

F. No. J-12011/11/2020-IA.I (R)
Government of India
Ministry of Environment, Forest & Climate Change
(Impact Assessment Division)

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New Delhi – 110 003

Dated: 26th August, 2021

To,

The Head of Department Environment Engineering
M/s NTPC Limited
NTPC Engineering Office Complex
Sector-24, Noida, Gautam Buddha Nagar
Uttar Pradesh – 201 301
Email: environment.ntpc@gmail.com

Sub: Rammam Hydroelectric Power Project Stage-III (3 x 40 MW) is a Run of the River in an area of 74.077 ha by M/s NTPC Limited in Tehsil Soreng & Darjeeling Pulbazar, District Darjeeling of State West Bengal & West Sikkim of State Sikkim - Environmental Clearances - Reg.

Sir,

This has reference to your online Proposal No. IA/WB/RIV/162957/2020 and letter No. CC: ESE: 5602:2021: GEN dated 7th July, 2021 submitted to the Ministry for Environmental Clearance to the project cited in the subject.

2. The Ministry of Environment, Forest and Climate Change has considered the application. It is noted that the proposal is for grant of Environmental Clearance to the Rammam Hydroelectric Power Project Stage-III (3x40 MW) is a Run of the River in an area of 74.077 ha by M/s NTPC Limited in Tehsil Soreng & Darjeeling Pulbazar, District Darjeeling of State West Bengal & West Sikkim of State Sikkim.

3. The proposal was considered by the Expert Appraisal Committee (EAC) for River Valley & Hydroelectric Projects in its 15th EAC Meeting held on 27th July 2021. The comments and observations of EAC on the project may be seen in the Minutes of the meeting which are available on the web-site of this Ministry. The details of the project submitted by project proponent and ascertained from the document submitted are mentioned below:

- (i) M/s NTPC Limited is constructing Rammam Hydro Electric Power Project (HEPP), Stage III (3x40 MW) in Darjeeling District of West Bengal. The project is located on Rammam River, which flows along the border of West Bengal and Sikkim at about 50 km from Ghoom and 130 km from Siliguri on Siliguri-Darjeeling Road in District Darjeeling of West Bengal.
- (ii) MoEF&CC accorded the Environmental Clearance (EC) vide letter no. J-12011/42/2007-IA.I dated 17.08.2007 with a validity period of 10 years. Further, MoEF&CC vide its letter dated 13.07.2017, extended the validity of EC for a further period of 3 years i.e. up to 16.08.2020. MOEF&CC vide Notification dated

18.01.2021 has amended the EIA Notification, 2006 and made a provision that period from 01.04.2020 to the 31.03.2021 shall not be considered for the purpose of calculation of the period of validity of prior Environmental Clearance in view of outbreak of Corona Virus (COVID-19) and subsequent lockdowns. Hence, the Environment Clearance for Rammam HEPP is valid till 16.08.2021.

- (iii) Rammam Stage-III H.E Project is a Run of the River (ROR) scheme utilizing power potential of Rammam River from elevation 900 m to 397 m, in the District of Darjeeling, West Bengal with an installed capacity of 120 MW (3x40 MW). All the major project components are located in the State of West Bengal except the right abutments of the Barrage structure and a portion of submergence area in Siktam Block of West Sikkim. A surface powerhouse is proposed with 03 units of 40 MW capacity each. About 347 families from 6 villages of West Bengal and 3 villages of Sikkim are affected by this project, which have been rehabilitated
- (iv) Rammam HEPP, which is under advance stage of construction and more than 50% work has been completed, it is exempted from requirement of public hearing as per MoEF&CC Notification S.O. 1247(E) dated 18.03.2021.
- (v) The MoEF&CC granted the ToR for the proposed project vide F. No. J-12011/11/2020-IA-I (R) dated 12th February, 2021. M/S SV Enviro Labs & Consultants a NABET-QCI Accredited firm has been entrusted to conduct an Environmental Impact Assessment (EIA) for the project.
- (vi) **Project Components:**
- The project consists of 23 m high Barrage (above u/s apron level) 122.5m long Barrage near Lodhama Village.
 - Approximately 10.75km of water conductor system (8.2 km long 3.5m dia horse shoe shape head race tunnel, 1.6 km long Penstock and 0.74 km long tailrace channel etc.).
 - It has also a 14.5 m dia 53.75m high surge shaft.
 - A deep seated surface power house near Barbatia village on right bank of the Rammam River.
 - It envisaged to use water from catchment area of 247sq. km.
 - The Full Reservoir Level (FRL) of the pondage behind the Barrage structure has been fixed at EL903m with a view to provide sufficient storage capacity above Minimum Draw Down Level to provide optimum peaking operation of more than 2 hours at a time.
 - The Minimum Draw Down Level (MDDL) is fixed at EL 892m.
 - The storage at FRL is 0.27MCM and at MDDL is 0.05MCM.
- (vii) **Salient Features of the Project:**

| LOCATION | | |
|----------|-----------------------|--|
| a) | State | West Bengal |
| b) | District | Darjeeling |
| c) | Latitude & Longitude | Diversion Structure: 27°06'47"N, 88°08'39"E Township: 27°07'47"N, 88°12'55"E Power House: 27°07'25"N, 88°13'20"E |
| d) | Nearest rail head | New Jalpaiguri (115KM) |
| e) | Nearest Airport | Bagdogra (110KM) |
| f) | Approach/ Access Road | 50Km From Ghoom (Siliguri- |

