# Cost Benefit Analysis Report

## For

## Diversion of Forest Land over an area of 8.74 hectare in village Sikhardih and ShriRampur ;

## District Saraikella Kharsawan, Jharkhand

### for

### Mounded Storage Vessel

### In respect of

### HINDUSTAN PETROLEUM CORPORATION LIMITED

### LPG BOTTLING PLANT, GAMHARIA

Table –A Cases under which a cost-benefit analysis for forest diversion are required

| No | Nature of Proposal | Applicable/not applicable | Remarks |
|---|---|---|---|
| 1 | All categories of proposal involving forest land up to 20 hectares in plains and up to 5 hectare in hills | Applicable | The proposed project is for diversion of forest land for construction of facility Mounded storage vessels for storage of LPG over forest land of 8.74 hectares in village Sikhardih and ShriRampur., Dist-Saraikella Kharsawan, Jharkhand |
| 2 | Proposal for defence installation purposes and oil prospecting (prospecting only) | Not applicable | |
| 3 | Habitation, establishment of industrial units, lodges complex and other building construction | Not applicable | |
| 4 | All other proposals involving forest land more than 20 hectares in plains and more than 5 hectares in hills including roads, transmission lines, minor; medium and major irrigation projects , hydro projects, mining activity, railway lines, location specific installations like micro-wave stations, auto repeater centres, TV towers etc. | Not applicable | |

Table-B: Estimation of cost of forest diversion

| S no. | Parameters | Remarks |
|---|---|---|
| 1 | Ecosystem services losses due to proposed forest diversion. | The cost of ecosystem services, fragmentation of habitat of wildlife, economic distress caused to people dependent on forests should also be added as the cost of forest diversion in addition to the standard project cost. Though technical judgment will have to be primarily applied in determining the losses, but as a thumb rule the environmental value of one hectare of fully stocked forest(density=1.0) would be taken as Rs.126.74 lakhs/hectare to accrue over a period of 50 years .The value will be reduced proportionately with the existing density of crop (vegetation) and the figure of the assumed environmental value will change , if there is increase in bank rate of lending, i.e the change will be proportionate to the increase in the existing bank rate. |

|  |  | A. Basic Data for Calculation of Forest & Environmental Loss. |  |
|---|---|---|---|
|  |  | 1. | Total area of Forest | 8.74 Ha. |
|  |  | 2. | Total Broken-up area | Nil(virgin forest land) |
|  |  | 3. | Net broken-up area including in modified/revised proposal | Nil |
|  |  | 4. | Safety zone area | Nil |
|  |  | 5. | Forest area required for construction of facility- Mounded Storage Vessel( to be diverted from the notified forest land in hectares) | 8.74Ha |
|  |  | B | Average density | 0.01 |
|  |  |  | Environmental loss 126.74x0.01x8.74 | Rs. 11.07 lakhs |

| 2. | Loss of animal husbandry, productivity, including loss of fodder | Nil |
|---|---|---|
| 3. | Cost of human resettlement | Not applicable as there is no PAF displacement within the project area. |
| 4. | Loss of public facilities and administrative infrastructure(roads, buildings, schools, dispensaries, electric lines, railways , etc.) on forest land, which would require forest land if these facilities were diverted due to the project | Not applicable as there is no public facilities exists within the project area. |
| 5. | Possession value of forest land diverted | 126.74x8.74@30%=Rs.332.3 laks(However actual value will be based on the DFO recommendation on average density) |
| 6. | Cost of suffering to out sees | Not applicable |
| 7. | Habitat Fragmentation cost | 126.74x0.01x8.74@50%=Rs.5.53 lakhs |
|  | Compensatory affectation and soil & moisture conservation cost | Rs.2.5 lakh/hax17.48 ha of degraded forest land as compensatory affectation = Rs.43.7 lakh |

Table C-Existing guidelines for estimating benefits of forest- diversion in CBA

| Sl No. | Parameters | Remarks |
|---|---|---|
| 1 | Increase in productivity attribute to the specific project | a. Sales of quantity of LPG= 63535.41 Metric Ton per annum, Turnover/cost of product LPG=349.68 crores |
| 2 | Benefits to economy due to the specific project | 00 |

| 3 | No. of population benefited due to specific project | 30 lakhs |
|---|---|---|
| 4 | Economic benefits due to direct and indirect employment due to project | a)Direct<br>Officers=14<br>Employee=8<br>Total- 365 lakhs per annum<br>b)Indirect<br>No. of contract labours to be engaged by third party and not by company= 155<br>@Rs. 475/- day= 268 lakhs per annum<br>No. of LPG tank lorry driver/cleaner , cylinder truck driver/cleaner to be engaged by transport contract and not by company= 95@Rs. 475/-day=164 lakhs<br><br>Grand total= 365+268+164=797 lakhs |
| 5 | Economic benefits due to compensatory afforestation | Compensatory forestation of 17.48 ha of land @ 2500 no of sapling = survival rate 100 nos. of sapling per 1 hectare = 1748 nos. of trees.<br><br>Economic benefits of one tree accruing over next 50 years monetized in terms of providing oxygen, water, soil, moisture conservation etc.+ timber & fire wood = 23.50 lakh<br><br>Future benefits of 1748 nos. of trees @23.50 lakhs=41078 lakhs<br><br>Total economic benefits = 41078-46.43= 41031.57 lakh |

COST BENEFIT ANALYSIS

a) Based on value of products(Rs.)

Benefit- Rs. 76796.57 lakhs

Loss- Rs. 392.6 lakhs

b) Cost Benefit Ratio

i.e   Benefit / Loss  =  76796.57/392.6    = 195.6