



## **ECOLOGY & BIODIVERSITY STUDY OF IRON ORE PELLETIZATION AND WASHING PLANT**

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### **ABSTRACT**

Iron Ore Pelletization Plant (90,000 TPA) & Iron Ore Washing Plant (0.5 MTPA) at Notified industrial area under Madhya Pradesh Audyogik Kendra Vikas Nigams (MPAKVN). The total plot area of the project was 2.429 hectares. The National Highway No. – 7 situated at a distance of 7 km in west direction from the project site. The nearest railway station was situated at a distance of approx. 6 km on Central Railway in west direction.

An ecological study of the ecosystem component was carried out with intensive survey and analysis with standard protocol to know the impact of above said project on flora and fauna in the study area. If any impact occurs during the study appropriate measures should be taken to mitigate the impact. Ecological study of the project site and its ambience with predefined limit of 10 km radius was taken to understand the impact of the proposed project on ecology with relation to flora and fauna.

Study reveals that project have least adverse impact on ecosystem and its components due to strict compliances of pollution mitigation and control measures. Further the land for proposed project site falls in Notified Industrial Area by Madhya Pradesh Ayodhyogik Kendriya Vikas Nigam. Adequate and thick green belt of locally compatible trees species of long & broad leaves shall also be planted which will helpful in keeping the environment clean & green , also intercept noise and attenuate particulate pollutants.

**Key words:** Pelletization, Pollution mitigation, Ecology, Biodiversity, Clean & green.

## INTRODUCTION

The study is to carry out Environmental Impact Assessment (EIA) for the proposed project to meet the environmental compliances laid down by the Ministry of Environment and Forests (MoEF), Government of India. The scope of study would be as per the EIA guidelines outlined by the MoEF for construction projects and it will include detailed characterization of existing status of environment in an area of 10 km radial distance from the centre of the plot site for various environmental components viz., air, noise, water, soil, land, biological and socio-economic components including parameters of human interest.

The quality, quantity and spatio-temporal status of biota in a given area depending upon a range of interacting biotic and abiotic factors. Change in the composition of biotic communities reflected by distribution pattern, density, diversity, frequency, dominance and abundance, IVI of flora and fauna existing in the ecosystem. Biological communities are the good indicator of climatic and edaphic factor, hence serve as an useful tool to monitor environmental changes.

Iron ore pelletization and washing plant is situated at notified industrial area under Madhya Pradesh Audyogik Kendra Vikas Nigams. The total plot area of the project is 2.429 hectares.

## MATERIALS AND METHODS

The basis of the study was the site survey, sampling from the selected sites, interaction with local people. Preceding of the pertinent site specific documents such as maps, data sheet and area information from State Forest department, topo-sheets, Ground evidences, Google earth etc. within 10km radius from the project site was taken to get preliminary information about the topography, human settlements, water bodies, forests, agro-ecosystems, etc.

Primary information related to flora and fauna were generated by performing field survey within the site (10 km radius). Discussion with local stakeholders and statutory authorities were held to generate information.

Secondary data related to flora and fauna, cropping patterns etc. were also collected from available literature, e-search engine, forest department and revenue department. During the field survey information were also collected from the local dwellers especially senior citizens. Random sampling was employed in a Rapid Snapshot Survey to generate qualitative data on biodiversity. Wherever possible; biological specimens were photographed in their natural habitat. Inputs from local stakeholders were used to corroborate the secondary information. Species inventories were based on actual sightings, indirect evidences and authentic secondary databases.

## RESULTS AND DISCUSSION

The baseline study for the evaluation of the floristic and faunal diversity of the terrestrial environment of the study area within the 10 km radius from Plant site was conducted by exploratory surveys. Field protocols employed for this evaluation included Transect analysis and Rapid Snapshot inventorisation. The conservation status of species was determined by the prescriptions of the existing Wildlife Protection Act, 1972 and recent amendments thereof.

### Sanctuary, National Park / Forest

There is no Wild Life Sanctuary or National Park within 10km radius of the study area. However, two Reserve Forests namely Hargarh Reserve Forest and Dhanwahd Reserve Forest are about 1.7 km and 2.54 km in NW and N directions respectively. Proper mitigative measures will be taken to prevent any significant impact on the ecosystem due to project activities.