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| | | |
|--|------------------------------------|--|
| | | Darjeeling Road), 130KM From Siliguri |
| g) | Name of the River, Tributary | Rammam |
| h) | Name of River basin | Teesta Basin |
| HYDROLOGY AND CLIMATE | | |
| a) | Catchment Area up to head works | 247sq.km |
| b) | Average Annual Yield | 686.56 MCM |
| c) | Maximum/Minimum Yield | 1040.37/ 485.65MCM |
| d) | Average annual rainfall | 2800 mm |
| e) | Design Flood | 1825 cumecs |
| f) | Ninety percent available discharge | 15.43 cumecs |
| g) | Max. temperature | 30° C |
| h) | Min. temperature | 3° C |
| i) | Max. relative humidity | 100% |
| j) | Design discharge for barrage/dam | 1825 cumecs |
| BARRAGE/DAM | | |
| a) | Length of Barrage | 122.5 m |
| b) | Height of Barrage | 23 m (above u/s apron level) |
| c) | Number of gated bays | 5 |
| d) | Type of gate | Radial Gate (operated by hydraulic hoists) |
| e) | Crest elevation | 884.00 m (4bays)/882.00 m (1bay) |
| f) | Width of the top roadway | 6.5 m |
| RESERVOIR | | |
| a) | Full Reservoir Level (FRL) | 903.00 m |
| b) | Maximum Drawdown Level (MDDL) | 892.00 m |
| INTAKE | | |
| a) | No of Intake | 2 |
| b) | Design discharge of Intake | 33.0 m ³ /sec |
| c) | Center line of Intake | EL 887.50 m |
| d) | Nos. and size of Gates | 2 (2.60 m x 2.850 m) each |
| e) | Type of Gates | Fixed Wheel |
| f) | Intake Bulk Head Gate | 1 No. 2.60 x 2.85 m fixed wheel type |
| DESILTING CHAMBER (Underground) | | |
| a) | Numbers | 2 |
| b) | Size | 140.0 x 7.50 x 12.55m |
| c) | Top level of trough | EL. 876.85 m |
| d) | Bottom Level of Conduits | EL. 875.85 m |
| e) | Design discharge | 33.0 cumec |
| f) | Discharge (for flushing) | 4.69cumec (for both SFT) |
| g) | Particle size to be removed | 0.2 mm & above |
| h) | Efficiency of removal | 90 % |
| HEAD RACE TUNNEL | | |

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| | | |
|----------------------------------|--|--|
| a) | Alignment | Right bank |
| b) | Length | 8200 m |
| c) | Shape & Diameter | Horseshoe & 3.5 m diameter |
| d) | Design discharge | 28.31 m ³ /sec. |
| e) | Velocity | 1.93m/sec. |
| f) | Number of adits | 3 |
| SURGE SHAFT | | |
| a) | Type | Restricted orifice type |
| b) | Dia (m) | 14.50 |
| c) | Height (m) | 53.75 m |
| d) | Top Elevation (m) | 923.0 |
| e) | Bottom Elevation (m) | 869.25 |
| PRESSURE SHAFT / PENSTOCK | | |
| a) | Type | Circular |
| b) | Number of Pressure Shafts / | One |
| c) | Penstocks | Circular |
| d) | Maximum discharge through pressure shaft / penstocks (cumecs) | |
| e) | Dia. of each pressure shaft / penstock | 2.7 m |
| f) | Maximum Velocity | 4.9 m / sec |
| g) | Length of pressure shaft / penstock | 1526 m |
| h) | Penstock valve (type & dia) | Butterfly, 2.5 m dia |
| POWER HOUSE | | |
| a) | Type | Deep Seated Surface Power House |
| b) | Location | Near village Barbatia in West Bengal |
| c) | Number of units | 3 |
| | Size of Power House | 73.50 m x 22.40 m x 41.60 m |
| d) | Rated unit capacity | 40 MW |
| e) | Installed capacity | 120 MW |
| f) | Max. Gross Head | 495.33 m |
| g) | Rated Head (m) | 484.33 m |
| h) | Type of turbine | Vertical shaft pelton |
| i) | Maximum flow through each unit | 9.33 cumec |
| j) | Generator | |
| | Type | Synchronous, Vertical Shaft |
| | Power factor, generator voltage | 0.9, 11.0 kV |
| | Speed | 428.6 rpm |
| k) | Size of machine hall | 65.0 x 19 x 35m |
| l) | Transformers – Type, Nos., No. of Phases, step – up voltage capacity | Single phase, 11 Nos., 16 mVA, 11/132/ $\sqrt{3}$ kV |
| m) | Power House Cranes | |
| | - Nos. and Capacity (Ton) | 1 EOT Crane with 125 T main hook & 25 T auxiliary hook |

