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Government of India
Ministry of Environment, Forest and Climate Change
IA Division
(River Valley and Hydroelectric Projects)
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Minutes of 22ND MEETING OF THE EXPERT APPRAISAL COMMITTEE meeting River Valley and Hydroelectric Projects held from 10/01/2025 to 10/01/2025 **Date:** 22/01/2025

MoM ID: EC/MOM/EAC/580839/1/2025

Agenda ID: EC/AGENDA/EAC/580839/1/2025

Meeting Venue: INDIRA PARYAVARAN BHAWAN, NEW DELHI

Meeting Mode: Physical

Date & Time:

10/01/2025	10:30 AM	05:30 PM

1. Opening remarks

The 22nd meeting of the EAC for River Valley & Hydro-electric Projects organized by the Ministry of Environment, Forest and Climate Change, Indira Paryavaran Bhawan, Jor Bagh Road, New Delhi, was held on Physical Mode, under the Chairmanship of Prof. G. J. Chakrapani.

2. Confirmation of the minutes of previous meeting

The Minutes of the Meeting held on 21st EAC meeting on 31st December, 2024 were confirmed.

3. Details of proposals considered by the committee

Day 1 -10/01/2025

3.1. Agenda Item No 1:

3.1.1. Details of the proposal

Proposed Expansion of Tembhu Lift Irrigation Project Taluka Karad, District Satara, Maharashtra by **Department of Irrigation** located at **SATARA,MAHARASHTRA**			
Proposal For		Fresh EC	
Proposal No	**File No**	**Submission Date**	**Activity (Schedule Item)**
IA/MH/RIV/482689/2024	J-12011/48/2023-IA.I (R)	06/01/2025	River Valley/Irrigation projects (1(c))

3.1.2. Project Salient Features

22.1.1: The proposal is for grant of Environmental Clearance (EC) to the project for Expansion of Tembhu Lift Irrigation Project in an area of 2284.601 ha at Village Tembhu, Ranad, Govare and etc, Sub District Khatav, Atpadi, Karad and etc, District Satara, Sangli and Solapur, Maharashtra by M/s Department of Irrigation, Maharashtra.

3.1.3. Deliberations by the committee in previous meetings

N/A

3.1.4. Deliberations by the EAC in current meetings

The accredited consultant 'MITCON Consultancy & Engineering Services Limited' vide email dated 10.01.2025 informed that they will be unable to attend meeting and present their case.
Accordingly, the EAC decided to **defer** the matter.

3.1.5. Recommendation of EAC

Deferred for ADS

3.2. Agenda Item No 2:

3.2.1. Details of the proposal

Teesta Hydroelectric Project Stage-III (1200 MW) by **SIKKIM URJA LIMITED** located at **NORTH DISTRICT, SIKKIM**			
Proposal For		Amendment in EC	
Proposal No	**File No**	**Submission Date**	**Activity (Schedule Item)**
IA/SK/RIV/499039/2024	J-12011/26/2006-IA.I	16/11/2024	River Valley/Irrigation projects (1(c))

3.2.2. Project Salient Features

22.2.1: The Project Proponent and the accredited Consultant R. S. Envirolink Technologies Pvt. Ltd., made a detailed presentation on the salient features of the project and informed as under:

ii. The Teesta-III Hydro Electric Project (1200 MW) is a run-of-the-river scheme with diurnal storage to generate a power of 1 200 MW by utilizing the discharge of River Teesta with a gross head of 817.00m between EL.1585.0 m and EL.768.0 m.

iii. The project is located on the main Teesta River in the Mangan district, utilizing drop of about 800 m in the river between Chungthang and Sankalang villages. The project is about 90 km from district headquarters Gangtok via Mangan. Nearest railhead is (Jalpaiguri and Siliguri) and airport are located at Bagdogra respectively. The nearest village to the project is Sankalang about 0.8 Km, which comes under, Mangan District.

iv. The Govt of Sikkim has signed Implementation Agreement (IA) with M/s Teesta Urja Limited for development of Teesta-III hydroelectric project (1200 MW) located in Mangan district of Sikkim. MoEF & CC, New Delhi has granted Environmental Clearance on 04.08.2006 and vide letter dated

30.04.2010, MoEFCC has granted approval for Design Changes for execution of the Project. MoEF&CC vide letter no. J-12011/26/2006-IA-I dated 16.11.2024 has granted approval for transfer of Environment Clearance of Teesta Hydroelectric Project Stage-III (1200 MW) from "Teesta Urja Limited' to "Sikkim Urja Limited'.

