INTRODUCTION:

Pachwara South Coal Block is the southernmost part of the Pachwara Coalfield in Dumka District, Jharkhand. Pachwara-Chirudih Sector lies in the western part of Pachwara basin.

Pachwara South Coal Block was allotted to Neyveli Uttar Pradesh Power Ltd. (NUPPL)- a joint venture of NLC India Limited and Uttar Pradesh Rajya Vidyut Utpadan Nigam Limited vide, allotment order no 13016/26/2004-CA-I/CA-III(Pt) (Vol.II), Dated 03.10.2016 FROM MoC, GOI. The limiting Co-ordinates of the block are, lies on Toposheet number G 45 V6 & G 45 V7 and are as given below: Latitude: 24° 29' 57.404" N-24° 31' 46.956" N WGS84 45 R 2709584.08 N - 2712965.123 N). Longitude:87° 27' 22.010" E-87° 29' 56.150" E (WGS84 45 R 546208.62 E - 550540.973 E).

The Block is well connected with district headquarter Dumka, at an aerial distance of around 36 km. Amrapara is the nearest semi-urban area near the site and well connected with both Dumka and Pakur (district headquarter) through black topped Dumka- Shahibganj Road and Amrapara-Maheshpur-Pakur road respectively.

Coal from this project is linked to Ghatampur Thermal Power Plant, Coal based Thermal Power Plant with a capacity of 1980 MW (3 X 660 MW) at Ghatampur Tehsil in Kanpur Nagar District, Uttar Pradesh.

The total project area is conceptualized with the allotted coal block area which comes to about 714.8553 ha., Out of which 455.1108 Ha. falls under forest category (vide letter no-211 dated 02.02.2022 of Divisional Forest Officer, Dumka) and remaining 259.7449 Ha falls under non forest category. Part of the forest is categorized as Reserve Forest.

Estimated gross geological reserve is 415.02 million tonne and net geological Reserve of the block is 373.52 million tonne. Out of which mineable reserve is 269.58 million tonne and extractable reserve is 262.84 million tonnes respectively. With the rated capacity of 9 MTPA (normative) and the peak rated capacity of the mine will go up to 13.50 MTPA. Life of the mine will be around 38 years including two years of pre mining activity.

The propose mining project shall impact on environment & forest of the area, thus environmental cost benefit analysis is estimated on the basis of Net present Value of the forest, Loss of animal husbandry productivity, including loss of folder, Cost of human resettlement, Possession value of forest land diverted, Habitat Fragmentation cost, Compensatory afforestation and soil & moisture conservation cost, carbon storage etc.

PURPOSE FOR ENVIRONMENTAL COST BENEFIT ANALYSIS:

The major concern is involvement of 455.1108 Ha of forest land with this project. As per MoEF & CC circular no. 7-69/2011-FC (Pt.) dated 01 August 2017, cost benefit analysis is required for forest diversion proposal. Thus, cost benefit analysis is done and uploaded along with the online Forest Diversion proposal.

The details of nature of forest land for which diversion of forest land applied are as under:

Table No.C9-1: Current Different Rates
As per revision of rates of NPV applicable for different class/category of forests (Supported by the Ministry of Environment, Forests & Climate Change)
Forest type group: Tropical dry deciduous forest
(Revised NPV rates based on fitment factor of 1.53 dated 6th January 2022)
Table no-1

NPV (in Rs.)			
Eco-class	**Very Dense**	**Dense**	**Open**
Class I	1595790	1436670	1116900
Class II	1595790	1436670	1116900
Class III	1357110	**1228590**	957780
Class IV	957780	861390	670140
Class V	1436670	1292850	1005210
Class VI	1516230	1372410	1069470

The forest land of Pachwara south is falls under Class III, Dense Forest category.

Forest diversion cost is estimated considering the environmental parameters like:

i. Ecosystem services loss due to proposed forest diversion.
ii. Loss of animal husbandry productivity, including loss of fodder.
iii. Cost of human resettlement.
iv. Loss of public facilities and administrative infrastructure (road, building, school, dispensaries, electric lines, railways etc.) on forest land, which would require forest land if these facilities were diverted due to the project.
v. Possession value of forest land diverted.
vi. Cost of suffering to oustees.

vii.   Habitat Fragmentation cost

viii.   Compensatory afforestation and soil & moisture conservation cost.