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| TAIL RACE CHANNEL | | |
|--|--|------------------------------|
| a) | Size | 4m x 3m, Rectangular Section |
| b) | Length | 740 m |
| c) | Tail Water Level | 397.0 m (max.) |
| SWITCHYARD | | |
| a) | Type of Switchyard | Conventional |
| b) | Number of bays in the switchyard | 9 |
| c) | Voltage Level | 132 kV |
| d) | Location | Outdoor |
| ENVIRONMENTAL SENSITIVITY | | |
| Singalila National Park | None of the project components are within the Eco-sensitive zone of Singlila National Park notified by MOEF&CC notification No. S.O. 3613 (E) dated 16.11.2017 (copy enclosed as Annexure-XV). The nearest boundary of Singalila National Park Eco-Sensitive Zone is located at about 7.1 km from the Rammam Stage-III HEPP. However, the Singalila National Park is about 9.0 km from the project components | |
| 9.0 km from the project components. | None of the project components are within the Eco-sensitive zone of Barsey Rhododendron wild life Sanctuary notified by MoEF&CC notification No. S.O.2172 (E) dated 27.08.2014 (copy enclosed as Annexure-XVI). The nearest boundary of Barsey Rhododendron Wildlife Sanctuary Eco-sensitive Zone is about 4.2 km from the Rammam Stage-III HEPP. However, the Barsey Rhododendron Wildlife Sanctuary is about 4.4 km from the project components. | |
| R & R | <ul style="list-style-type: none"> • 275 families have lost only land. • 61 families have lost land as well as homesteads. • 11 families have lost only homesteads | |
| TARIFF (As per Investment approval) | | |
| Levellised | Rs. 6.51 k Whr | |
| First years | Rs. 7.88 k Whr | |
| PROJECT COST | | |
| Total Cost of the Project | <ul style="list-style-type: none"> • As per EC: Rs. 633.92 Crores • As per Inv. Approval: Rs. 1,381.84 Crores (2ndQtr, 2014) | |

(viii) **Ambient Air Quality:** The ambient air quality representing PM10, PM2.5 Sulfur Dioxide (SO2), Nitrogen Oxides (NOx), Carbon Monoxide (CO) was monitored at

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seven different locations for 24 hours twice a week from July' 2020 to September' 2020. Volatile Organic Carbons (VOCs), Methane (CH₄), non-methane hydrocarbons (NMHCs), Ozone, Ammonia, Lead (Pb), Benzene (C₆H₆), Benzo(a) pyrene (BaP), Arsenic (As), Nickel (Ni) were monitored for the same period. All the parameters were found to be below the National Ambient Air Quality Standards (NAAQS), 2009. The average 24 hourly PM₁₀ at monitoring locations ranged between 29.0-66.9 µg/m³ (NAAQS-100 µg/m³). The average 24 hourly PM_{2.5} at monitoring locations ranged between 8.1-33.0 µg/m³ (NAAQS-60 µg/m³). The average 24 hourly SO₂ at monitoring locations ranged between 6.8-13.1 µg/m³ (NAAQS-80 µg/m³). The average 24 hourly NO_x at monitoring locations ranged between 7.2-14.6 µg/m³ (NAAQS-80 µg/m³). The average 24 hourly CO at monitoring locations ranged between 0.10-0.30 µg/m³ (NAAQS-4.0 mg/m³). The average 24 hourly O₃ at monitoring locations ranged between 9.2-44.2 µg/m³ (NAAQS-180 µg/m³). Ammonia (NH₃, Lead (Pb), Benzene (C₆H₆), Benzo(a) pyrene (BaP), Arsenic (As), Nickel (Ni), HC (methane and non-methane Hydro Carbon), Volatile Organic Carbon (VOC) - are remained below detection limit (BDL) in the study area.

- (ix) **Ambient Noise Levels:** The noise quality was monitored for 24 hours at seven locations in and around the project site. The ambient noise quality at day and night was in compliance to the Noise Limits set for the residential area as per Noise Pollution (Control and Regulations), 2000. The daytime noise level was found in the range between 50.8-62.5 dB (A) whereas the night time noise level was found in the range between 42.6-55.6 dB(A).
- (x) **Geology:** Geologically, three important groups of rocks observed in the vicinity of the project area. They are older Daling group, younger Gondwana group and older Daling/Buxa group. No major occurrence of economic deposit has been found in the study area, except materials like boulder, pebbles, sand that bears no economic mineral importance, being utilized as construction material.
- (xi) **Hydrogeology:** The major water bearing formations are Darjeeling, Daling and Gondwana groups where ground water occurs in weathered zones, joints and fractures. The project area is characterized by hilly terrain - it acts as a recharge area where surface runoff is very high, has limited infiltration in the intermountain valleys. Ground water is harnessed using perennial springs and jhoras. The discharge of most of the springs ranges from 1 to 50 lpm during lean period and a few jhorasikholas give discharge in the range of 50 to 500 lpm. Piedmont zone with high permeability, sloping topography and sub-surface runoff is characterised by poor to moderate yield ranging from 5 to 50 cum per hour. Aquifers in alluvial plain are highly potential with yield prospects ranging from 50 to 150 cum per hour. Aquifers at 200m below ground level with expected yield of 27 litres per second are reported. Water level fluctuation is in the order of 2 to 6 m in the northern foot hill part and less than 2m in the central and southern parts.
- (xii) **Groundwater Quality:** Groundwater was collected and analyzed as per IS: 10500:2012 from six locations in the study area. All the parameters analyzed were under the acceptable and permissible limit of IS: 10500:2012. Heavy metals were found to be below detection limit.
- (xiii) **Surface Water Quality:** Surface water was sampled from six representative locations. The water samples were analyzed and compared as per IS 2296. The pH of the surface water samples varied from 6.8-7.2. The DO levels at all the locations exhibited values ranging from 5.1-6.1 mg/l. Nitrate content of all collected surface water sample ranges from 0.14-0.31 mg/l. TDS and Total hardness was found to