v. The Project was commissioned in February 2017 and was in successful operation till 03/04 October 2023 when the Project faced a flash flood which led to the washing away of the Dam and flooding of the underground Powerhouse leading to halting of Project operations. The underground Powerhouse and electro-mechanical equipment can be restored to their original condition in about 10-12 months. The water conductor system is mostly unaffected in the flash flood, hence, other than the Dam most of the components can be restored in a year's time. As most of the components would be ready in a year, there is a case for restoring the Dam and bringing back the Project in operation at the earliest for which EC amendment is requested.

vi. The project proponent has requested for amendment in the EC with the details are as under:

Description	Reference	Existing	Proposed / Amendment	Reason
Approved EC	Para 3	CFRD (concrete faced rockfill dam)	Concrete Gravity dam	To accommodate release of safe discharge of revised Design Flood of 19,946 m3/s (PMF: 7000 cumecs + GLOF: 12,946 cumecs) through open spillway which is not possible in CFRD.
Approved EC	Para 3	Total Land requirement is 196.967 ha. Out of which 80.288 ha is forest land.	Total Land requirement is 213.8831 ha (Forest 83.0405 ha, Govt 4.0360 ha & Pvt 126.8066 ha)	In EIA report (2006), the total land requirement is indicated as 196.9670 Ha, out of which 80.288 ha as forest land. However, during Forest Proposal based on the joint inspection carried out by the Forest Dept/Revenue dept, the total land requirement was evaluated as 199.9209 Ha (Forest 83.0405 Ha, Govt 4.0360 & Pvt 112.8444 Ha) and accordingly forest proposal was submitted. Thereafter during land acquisition process, State Govt has notified and acquired Private Land of 126.8066 Ha for the project under provisions of land acquisition considering the representations it received from landowners to include

Description	Reference	Existing	Proposed / Amendment	Reason
				their lands. On account of this, there is a minor increase of 13.9622 Ha in private land with forest land of 83.0405 ha and Govt land of 4.0360 ha.
Approved EC	Para 3	Forest clearance is yet to be obtained	Stage I Forest clearance of Teesta-III HE project for diversion of 83.0405 ha of forest land was approved by Ministry of Environment Forest and Climate Change, Government of India vide letter No. 8-142/2006-FC on 12.10.2007 and Stage II on 02.11.2007.	NA
Approved EC	Para 3	No Human population will be displaced. However, 158 families are likely to lose their land partially in nine project affected villages. R&R package has been prepared based on NPRR-2003	265 families	All the landowners have been paid compensation as per the directions of R & R committee constituted by State Govt under NPRR, 2003.
Approved EC	Para 3	The estimated cost of the project is INR 5705.55 Cr	The estimated cost for project restoration is INR 4189.51 Cr (incl GST excluding IDC)	Existing project Cost was INR 13,965 Cr (COD-Mar 2017)
Approved EC	Subject	Teesta Hydro-electric Project Stage III (1200 MW) in North District, Sikkim	Teesta Hydro-electric Project Stage III (1200 MW) in Mangan District, Sikkim	North Sikkim district is renamed as Mangan district

Proposal was earlier considered by the EAC in its 19th EAC meeting held on 30.11.2024 and EAC decided to defer the proposal with following observations:

"*…..The EAC expressed serious concerns regarding the dam's design and stability; its ability to withstand potential natural disasters in the future. The committee emphasized the need for a thorough review of the proposed modifications to ensure the structural resilience and safety of the dam, particularly given the region's susceptibility to extreme hydrological events. It was therefore recommended to get comments from the Central Electricity Authority (CEA) on the proposed modifications.* ***Therefore, the EAC opined to conduct a site visit by sub-committee of EAC members before giving any further recommendation to the project….***"

In view of the above, the site visit of Teesta III Project was conducted from 26.12.2024 to 28.12.2024 by a sub-committee of the EAC. The site visit report was deliberated by the EAC in its meeting held on 31.12.2024 and directed the PP to incorporate certain measures in construction / operation stage of the

Project to enhance Dam safety parameters.

22.2.3 [A] PP during the presentation submitted the response on the observations raised by the EAC in its meeting held on 30-11-2024:

Observation 1: The EAC expressed serious concerns regarding the dam's design and stability; its ability to withstand potential natural disasters in the future.