### Cropping Pattern of the Area

Cropping pattern of the area depends upon the climatological conditions and need of the local population of the area. Agriculture in this region is primitive and underdeveloped, as modern agro-techniques are not adopted. Irrigation facilities are sufficient.

**Kharif Crop:** Paddy, Arhar, Maize, Tuwar, Urad, Soyabean, Sugarcane, Tomato, Chilli, Pumpkin etc.

**Rabi Crop:** Wheat, Grams, Peas, Masoor, Linseed, etc., are also cultivated. Plantations of fruit bearing trees, fibers, ornamental and medicinal plants are present. Common trees are mango, guava, papaya etc.

### Cultivated crops

Almost all the area is irrigated by rain water as well as underground water farming. River water is also a major source of irrigation due to the Hirren river (0.7 km, S) in the study area. Both crops of Kharif as well as Rabi are grown in the area due to the presence of under ground water. Various crop and vegetable plants are grown in the area.

Primary data from the District office as well as consultation with local villagers in the study area during baseline study period.

### Analysis of Cropping Pattern

- Agriculture is the main source of livelihood of the people of this area. The staple food mainly in the region is rice and wheat.
- Agro-climatic conditions of the area provide a range of potentialities for growing cash crop like, seasonal vegetables i.e. chilly, tomato, loki, brinjal, onion, bhindi, fruits and flowers, kitchen

gardening is also common because of sufficient available space around houses.

### **Analysis of Flora**

All the studied species are not mentioned in the red data book and also not characterized as endemic, rare or endangered or threatened in the study area/ project site.

### **Mitigation Measures**

Since there is no any adverse impact on the flora & fauna is expected within study area due to proposed project. The following measures shall be carried out

- Green belt will be developed in heterological sequence which helps in habitat management.
- Awareness programmes will be organized for the local people to strengthen protection and conservation of biodiversity and wildlife.
- Vaccination of domestic cattle against contagious diseases

S. No.	Name of the Kharif Crop	Recorded (Khata)			Not Recorded (Gair Khata)		
		Irrigated	Non Irrigated	Total	Irrigated	Non Irrigated	Total
1.	Desi dhan ropa	-	1130.75	1130.75	-	-	-
2.	Desi dhan chhidka	426.75	9007.82	9434.57	-	1.16	1.16
3.	Other dhan ropa	280.99	-	280.99	-	-	-
4.	Desi makka	-	61.10	61.10	-	-	-
5.	Kodo	-	186.57	186.57	-	-	-
6.	Kodo tuar	-	13.75	13.75	-	6.30	6.30
7.	Arhar	-	65.08	65.08	-	-	-
8.	Urad	-	765.91	765.91	-	0.60	0.60
9.	Moong-mounth	-	0.10	0.10	-	-	-
10.	Burbati	-	0.50	0.50	-	-	-
11.	Soya been	-	7.24	6.24	-	-	-
12.	Sugar cane ropa	16.15	-	16.15	-	-	-
13.	Sugar cane seedling	16.35	-	16.35	-	-	-
14.	Lal mirchi	0.25	5.93	6.18	-	-	-
15.	Ginger	-	3.23	3.23	-	-	-
16.	Lemon	-	1.01	1.01	-	-	-
17.	Amrood	-	58.61	58.61	-	-	-
18.	Sweet potato	-	1.80	1.80	-	-	-
19.	Other vegetables	8.67	29.19	37.86	-	-	-
20.	Til	-	117.44	117.44	-	1.20	1.20
21.	Ram til	-	44.59	44.59	-	-	-
22.	Aushhdhi-madak padarth (Pan)	25.13	-	25.13	-	-	-
23.	Vividh khadya fasal singhada	-	182.47	182.47	-	36.00	36.00
Total kharif crops		774.29	11683.09	12457.38	-	45.26	45.26