- be 71 mg/l to 86 mg/l and 24 mg/l to 36 mg/l respectively. The total coliform count of the surface water samples varied between 440MPN/100 ml to 480MPN/100 ml. All the heavy metals were found to be within below detectable limits. However, the water quality is not coming under any class designated by CPCB Water Use Criteria, but during the field visit, it has been observed that the water is being used for irrigation, bathing, cleaning and for catching fishes
- (xiv) **Soil:** The pH of the soils is acidic in nature. The electrical conductivity in the study area is varying from 52.3 to 62.9 micro-mhos/ cm ($\mu\text{mhos/cm}$). This is average for germination. Nitrogen, phosphorus, potassium and organic Carbon are very less sufficient level for crops. Residual soils are well developed on level summits of lesser Himalayas, sub-soils are deep and heavily textured. High contents of organic matter are found in its 'A' horizon and are acidic in nature. The soils in the region are average fertile enough for cultivation of crops.
- (xv) **Biological Environment:** Baseline Survey (Primary data through site visit) and Secondary data received from Forest Department's Website and other published and unpublished document regarding sensitive ecological habitat and sensitive flora and fauna in the study area. The study area has an undulating topography characterized by hills, hillocks (Locally known as tillah), wide plains, and low-lying waterlogged areas (locally known as beels). The vegetation is mixed evergreen and deciduous forest and in this region, forests are degraded due to development of Tea Estates and Rubber plantations.
- (xvi) **E-flow:** Environmental clearance for Rammam HEPP the projects was accorded with a condition that "*iv*) A minimum flow of 1 cumec shall always be released from the barrage. The minimum flow to be released is about 22% of the minimum flow of 4.47 cumec recorded in the river." The change in minimum flow as per Standard TOR at this stage shall drastically reduce the power generation from the project and render the project commercially unviable. In view of the above, NTPC Rammam HEPP will maintain the minimum Environmental flow of 1 cumecs as stipulated in the original environmental clearance.
- (xvii) **Fish pass:** Snow trout (*Schizothorax richardsonii*) is the endemic species. The barrage of the project will act as a barrier to the free movement of fish species. There are no satisfactory fish passes available for snow trout. A comprehensive fish management plan including construction of a hatchery is proposed to be implemented in consultation with Fisheries Department, Govt. of West Bengal and Fisheries Department of Sikkim.
- (xviii) **Land Requirement:** The total land required for the project is 74.077 Ha of which 66.77 Ha is acquired in West Bengal and the balance 7.3 Ha is acquired in Sikkim. The entire land for the project has already been acquired. The submergence area is 3.852 Ha, which is located in upstream of confluence of Rammam River near Lodhama Village in the Darjeeling district.
- (xix) **Ecological Sensitive Area:** There is no wildlife corridors in study area. Singalila National Park is located at about 9 km from the Rammam Stage-III HEPP. The nearest distance between the project and the boundary of eco-sensitive zone is 7.1 km. The nearest boundary of Barsey Rhododendron Wildlife Sanctuary Eco-sensitive Zone is about 4.2 km from the Rammam Stage-III HEPP. However, the Barsey Rhododendron Wildlife Sanctuary is about 4.4 km from the project components.
- (xx) **Muck Disposal Areas:** Muck of 0.99 Mm³ is expected to be generated from construction of project. Out of which 0.40 Mm³ is being utilized as construction material. At the present the dumping sites are already identified for muck disposal.

The balance 0.59 Mm³ muck shall be disposed at designated/identified site in a planned manner so that it takes a least possible space and is not hazardous to the environment. An area of 6.66 Ha has been earmarked which can cater the entire quantity of muck to be disposed. About 0.132 Mm³ of aggregate is utilized for filling and construction works from muck generated during excavation of underground works like HRT and desilting chamber. A toe wall has been created around the muck disposal site and more landscaping to be done in the muck site.

- (xxi) **Rehabilitation and Resettlement Plan:** Acquiring the stretches of hilly agricultural as well as homestead land for its project is likely to affect/displace number of people. Accordingly, as per the R&R Policy of NTPC as well as Government of West Bengal and Sikkim, NTPC initiated measures to resettle and rehabilitate Project Affected Persons (PAPs) with the objective that the PAPs will improve or at least regain their previous standard of living. The Rehabilitation Action Plan (RAP) is formulated so that after a reasonable transition period, the displaced/affected persons improve, or at least regain their previous standard of living, earning capacity and production levels. The transition gap also is to be reduced to a minimum.
- (xxii) **Environmental Management Plan:** The total amount cost for implementation of Environmental Management Plan (EMP) is Rs. 3269.1 lakh (excluding cost required for cost of trees and NPV of forest land acquired).

