 %. Variation in pH of soil within the study area is presented in table and it was observed that the soils are neutral to slightly alkaline in nature as their pH is in between 6.7 to 7.4.
5	Noise	Obtained Ambient Noise Quality results were compared with Noise Pollution Rules 2000. It can be concluded that as per category wise distribution (Commercial/Residential/Silence zones), results were within permissible limit.
6	Socio Economic	Proposed project is new project. Existing infrastructure, employment, education, and medical facilities are well set.

S. No.	Parameters	Interpretations
7	Ecology	Floral, Faunal and Avifauna reported in the study Area are: Flora: Trees and shrubs: 107 species Faunal: Birds: 42 species of birds from 30 different families Mammals: 24 species, Reptiles and Amphibians: 16 species, Avifauna: 45 species

6.1 Air Environment Impact and Mitigation measures:

The air pollution caused by this industry is mainly from dust as SPM and fumes. The dust is due to the composition and handling of raw material and fumes are from boiler as well as from ladle and roof level.

Pollution Control measures -- Air:

The air pollution is caused mainly by particulate matter and fumes during process operation, 1 Stack with 30 m height, scrubber will be provided to minimize the air pollution.

Fugitive:

Fugitive emission will be controlled by:

- Regular water sprinkling
- Rubber tired trolleys for material handling
- Adopting layout to minimize manual material movement
- Tree plantation

Ground level concentrations (GLCs) have been predicted using AERMOD Cloud software. The application incorporates popular U.S. EPA air dispersion models AERMOD and ISCST3 into one integrated graphical interface. The model follows rural dispersion and regulatory defaults options as per guidelines on air quality models (PROBES/70/1997-1998).

Ambient air quality in study area w.r.t. PM, SO₂ and NO_x is within NAAQS 2009 as seen. Hence, any significant impact is not envisaged within study area.

6.2 Pollution Control -- Water and Wastewater

Water Quality:

The project will operate under a Zero Liquid Discharge (ZLD) scheme to ensure minimal environmental impact. The facility generates approximately 49 KLD of effluent, which will be effectively managed through an Effluent Treatment Plant (ETP) designed with a 50 KLD capacity. After undergoing primary treatment, the sewage is directed to the ETP for further comprehensive treatment and disposal.

The internal storm water drains will be provided in the plant which is connected to MIDC storm water drainage network. The domestic effluent will be treated in septic tank. ETP with tertiary facilities is proposed.

6.3 Noise Environment:

A total 8 samples were collected from study areas. Noise Results are observed within the limits of standards.

6.4 Solid Waste

The hazardous and nonhazardous solid waste is generated during the details are given below;

Table9: Non-Hazardous Solid Waste

Sr. No.	Particulars	Cat.	UOM	Quantity	Method of Disposal/Management
1	Boiler ash (from burning wood chips briquettes)	-	TPD	0.27	Sold to brick manufacturing unit
2	ETP Sludge	-	TPD	0.15	Sold or used as manure
3	Broken glass	-	Kg/M	2	Sold to recyclers
4	Dry Waste	-	Kg/Day	3	Sale to authorized vendor
5	Wet Waste	-	Kg/Day	2	Vermicomposting. Used as manure
6	Spent Mahua flower	-	TPD	13.7	Sales as Animal feed

Hazardous Waste:

The hazardous solid waste is reassessed product wise and details are submitted herein below, as per categories shown in Schematic 1 of Hazardous waste (MHTM), 2008.

The relevant summary is given below:

Table 10: Hazardous Solid Waste Management

Sr. No.	Particulars	Category *	UOM	Quantity	Method of Disposal/Management
1	Used/Spent Oil	5.1	KL/M	0.5	Disposal through MPCB authorized recycler
*Schedule I of The Hazardous and Other Wastes (Management and Trans boundary Movement) Rules, 2016.					

6.5 Biological Environment:

The selection of plant species should be based on following criteria –

- Locally available species (Native to the area)
- Good canopy
- Larger leaf area
- Shorter duration of leaf fall
- Adequate height of crown

Floral, Faunal and Avifauna reported in the study Area are:

- **Flora:** Trees and shrubs: 107 species
- **Faunal:**
 - Birds: 42 species of birds from 30 different families
 - Mammals: 24 species,
 - Reptiles and Amphibians: 16 species,
- **Avifauna:** 45 species

Proper green belt should be developed to attract different faunal groups and maintain the biodiversity. To support local bird diversity some nest boxes, bird feeder and nesting material boxes can be installed on trees to attract different bird species.