Reply:

- Type of Dam has been changed from CFRD to concrete gravity which is a much more resilient structure minimizing the chance of Dam failure due to overtopping. SUL is employing various measures like jet grouting, permeation grouting to improve the ground conditions and control seepage for the Stage I works.
- Dam spillway capacity has been enhanced from 7,000 cumecs to 19,946 cumecs by considering both GLOF and PMF. The spillway crest is lowered to enhance spillway safety in operation.
- To enhance the safety of the personnel working during Project operations, SUL has plans to shift the Dam control room to a higher elevation.
- Further, SUL will implement a Early Warning System in the upper catchment which gives sufficient time to shift the working manpower from the Dam site and safely operate and open all Dam gates in the event of a flood.
- Operation of spillway gates will be synchronised with the early warning system to ensure all gates opening in time such that gates are operated before travel of flood water to the Dam.

Observation 2: The committee emphasized the need for a thorough review of the proposed modifications to ensure the structural resilience and safety of the dam, particularly given the region's susceptibility to extreme hydrological events.

Reply:

- A comprehensive study for identification of potential threats due to Glacial lakes has been carried out.
- Total 119 Glacial lakes were identified in the catchment. Out of these, 50 glacial lakes were shortlisted with area of 10 ha or more for further evaluation. After detailed study, 13 potentially dangerous glacial lakes were identified based on the water spread area (40 Ha or more), volume and distance. During criticality analysis, combination of lakes was studied to find out the worst-case scenario. Three different combinations were studied, and worst combination was considered for GLOF. In the worst-case combination, highest volume outflow from simultaneous breach of two lakes of 12,946 cumecs was considered. This GLOF capacity has been added to the PMF for deciding the spillway capacity.
- Joint site visit of GSI & CWC was conducted to confirm site suitability. GSI confirmed Dam site suitability based on evaluation of study of 3D geological logs of drifts/tunnels, Bore hole logs and other site investigation Data.
- The CFRD failed due to overtopping as the flood faced was higher than the spillway capacity. To improve the design, safety and structural resilience:

i. The spillway capacity is enhanced to 19,946 cumecs (7000 cumecs PMF + 12,946 cumecs GLOF) leading to capability to tackle a much higher flood.

ii. Further Dam type chosen for reconstruction is concrete gravity which has better resilience and performance in the events of flash floods/ GLOFs etc. and not likely to fail in case of overtopping.

Observation 3: It was therefore recommended to get comments from the Central Electricity Authority (CEA) on the proposed modifications.

Reply: Member of CEA was part of the EAC sub-committee that visited the Project from 26.12.2024 to 28.12.2024 and may have furnished requisite details to EAC.

Observation 4: The EAC further opined to conduct a site visit by a sub-committee of the EAC members before giving any recommendation on the proposal.

Reply: In pursuant to the decision taken by the EAC in its meeting held on 30.11.2024, the sub-committee of EAC visited the project from 26.12.2024 to 28.12.2024.

[B] Additionally, PP during the presentation submitted the point-wise response on the measures recommended by the Sub-Committee to implement in construction / operation stage of the Project to enhance Dam safety parameters:

Recommendation 1: To map all potential glacial lakes in the upper catchment of the Project and coordinate with the Central and State Disaster management authorities for taking information regarding monitoring of these lakes.

Reply:

- A comprehensive study for identification of potential threats due to Glacial lakes has been carried out.

- Total 119 Glacial lakes were identified in the catchment. Out of these, 50 glacial lakes were shortlisted with area of 10 ha or more for further evaluation. After detailed study, 13 potentially dangerous glacial lakes were identified based on the water spread area (40 Ha or more), volume and distance. During criticality analysis, combination of lakes was studied to find out the worst-case scenario. Three different combinations were studied, and worst combination was considered for GLOF. In the worst-case combination, highest volume outflow from simultaneous breach of two lakes of 12,946 cumecs was considered. This GLOF capacity has been added to the PMF for deciding the spillway capacity.
- Further as directed SUL will take necessary steps to coordinate with the Central and State Disaster management authorities for taking information regarding monitoring of these lakes.

Recommendation 2: Project should conduct workshops/ seminars/ conferences and invite domain experts from the fields of glacial studies, disaster management authorities from time to time.

Reply: Shall be complied.

Recommendation 3: To map the landslides in the reservoir area of the Dam and extend the landslide study to 5 km in both Lachen and Lachung catchment and take actions for monitoring of potential landslides and mitigation measures for Dam safety.