| S. No. | Item | Cost (Rs. lakh) |
|--------|---|-----------------|
| 1. | Sanitary facilities in labour camps | 41.0 |
| 2. | Solid waste management | 53.5 |
| 3. | Provision for free fuelwood distribution | 78.6 |
| 4. | Environmental Management in road construction | 99.0 |
| 5. | Management of muck disposal sites | 103.1 |
| 6. | Landscaping and restoration of construction sites | 20.0 |
| 7. | Greenbelt development | 15.0 |
| 8. | Compensatory afforestation | 15.9 |
| 9. | Public Health Delivery System | 250.0 |
| 10. | Construction of settling tanks | 20.0 |
| 11. | Sustenance of riverine fisheries | 65.0 |
| 12. | Wildlife Conservation | 83.7 |
| 13. | Setting up Environmental Laboratory | 30.0 |
| 14. | Catchment Area Treatment Plan | 320.8 |
| 15. | Resettlement & Rehabilitation Plan including CD | 1903.0 |
| 16. | Cost of noise meter | 0.5 |
| 17. | Env. Monitoring Programme during construction | 70.0 |
| 18. | Contingencies | 100.0 |
| | Total | 3269.1 |

- (xxiii) **Project benefit:** The project will provide impetus to the development of the area and also provide green energy i.e. hydro-electric power. Various infrastructure like

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roads, bridges, schools buildings, community center has been developed by project. Various welfare and development activities are being implemented as per CD/CER/CSR plan. The estimated no. of employees during operation phase of the project is estimated to be about 50. Considering the staff of CISF and support services, it is estimated that about 100 families will reside in the project township during operation stage. However, during construction stage, the number of workers are about 1000.

(xxiv) **Public hearing:** PH was conducted in WB on 27.04.2007 and in Sikkim on 04.05.2007, based on which EC was accorded on 17.08.2007. As the project is under advance stage of construction and more than 50% has been completed, it is exempted from requirement of fresh public hearing as per MoEF&CC Notification S.O. 1247(E) dated 18.03.2021.

(xxv) **Status of other statutory clearances:** The construction of the project was started after obtaining all statutory clearances, such as Techno Economic Clearance (TEC) by CEA (dated 12.09.2006, re-validated on 01.08.2013), NOC from Ministry of Defense (20.01.2006), EC by MOEF&CC (vide letter No. J-12011/42/2007-IA.I dated 17.08.2007, extended up to 16.08.2020 and then up to 16.08.2021), Wildlife Clearance by Directorate of Forest, GoWB (01.02.2008), Final Forest Clearance by MOEF&CC (23.05.2008), Consent to Establish from West Bengal Pollution Control Board and SPCB, Sikkim. The project site was inspected by Integrated Regional Office, MOEF&CC Kolkata on 23.03.2021 and 24.03.2021. Certified Report No: 102-166/07/EPE dated 06.04.2021 from MoEF&CC, Integrated Regional Office, Kolkata.

4. The sectoral Expert Appraisal Committee after detailed deliberations in its 15th meeting held on 27th July 2021 through Video conferencing on the information submitted and as presented recommended the proposal for Environmental Clearance. Based on recommendation of EAC, Ministry, hereby accords approval for grant of Environmental Clearance to Rammam Hydroelectric Power Project Stage-III (3 x 40 MW) located at Tehsil Soreng & Darjeeling Pulbazar, District Darjeeling of State West Bengal & West Sikkim of State Sikkim, under the provisions of EIA Notification, 2006 and subsequent amendments/circulars thereto subject to the compliance of the following additional terms & conditions/specific conditions for environmental safeguards:

- (i) The Environmental Management Plan (EMP) shall be strictly adhered to as submitted in the EIA/EMP report. The budgetary provisions for implementation of EMP, shall be fully utilized and not to be diverted to any other purpose. In case of revision of the project cost or due to price level change, the cost of EMP shall also be updated proportionately.
- (ii) Environment matrix provided in EMP be revised if any data change. Number and period of stocking of Fish be incorporated in EMP.
- (iii) Pasture Development Plan be revised in terms of Rate of plantation and their Cost.
- (iv) After 5 years of the commissioning of the project, a study shall be undertaken regarding impact of the project on the environment. The study shall be undertaken by an independent agency.
- (v) Certain geological changes or catastrophic event within 10km region, every two year data shall be submitted to RO, MoEF&CC.
- (vi) Solid waste generated, especially plastic waste, etc. should not be disposed of as landfill material. It should be treated with scientific approach and recycled. Use of