Table 1: Details of Kharif Crop

S. No.	Name of the Rabi Crop	Recorded (Khata)			Not Recorded (Gair Khata)		
		Irrigated	Non Irrigated	Total	Irrigated	Non Irrigated	Total
1.	Desi ganhoo	2030.38	2417.84	4448.22	0.40	20.54	20.94
2.	Ganhoo others	4555.74	48.15	4603.89	10.40	-	10.40
3.	Chana desi	1596.53	1670.07	3266.60	6.50	18.50	25.00
4.	Matar bhoori	283.54	4468.20	4751.74	-	4.91	4.91
5.	Matar green	33.35	-	33.35	-	-	-
6.	Masoor	212.75	7551.27	7764.02	-	8.50	8.50
7.	Tiwara (Red)	0.10	0.10	0.20	-	-	-
8.	Urad (Rabi)	128.00	-	128.00	-	-	-
9.	Lal mirchi	5.83	-	5.83	-	-	-
10.	Dhania (Beezdar)	32.93	4.85	37.78	-	-	-
11.	Dhaniy (Patti dar)	1.65	1.0	2.65	-	-	-
12.	Mango	-	290.70	290.70	-	20.82	20.82
13.	Potato	28.03	-	28.03	-	-	-
14.	Sweet potato	0.90	-	0.90	-	-	-
15.	Pyat ganthdar	15.28	-	15.28	-	-	-
16.	Vegetable other	87.02	0.20	87.22	1.60	-	1.60
17.	Vividh anajn & rabi fasal	4.40	-	4.40	-	-	-
18.	Alsi chhidka	-	147.30	147.30	-	-	-
19.	Rai-sarso	-	35.79	35.79	-	-	-
Total Rabi crops		9016.43	16635.57	25652.00	19.90	73.27	93.16

Table 2: Details of Rabi Crop

S. No.	Common Name	Botanical Name	English Name
1.	Moong	Vigna radiata	Green gram
2.	Chawla	Vigna unguiculata	Cow pea
3.	Moth	Vigna aconitifolia	Moth bean
4.	Guar	Cyamopsis tetragonoloba	Cluster bean

Table 3: Common Pulses grown in the area

S. No.	Common Name	Botanical Name	English Name
1.	Piaz	Allium cepa	Onion
2.	Lehsun	A. sativum	Garlic
3.	Mirch	Capsicum frutescence	Capsicum
4.	Baingan	Solanum melongena	Egg plant
5.	Bhindi	Abelmoscus esculentus	Ladies Finger
6.	Phool Gobhi	Brassica oleracea var. botrytis	Cauli flower
7.	Dhania	Coriandrum sativum	Coriander
8.	Tamatar	Solanum esculentum	Tomato
9.	Tarbooj	Citrullus lanatus	Water melon
10.	Lauki	Luffa cylindrica	Vegetable sponge
11.	Kaddu or Khola	Cucurbita maxima	Pumpkin
12.	Torai	Luffa acutangula	Vegetable sponge
13.	Karela	Momordica charantia	Bitter gourd
14.	Matira	Citrullus lanatus	
16.	Matar	Pisum sativum	Pea
19.	Mooli	Raphanus sativus	Radish
18.	Methi	Tigonella foenum-graecum	Fenugreek
19.	Bathua	Chenopodium album	Pigweed
20.	Chaulai	Amaranthus blitum var. oleracea	
22.	Gwar	Cyamopsis tetragonoloba	Cluster bean
23.	Gajar	Daucus carota	Carrot
22.	Podina	Mentha piperata	Mint

**Table 4:** Common Vegetables grown in the area

S. No.	Common Name	Botanical Name	English Name
1.	Amrood	Psidium guajava	Guava
2.	Nimboo	Citrus aurantifolia	Lime
3.	Karonda	Carissa congesta	Karaunda
4.	Imli	Tamarindus indicus	Tamarind

**Table 5:** Common Fruit grown in the area

1.	Jeera	Cuminum cyminum	Cumin
2.	Saunf	Foeniculum vulgare	Fennel
3.	Methi (Two varieties)	Trigonella foenum-graecum	Fenugreek

**Table 6:** Crops yielding condiments grown in the area

## CONCLUSION

Due to the proposed Iron Ore Pelletization & Washing Plant, the impact on ecology & biodiversity of the study area is not affected. Proper mitigation measures will be adopted by the project proponent for pollution control.

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