6.6 Socio Economic:

Baseline information was collected in order to delineate the socio-economic profile of the study area. The process related database thus generated includes:

- Demographic structure
- Employment pattern
- Infrastructure base in the area
- Survey observation and recent available facilities in the surveyed area
- Quality of life of the people within study area
- Public awareness and their concern about the project

7. Anticipated Impacts and Mitigation Measures

Sr. No.	Environmental Aspects	Anticipated Impacts	Mitigation Measures
Operation Phase			
1.	Land Environment	Change in land use/land cover. Generation of solid waste & disposal.	• The project site falls under MIDC area, hence no change in land use/land cover. • All waste to be handled as per application regulation.
2.	Air Environment	Flue gas emissions from boilers and process	• Regular monitoring of stacks as per MPCB/CPCB norms. • Process vent scrubber with blowers, tanks piping, and stack etc • Online Stack monitoring system is proposed. • Air pollution control equipment for boiler with adequate stack height of 30 m for dispersion.
3.	Noise Environment	Construction equipment/vehicles	• Equipment will be provided with silencers.
4.	Water Environment	Freshwater consumption, waste water generation & effluent generation	• Fresh water will be fulfilled from MIDC, Gondia • The boiler condensate shall be reused as a boiler feed. The process effluent shall be sent to ETP and then used for cooling tower makeup and Domestic effluent will be reused for gardening. • Domestic sewage will be treated in septic tank and used for gardening. • ETP will be provided for treatment of waste water. It is Zero liquid discharge unit.
5.	Biological Environment	Emission of pollutants/solid waste & hazardous waste generation	• Area 153.32 Sq.m. will be developed as green belt. A total 12 Nos. of local species will be part of green belt developments.
6.	Socio-economic Environment	Employment generation and health of labours.	• A total 20 nos. of labour will be Local people will be given preference for employment depending on their suitability. • Regular health checkup.

7. Quantitative Risk Assessment and Mitigation Measures

- Quantitative Risks for the proposed project have been assessed based on ALOHA for tank storage.
- Based on the unsafe distances plotted in ALOHA software output, the MCLS (Maximum Credible Loss Scenario) for the proposed factory is identified for Ethanol.
- The scenario considered for assessing the impact by quantitative risk assessment was taken from Evaporating puddle of flammable chemical (All tank leakage is considered) - Toxic area of vapour cloud.

8. Disaster Management Plan

Disaster Management Plan will be implemented in consultation with the District Administration to take care of health and safety during any untoward incidents.

In view of handling of processes in industry, On-site Emergency Plans are important and hence have been prepared for the industry. Additionally, recommendations for Onsite and Offsite shall be provided to the District Administration. During operational phase, surrounding populations shall be made aware of safety precautions to be taken in case of any emergency due to the overall project activity.

9. Occupational Safety & Health Management

- The industry will provide decontamination facilities for the workers. The health records of the workers will be maintained.
- For continuous development, the company will continue to train & educate the operators and workers on the environment, health & safety rules & regulations, procedures and measures.
- Periodic medical check-ups will be carried out to ensure the health status of all workers.
- Job rotation will be done.

10. Environment Monitoring Program

- To keep the track of the monitoring and their effectiveness, it has been used EMP at specific intervals, regular monitoring of the necessary parameters as required.
- Regular monitoring of six monthly for compliances and consents through NABL Lab/MoEFCC lab under the Environment Protection Act., Air Act, and Water Act.
- Monitoring of environmental samples shall be done as per the methods, provided CPCB guidelines/MoEFCC.
- Assessment of any changes in environmental conditions, if any during the operation/plant activities.
- Identification of any significance adverse impacts in environmental conditions to plan the additional/special mitigation measures.

11. Environment Management Plan

- The plan incorporates the allocated funds, which are a tool for protecting the environment from pollution and maintaining compliance compliances after grant the EC.
- EMP Budget for Environmental Protection Measures has been estimated as capital cost Rs. 50.00 Lakhs and O & M cost Rs. 10.40 Lakhs/annum.
- CER will propose as per the guidelines mentioned in the OM No 22-65/2017-IA. II (M) dated 1st May, 2018

12. Project Benefits

- Employment generation is the mandatory benefits from the manufacturing unit, prefer those local peoples from the nearest towns and villages as per their skill set.
- Manpower requirement during construction phase will be approximately 20 nos. as well as during operation will be 20 nos.
- Further, indirect employment through increased transportation, supporting small business, economic activities in the nearby areas, also add in the potential employment.
- Indirect improvement in the public infrastructure through CER activities carried out by M/s. Indus Organics, it will help to improve overall quality of life of the study area.