- single-use plastics may be discouraged.
- (vii) PP shall ensure the Ambient Air Quality Monitoring Stations for real time data display and regularly submit to respective RO, MoEF&CC.
 - (viii) Land acquired for the project shall be suitably compensated in accordance with the law of the land with the prevailing guidelines. Private land shall be acquired as per provisions of Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation and Resettlement Act, 2013.
 - (ix) PP shall procure construction material only from those Organizations having all valid legal/statutory clearances/permissions or necessary permission to be obtained for quarrying construction materials for the project as per the EIA Notification, 2006 and as amended thereof.
 - (x) An institutional mechanism to be developed to ensure the preference of jobs to PAFs and also a policy for preferential treatment for award of sundry works to the PAFs and their dependents.
 - (xi) Necessary control measures such as water sprinkling arrangements, and construction of paved roads leading to muck disposal sites etc. shall be taken up on priority to arrest fugitive dust at all the construction sites.
 - (xii) Stabilization of muck disposal sites using biological and engineering measures shall be taken up immediately to ensure that muck does not roll down the slopes and shall be disposed safely and that it does not pollute the natural streams and water bodies in surrounding area. Report of the same to be submitted to Ministry and its Regional office.
 - (xiii) A multi-specialty hospital to cater the need of people living within 10 km radius of the project shall be established.
 - (xiv) Solar panel be provided to the families living in rural areas within 10 km radius of project.
 - (xv) The e-flow shall continue to be released as per the previous EC granted to the project. Additionally, as committed.
 - (xvi) Computer labs with internet facility shall be established in primary schools within 10 km radius of project.
 - (xvii) Sport complex with multi-sport facility shall be established. The children's from economically weaker section shall be given free of cost sport facility.
 - (xviii) A time bound action plan for compliance of each of the above condition will be submitted to RO, MoEF&CC within 3months.
 - (xix) The Multi-Disciplinary Committee needs to be reconstituted and the meeting needs to be held at regular interval.
 - (xx) PP should establish in house (at project site) environment laboratory for measurement of environment parameter with respect to air quality and water (surface and ground. A dedicated team to oversee environment management shall be setup which should comprise of Environment Engineers, Laboratory chemist and staff for monitoring of air, water quality parameters on routine basis.
 - (xxi) All the specific conditions mentioned in the EC dated 17.08.2007 shall be complied within stipulated time.
 - (xxii) In view of proximity of the project from Singalila National Park, Barsey Rhododendron Wildlife Sanctuary the PP shall obtain necessary permissions from NBWL, if applicable.
 - (xxiii) Keeping in view the rich bio-diversity of the area, the PP shall establish a herbal park in the project area in consultation with the Forest department and carry out its maintenance for at least for 5 years after completion of the project.

5. Standard EC Conditions for River Valley and Hydroelectric projects

I. Statutory compliance:

- i. The project proponent shall obtain forest clearance under the provisions of Forest (Conservation) Act, 1986, in case of the diversion of forest land for non-forest purpose involved in the project.
- ii. The project proponent shall obtain clearance from the National Board for Wildlife, if applicable.
- iii. The project proponent shall prepare a Site-Specific Conservation Plan & Wildlife Management Plan and approved by the Chief Wildlife Warden. The recommendations of the approved Site-Specific Conservation Plan/ Wildlife Management Plan shall be implemented in consultation with the State Forest Department. The implementation report shall be furnished along with the six-monthly compliance report. (incase of the presence of schedule-I species in the study area)
- iv. The project proponent shall obtain Consent to Establish/ Operate under the provisions of Air (Prevention & Control of Pollution) Act, 1981 and the Water (Prevention & Control of Pollution) Act, 1974 from the concerned State pollution Control Board/ Committee.
- v. NOC shall be obtained from National Commission of Seismic Design Parameters (NCSDS) of CWC.
- vi. Necessary approval of CEA shall be obtained for those projects having the project cost more than Rs. 1,000 crore.

II. Air quality monitoring and preservation

- i. Regular monitoring of various environmental parameters viz., Water Quality, Ambient Air Quality and Noise levels as per the CPCB guidelines at designated locations shall be carried out on monthly basis and a detailed database of the same shall be prepared and recorded. This shall be used as a baseline data for post construction EIA / Monitoring purposes.
- ii. Appropriate Air Pollution Control (APC) system shall be provided for all the dust generating points including fugitive dust from all vulnerable sources, so as to comply prescribed standards.
- iii. Necessary control measures such as water sprinkling arrangements, etc. betaken up to arrest fugitive dust at all the construction sites.

III. Water quality monitoring and preservation

- i. Conjunctive use of surface water to be planned in the project to check water logging as well as to increase crops productivity. The field drains shall be connected with natural drainage system.
- ii. Remodelling of existing natural drains (link drains) and connecting them with irrigated land through constructed field drains, collector drains, etc. are to be ensured on priority basis.
- iii. Before impounding of the water, Cofferdams for both at the upstream and downstream are to be decommissioned as per EIA/EMP report so that once the project is commissioned; cofferdam should not create any adverse impact on water environment including the rock mass and muck used for the Cofferdam.
- iv. As the reservoir will be acting as balancing reservoir and there would be fluctuation of water level during peaking period, efforts be made to reduce

- impact on aquatic life including impacts during spawning period both at the upstream and downstream of the project
- v. Water depth sensors shall be installed at suitable locations to monitor e-flow. Hourly data to be collected and converted to discharge data. The Gauge and Discharge data in the form of Excel Sheet be submitted to the Regional Office, MoEF&CC and to the CWC on weekly basis.
 - vi. Mixed irrigation shall be practised and necessary awareness be given to all the farmers and trained in the use of such systems. Proper crops selection shall be carried out for making irrigation facility more effective.
 - vii. On Farm Development (OFD) works like landscaping, land levelling, drainage facilities, field irrigation channels and farm roads, etc. should be taken up in phased manner prior to the start of irrigation in the entire command area. The Command Area Development Plan should be strictly implemented as proposed in the EIA/EMP report

