Justification for locating the project in forest area

Site selection and Justification for acquiring 38.062 Ha of forest Land for Proposed Alumina Refinery Plant.

Three Sites namely Kansariguda, Kakairiguma, Tikri were examined for the Alumina Refinery Project above Project and the methodology adopted for site selection was to identify.

- Location of Site close to the mines
- Proximity to any perennial source to meet the Water requirement,
- Availability of infrastructure facilities like rail, road, port, electricity, communication facility and developed township,
- Availability of adequate level area and way from flood Plain regions of nearest rivers,
- Easy means of transportation of bulk raw materials and products,
- Proximity to the market growth centre,
- Minimum displacement of Family / house,
- Availability of skilled manpower,
- Growth opportunity and expandable regional economy etc,

Comparative Assessment of the Three Refinery Sites :

Sl No.	Description	Kansariguda	Kakiriguma	Tikiri
01	Toposheet No(s)	E44F4-SW	65 N/1	E44F4-NW
02	Latitude and Longitude	Lat-19^{0}07'30N Long-83^{0}05'E	18^{0}54'N 83^{0}00'E	19^{0}10'N 83^{0}06'E
03	Site altitude above MSL(m)	830	910	850
04	Nearest Railways Line Distance	Koraput- R gade 2.5 Km to Singaram R. S.	Koraput- R gade 3 Km to Kakiriguma R. S.	Koraput- R gade 0.5 Km to Tikiri R. S.
05	Nearest Highways Line Distance	28 Km to Roop-kona on SH-4	10 Km to Kakiriguma on SH-4	20 Km to Roop-Kona on SH-4
06	Distance from Captive power Plant	0 Km	0 Km	0 Km
07	Nearest Airport/Sea Port (By Road)	Visakhapatanam (250 Km)	Visakhapatanam (250 Km)	Visakhapatanam (250 Km)
08	Type of Land	Flat/Rocky	Flat/Rocky	Flat/Rocky
09	Ownership	40% Govt. Land	70% Govt. Land	50% Govt. Land

Sl No.	Description	Kansariguda	Kakiriguma	Tikiri
10	Soil characteristics	Sandy/Silly	Sand/silly	Sand/Silly
11	River Basin/Water source	Forms part of Nagavali River Basin / Patagarha river	From part of Indravati River basin / Indravati river	Forms part of Nagavali River Basin / Patagarha river
12	Highest Flood Level(m)	620 M	906 M	808 M
13	Distance from protected reserve forest	0.2 Km (for core plant)	1.0 Km (for core plant)	0.2 Km (for core plant)
14	Distance from Main raw material source (Kodingamali Mine)	3 Km (Straight) (10 Km by Road)	1.0 Km (Straight) (27 Km by Road)	8 Km (Straight) (29 Km by Road)
15	Distance of township from Nearest Town	10 Km from Tikiri	3 Km from Kakiriguma	2 Km from Tikiri
16	Extent of Cultivated land	25%	27%	50%
17	No of inhabitant families to be repaired	About 70 families	About 20 families	About 10 families
18	Length of Transmission Line	16 Km	65 Km	13 Km
19	Water Pipe line	13 Km	21 Km	12 Km
20	Land ownership	70% Pvt. & 30% Govt.	30% Pvt. 70% Govt.	50% each
21	Length of Belt Conveyor from Bauxite Mine	3.0 Km	12.5 Km	6.0 Km
22	Distance from Refinery Plant to Red Mud disposal area	2.5 Km	3.0 Km	2.5 Km
23	Distance from Refinery Plant to Ash Pond area	2.0 Km	4.0 Km	2.5 Km
24	Distance from Refinery Plant to Township Area	1.0 Km	3.0 Km	5.0 Km

Keeping in view of the above stated considerations the following qualitative rating of study locations were given to decide the suitable site :

Sl. No.	Description	Full Rating	Kansariguda	Kakiriguma	Tikiri
01	Land	20	11	5	7
02	Bauxite Transportation	20	12	6	8
03	Rail Link	10	6	7	7
04	Water Source	10	6	4	6
05	Red Mud & Ash Disposal	10	4	5	4
06	Road link with State Highways, Mines, Plant, Township, Red Mud & Ash Disposal area	10	6	5	4
07	Environmental and Socio-economic aspect	20	10	9	10
	Total	**100**	**55**	**41**	**45**

It can be seen from the above tables that site Tikiri has major disadvantage in terms of distance to the Bauxite Site, Kakiriguma suffers from the disadvantages of having large area of cultivated land and agriculture being the most prominent means of livelihood of that region. Thus the Site at Kansariguda appeared to be the justified site for locating the Plant etc.