Estimated cost considering the environmental parameters is tabulated in Table No.-2.

Table No.-2: Estimated Cost Considering the Environmental Parameters

S. No.	Parameters	Remarks	Value in Crores.
1.	Ecosystem services loss due to proposed forest diversion	Economic value of loss of eco-system services due to diversion of forest- NPV amount calculated as:	55.91
2.	Loss of animal husbandry productivity, including loss of fodder	There is no significant animal husbandry productivity or loss of fodder. As such the maximum value can be qualified as 10% of NPV cost.	5.59
3.	Cost of human resettlement	Estimated cost approved by Board of Directors of NUPPL	732.87
4.	Loss of public facilities and administrative infrastructure (road, building, school, dispensaries, electric lines, railways etc) on forest land, which would required forest land if these facilities were diverted due to the project	Estimated cost associated with the loss of Public Property in forest area.	1.50
5.	Possession value of forest land diverted	As per MoEF & CC guideline 30% of environmental cost (NPV) due to loss of forest or circle rate of adjoining area in the district should be added as a cost component as possession value of forest land whichever is maximum.	16.77
6.	Cost of suffering to oustees	Estimated cost.	36.66
7.	Habitat Fragmentation cost	Habitat Fragmentation cost As per MoEFCC guideline while the relationship between fragmentation and forest goods and services is complex, for the sake of simplicity the cost due to Cost Benefit Analysis fragmentation has been	27.96

		pegged at 50% of NPV applicable as a thumb rule	
8.	Compensatory afforestation and soil & moisture conservation cost	Compensatory afforestation Govt. rate of Soil conservation, moisture conservation and carbon storage are Rs.9024/ha/year, 1269/ha/year, 2,70,040/ha/year respectively for above mentioned forest land type	15.61 2.19 12.29
Total			**907.35**

Benefit of the project is also estimated in consideration of following parameters:

i. Benefit to the economy due to this project are in terms of DMF, NMET, carbon cess, mine closure cost, environment & dev. Tax, SED, dead rent & cess, GST etc.

ii. Around 1288 persons will get employment, whereas about 3000 persons shall be benefited in terms of indirect employment.

iii. Preference will be given to the persons residing in and around to the project area. Job will be offered to the locals considering the qualification and suitability. Skill development programme will be undertaken for sustainable development.

iv. Notable benefit can be evident by compensatory afforestation.

Estimated Benefits for the project is furnished in Table No.-3.

Table No-3: Estimated Benefits for the Project

Sl. No	Parameters	Remarks	Value in Crores.
1.	Benefits to economy due to the specific project	<table><tr><td></td><td>in Rs.</td></tr><tr><td>Royalty</td><td>143.36</td></tr><tr><td>DMF</td><td>14.34</td></tr><tr><td>NMET</td><td>2.87</td></tr><tr><td>Carbon cess</td><td>400.00</td></tr><tr><td>Mine Closure Cost</td><td>9.91</td></tr><tr><td>Envt. & Dev. Tax</td><td>10.00</td></tr><tr><td>SED</td><td>10.00</td></tr><tr><td>Dead Rent & Cess</td><td>100</td></tr><tr><td>GST 5%</td><td>14.52</td></tr><tr><td></td><td>705</td></tr></table>	(705 X 262.84 Million Tonne) 18530.21
2.	No. Of population benefited due to specific project	About 174.43 million tones of coal will be available from the forest land. Around 17152 persons will be benefitted from this project.	
3.	Economic benefits due to of direct and indirect employment due to the project	In addition to the direct employment to about 1288 persons, about 3000 persons shall be benefited indirectly by this project. Preference will be given to the persons residing in and around the project area. Job will be offered to the locals considering the qualification and suitability. Skill development programme will be undertaken for sustainable development	3340.25
4.	Economic benefits due to compensatory afforestation	Economic benefits due to compensatory afforestation	144.82
	Total		**22015.28**

COST: BENEFIT RATIO

A. Cost of Project (Including loss of forest) : 907.35 Crores.

B. Financial benefits due to the project : 22015.28 Crores.

C. Cost: Benefit Ratio (1: B/A) : **1:24.26**

Thus, the project gives positive Benefit/ Cost Ratio. The monetary returns of the project are positive over the environmental losses.