IV. Noise monitoring and prevention

- i. All the equipment likely to generate high noise shall be appropriately enclosed or inbuilt noise enclosures be provided so as to meet the ambient noise standards as notified under the Noise Pollution (Regulation and Control) Rules, 2000, as amended in 2010 under the Environment Protection Act (EPA), 1986.
- ii. The ambient noise levels should conform to the standards prescribed under E(P)A Rules, 1986 viz. 75 dB(A) during day time and 70 dB(A) during night time

V. Catchment Area Treatment Plan

- i. Catchment Area Treatment (CAT) Plan as proposed in the EIA/EMP report shall be implemented in consultation with the State Forest Department and shall be implemented in synchronization with the construction of the project.

VI. Waste management

- i. Muck disposal be carried out only in the approved and earmarked sites. The dumping sites shall be located sufficiently away from the HFL of the river. Efforts be made to reuse the muck for construction and other filling purposes and balanced be disposed of at the designated disposal sites. Once the muck disposal sites are inactive, proper treatment measures like both engineering and biological measures be carried out so that sites are stabilized quickly.
- ii. Solid waste management should be planned in details. Land filling of plastic waste shall be avoided and instead be used for various purposes as envisaged in the EIA/EMP reports. Efforts be made to avoid one time use of plastics.

VII. Green Belt, EMP Cost, Fisheries and Wildlife Management

- i. Based on the recommendation of Cumulative Impact Assessment and Carrying capacity study of river basin or as per the ToR conditions or minimum 15% of the average flow of four consecutive leanest months, whichever value is higher, shall be released as environmental flow.
- ii. Detailed information on species composition particular to fish species from previous study/literature be inventorized and proper management plan shall be prepared for insitu conservation in the streams, tributaries of river and the

- main river itself for which adequate budget provision be made and followed strictly.
- iii. Wildlife Conservation Plan prepared for both core and buffer zones shall be implemented in consultation with the local State Forest Department.
 - iv. To enrich the habitat of the project site, plantation shall be raised as envisaged in the EIA/EMP report. Plantation to be developed along the periphery of the reservoir in multi-layers with local indigenous species in consultation with the local State Forest Department.
 - v. Compensatory afforestation programme shall be implemented as per the plan approved.
 - vi. Fish ladder/pass as envisaged in the EIA/EMP report shall be provided for migration of fishes. Regular monitoring of this facility be carried out to ensure its effectiveness.

VIII. Public hearing and Human health issues

- i. Resettlement & Rehabilitation plan be implemented in consultation with the State Govt. as approved by the State Govt
- ii. Budget provisions made for the community and social development plan including community welfare schemes shall be implemented in toto.
- iii. Preventive measures viz. fuming and spraying of mosquito control shall be done in and around the labour colonies, affected villages, stagnated pools, etc. Provisions be made to not to create any stagnated pools to avoid creation of breeding grounds of the vector borne diseases
- iv. Provision shall be made for the housing of construction labour within the site with all necessary infrastructure and facilities such as fuel for cooking, mobile toilets, mobile STP, safe drinking water, medical health care, crèche etc. The housing may be in the form of temporary structures to be removed after the completion of the project.
- v. Labourforce to be engaged for construction works shall be examined thoroughly and adequately treated before issuing them work permit. Medical facilities shall be provided at the construction sites.
- vi. Early Warning Telemetric system shall be installed in the upper catchment area of the project for advance intimation of flood forecast.
- vii. Emergency preparedness plan be made for any eventuality of the dam failure and shall be implemented as per the Dam Break Analysis

IX. Corporate Environment Responsibility

- i. The project proponent shall comply with the provisions contained in this Ministry's OM vide F. No. 22-65/2017-IA.III dated 1st May 2018, as applicable, regarding Corporate Environment Responsibility.
- ii. Skill mapping be undertaken for the youths of the affected project area and based on the skill mapping, necessary trainings to the youths be provided for their long time livelihood generation
- iii. The company shall have a well laid down environmental policy duly approve by the Board of Directors. The environmental policy should prescribe for standard operating procedures to have proper checks and balances and to bring into focus any infringements/deviation/violation of the environmental/ forest/ wildlife norms/ conditions. The company shall have defined system of reporting infringements/ deviation/ violation of the environmental/ forest/ wildlife norms/ conditions and/ or shareholders/ stake holders. The copy of



- the board resolution in this regard shall be submitted to the MoEF&CC as a part of six-monthly report.
- iv. A separate Environmental Cell both at the project and company head quarter level, with qualified personnel shall be set up under the control of senior Executive, who will directly to the head of the organization.
 - v. Action plan for implementing EMP and environmental conditions along with responsibility matrix of the company shall be prepared and shall be duly approved by competent authority. The year wise funds earmarked for environmental protection measures shall be kept in separate account and not to be diverted for any other purpose. Year wise progress of implementation of action plan shall be reported to the Ministry/Regional Office along with the Six Monthly Compliance Report.
 - vi. Post EIA and SIA be prepared for the project through a third party and evaluation report be submitted to the Ministry after five years of commissioning of the project.
 - vii. Multi-Disciplinary Committee (MDC) be constituted with experts from Ecology, Forestry, Wildlife, Sociology, Soil Conservation, Fisheries, NGO, etc. to oversee implementation of various environmental safeguards proposed in EIA/EMP report during construction of the project. The monitoring report of the Committee shall be uploaded in the website of the Company.
 - viii. Formation of Water User Association/Co-operative be made involment of the whole community be ensured for discipline use of available water for irrigation purposes