Red Mud and Ash ponds are ideally located in between hillocks to dispose & store the Red Mud and Ash to be generated from the Alumina Refinery Plant area. The hillocks do form natural bamers to create storage places for Red Mud and Ash. Thus the selection of Red Mud Pond in Rajanpanasaguda, Biriguda villages and Ash pond in Bhalujodi, Singaram villages is justified and inevitable. The Ash & Red mud pipeline corridor from the core plant to the Ash pond has been planned in non-forest lands and the same corridor continues to the Red mud area in 0.643 Ha of Revenue forest land. This forest land could not be avoided as the technical requirement of alignment needs nearly straight path and any change to west-side will have to pass through RF and will require more forest land. Alignment towards East-site is not possible due to change in land profile and other technical factors.

The Water pipeline corridor alignment has been selected after detail technical studies carried out by experts in the relevant field and the same has been approached by the State Water Resources Department. Water is proposed to be sourced from two location near Kuntiguda and Panchali flow in the river during lean season two locations for water sourcing has been proposed keeping in view of the quality of water flow in the river during lean season two location for water sourcing been proposed. Location new Panchali is proposed to be the primary reservoir and near Kansariguda will be the secondary one. The Pipeline corridor is passing through Revenue Forest lands, Sankarda RF and Kindiripadar RF also.

Efforts were made to realign and avoid the RFs which could not be possible because of the following reasons :

i) The pipeline will be laid at 2-m below the ground level so as to avoid pilferage, wear & tear Topographic and geomorphology of location near the RF areas do not changing the alignment.
ii) There will be sharp bends and sudden change in gradient in case of avoiding the RF areas, Technically, it is not possible due to pressure drop and other factors like consumption of more energy as well as increase in cost.
iii) As the corridor is passing beside the State highway, it is not possible to change to the alignment at Sankarda RF areas, lest it cross-out the State Highway.
iv) In case of Kindripadar RF (Boundary Pillar No. 62 to 75) the alignment is very close to the village road & river bank and there is hardly any space opposite to the RF to make rooms for the alignment because of the sleep of the river bank. Impounding of the near village Panchali will further aggravate the problem to make room for alignment of water pipe. Thus water alignment is inevitable and to pass inside the Kindripadar RF area.

The alignment has so made that barest minimum forest land will be diverted.

The Approach Road, Conveyor belt corridor with water supply corridor from the core plant area to the Kodingamali mine-top towards the North of the Lease area has been laid down after technical studies by experts in the field. Alternate Approach road and Conveyor belt corridor with and power supply corridor was also situated towards NE & N of the lease area respectively is rejected and the proposed alignment towards North is proposed to be best suitable to approach the Bauxite mine, so as to cater Bauxite to the Refinery and supply water & power to the mining area.

The alternative alignment for Approach Road, Conveyor Corridor and Ash & Red mud pipe line corridor area shown over the combined Toposheet No. 65 M/4/SW 7 65 N/1/NW and reasons are described as below:

Units / Items	**Merits / demerits of alignments**	
	Alignment - I	**Alignment -II**
Approach Road to Kodingamli Bauxite Mine	This is forwards North of the Kodingamali mining Lease Boundary. Length of the road is around 3.6 Km Forest land to be diverted is 3.6 Hectores	This is towards North-East of the Kodingamali Lease boundary. Length of the road is around 4.37 Km. Forest land to be diverted for this alignments is 4.71 hectares.

Conveyor Corridor with water & 33 KV power supply corridor	This is towards North of the Lease boundary traversing the shortest distance of 1.331 KM. Forest land to be diverted for this alignment is 0.9971 Hects.	This is towards North of the Lease boundary traversing a corridors length of 1.85 Km. Forest land to be diverted for this purpose is 1.2 Hectares.
220 – KV Transmission Power line Corridor	This has a length of 17.65 Km and has taken more length so as to avoid the Kodingamali Forest area. The corridor has passed through 2.772 Hects. Reserved Forest areas.	This has a length 16.75 Km and has to pass through 1.1 Km in Kodingamal RF area.
Ash & Red – Mud Pipeline Corridor	Ash & Red – Mud pipeline corridor from the core plant to the Ash pond passes through non- forest land from the Ash pond to the Red mud pond passed through 0.643 hectares Revenue Forest Land.	The alignment of Ash & Red –mud pipeline corridor is intact. The Red – mud pipeline from Ash pond to Red – mud pond has to pass partly (0.25 Km out of 1.15 Km) through East Kodingamali RF area. The Red-Mud pipeline could not be aligned to right (East) side due to technical unsuitability.

Keeping in view of the above merits and demerits in the Alignment – I and II the **Alignments-I** in all the service corridors is adjudged to be best suitable as it covers bare minimum forest land with technical suitability. In case of 22 KV Transmission Power line corridor. Alignment –I is perfected to it is because of presence of stiff vertical cliff along right of way making it impossible for having of the Alignment-II and also saving of forestland in Revenue Forest (Kodingamali RF). The final accepted **Alignment-I** area to be acquired for the proposed plant. The total proposed land is 859.829 Ha out of which 38.062 ha. is forest land.