X. Miscellaneous

- i. The project proponent shall make public the environmental clearance granted for their project along with the environmental conditions and safeguards at their cost by 5 prominently advertising it at least in two local newspapers of the District or State, of which one shall be in the vernacular language within seven days and in addition this shall also be displayed in the project proponent's website permanently.
- ii. The copies of the environmental clearance shall be submitted by the project proponents to the Heads of local bodies, Panchayats and Municipal Bodies in addition to the relevant offices of the Government who in turn has to display the same for 30 days from the date of receipt.
- iii. The project proponent shall upload the status of compliance of the stipulated environment clearance conditions, including results of monitored data on their website and update the same on half-yearly basis.
- iv. The project proponent shall submit six-monthly reports on the status of the compliance of the stipulated environmental conditions on the website of the ministry of Environment, Forest and Climate Change at environment clearance portal.
- v. The project proponent shall submit the environmental statement for each financial year in Form-V to the concerned State Pollution Control Board as prescribed under the Environment (Protection) Rules, 1986, as amended subsequently and put on the website of the company.
- vi. The project proponent shall inform the Regional Office as well as the Ministry, the date of financial closure and final approval of the project by the concerned authorities, commencing the land development work and start of production operation by the project. vii. The project authorities must strictly adhere to the



stipulations made by the State Pollution Control Board and the State Government.

- vii. The project proponent shall abide by all the commitments and recommendations made in the EIA/EMP report, commitment made during Public Hearing and also that during their presentation to the Expert Appraisal Committee.
- viii. No further expansion or modifications in the plant shall be carried out without prior approval of the Ministry of Environment, Forests and Climate Change (MoEF&CC).
- ix. Concealing factual data or submission of false/ fabricated data may result in revocation of this environmental clearance and attract action under the provisions of Environment (Protection) Act, 1986.
- x. The Ministry may revoke or suspend the clearance, if implementation of any of the above conditions is not satisfactory.
- xi. The Ministry reserves the right to stipulate additional conditions if found necessary. The Company in a time bound manner shall implement these conditions.
- xii. The Regional Office of this Ministry shall monitor compliance of the stipulated conditions. The project authorities should extend full cooperation to the officer (s) of the Regional Office by furnishing the requisite data/ information/ monitoring reports.
- xiii. The above conditions shall be enforced, inter-alia under the provisions of the Water (Prevention & Control of Pollution) Act, 1974, the Air (Prevention & Control of Pollution) Act, 1981, the Environment (Protection) Act, 1986, Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016 and the Public Liability Insurance Act, 1991 along with their amendments and Rules and any other orders passed by the Hon'ble Supreme Court of India/ High Courts and any other Court of Law relating to the subject matter.
- xiv. Any appeal against this EC shall lie with the National Green Tribunal, if preferred, within a period of 30 days as prescribed under Section 16 of the National Green Tribunal Act, 2010

6. All the terms and conditions of the Environment Clearance stipulated in previous EC and amendments dated 17th August, 2007 and 13th July, 2017 shall remain unchanged.

7. This issues with the approval of the Competent Authority.

Yours faithfully,



(Lalit Kumar Bokolia)
Scientist 'F'

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Copy to:

1. The Secretary, Ministry of Power, Shram Shakti Bhawan, Rafi Marg, New Delhi -1
2. The Secretary, Ministry of Water Resources, RD & GR, Shram Shakti Bhawan, Rafi Marg, New Delhi - 3.
3. The Chairman, Central Electricity Authority, Sewa Bhawan, R. K. Puram, New Delh – 110 066.
4. The Chief Engineer, Project Appraisal Directorate, Central Electricity Authority, Sewa Bhawan R. K. Puram, New Delhi - 110 066.
5. The Secretary (Power), Department of Power, Govt. of Sikkim, Secretariat, Gangtok - 737 102.
6. The Secretary, Department of Environment, Government of West Bengal, Writer's Building, Kolkata, West Bengal.
7. The Secretary, Department of Forest, Environment & Wildlife Management, Govt. Of Sikkim, Gangtok - 737 102.
8. The Deputy Director General of Forests (C), Ministry of Environment, Forest & Climate Change North Eastern Regional Office (NEZ), Law-U-SIB, Lumbatngen, Shilong - 793 021.
9. The Deputy Director General of Forests (C), Ministry of Environment, Forest and Climate Change, Regional Office (EZ), A/3, Chandersekharpur, Bhubaneswar – 7510237.
10. The Member Secretary, State Pollution Control Board, Department of Forest, Environment & Wildlife, Deorall, Govt. of Sikkim, Gangtok - 737 101.
11. The Member Secretary, West Bengal Pollution Control Board, Paribesh Bhawan 10A, Block-LA, Sector-III Bidhannagar, Kolkata – 700 106.
12. Guard File.


(Lalit Kumar Bokolia)
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