Reply:

- Study for mapping the land slides in the reservoir area of the dam is already conducted.
- Further study for mapping landslides upto 5 km in both Lachen and Lachung catchment shall be immediately undertaken.
- Based on the study, further action plan for monitoring of potential landslides and adoption of mitigation measures shall be taken.

Recommendation 4: To carry out detailed geological mapping the Dam area for potential weak zones and take structural measures including slope stabilization measures for ensuring safety and integrity of the structure.

Reply:

- Detailed geological mapping of the Dam area already completed and report submitted to GSI for appraisal on 04.01.2025. As per the geological mapping, there is no potential weak zone identified in the Dam area.
- Further, slope stabilization measures for ensuring safety & integrity as per recommendation of GSI shall be adopted at the detailed design stage.

Recommendation 5: To engage an independent third party expert/ committee/ consultant/ institute for monitoring of safe work procedures during Dam construction and later safe operation during Dam operations. This independent agency shall be mandated to visit the Project twice in a year to review the construction/ operations and submit observations & recommendations for the Project to implement.

Reply:

- The directions of EAC shall be complied with.
- Further, it is submitted that the Company is already having 3 tier review system comprising of detailed engineering consultant, review by internal engineering team comprising of about 60-70 engineers and further monitored by review consultant to make the whole process fool proof.

Recommendation 6: To develop and implement a robust Early Warning System (EWS) for generation and dissemination of timely warning information of the extreme flood events in the river catchment. The EWS should be integrated with Dam Gate operations to ensure Public Safety and the protection of human lives and enhance safe Dam operations. The EWS should have capability for transmission of warning signal generated to be transmitted to State Disaster Management Authority, NDMA, Sikkim State administration and downstream Projects to alert and safeguard the downstream areas. The EWS of the Project should be linked with the NDMA/ SSDMA and Sikkim Government comprehensive EWS.

Reply:

- Preliminary study of Catchment area for implementation of robust EWS and fixing of location of sensor stations was undertaken.
- Confirmatory study shall be undertaken for implementation of EWS system to meet the Government of India guidelines, directions of CEA/ CWC.
- While finalizing the specifications of EWS system all the recommendation of the EAC regarding robust EWS and linking with NDMA/ SSDMA & Sikkim Government comprehensive EWS shall be complied.

Recommendation 7: SUL should develop response criterion for Dam gate operations based on the

EWS signal.
Reply:
- Already being considered in the safety requirements for the project.
- EWS signal will be integrated with the Dam Control Room so that gate operation is synchronized with the EWS signal.

Recommendation 8: The speed of opening of Dam Gates should be improved and implemented such that the full Dam Gates are operated and opened in the available time so that gates are fully opened in time in case of a natural disaster like flash flood or GLOF.
Reply:
- Already being considered in the detailed designs, accordingly SUL is currently finalizing the technical specifications of the Dam gates.
- In line with the recommendations of EAC, the speed of gate opening of the Dam shall be designed such that full gate opening happens in time for safe passing through the Dam in case of a flash flood or GLOF.

3.2.3. Deliberations by the committee in previous meetings

Date of EAC 1 :30/11/2024

Deliberations of EAC 1 :

19.4.3 The EAC during deliberations noted the following:

The EAC deliberated on the information submitted and as presented in the meeting and observed that the proposal is for grant of amendment in Environmental Clearance Teesta Hydroelectric Project Stage-III (1200 MW) in an area of 213.8831 ha located at Village Lingdong, Kazor, Barfok, Meyong etc Sub-district Mangan and Chungthang, North District, Sikkim by M/s Sikkim Urja Limited.

The project/activity is covered under Category A of item 1 (c) 'River Valley projects' of the Schedule to the Environmental Impact Assessment Notification, 2006 and requires appraisal at Central level by the sectoral EAC in the Ministry.

The EAC noted that the Environmental Clearance letter was issued by MoEF&CC vide letter dated 04.08.2006 and amendment in EC was granted on 30.04.2010 by MoEF&CC for design changes for execution of the Project and subsequently, the transfer of Environment Clearance for the Teesta Hydroelectric project Stage-III (1200 MW) from "Teesta Urja Limited' to "Sikkim Urja Limited' has been granted by MOEF&CC vide letter no. J-12011/26/2006-IA-I dated 16.11.2024.

The EAC observed that the project, commissioned in February 2017, had been successfully operating until it faced a flash flood on 03/04 October 2023. The flood resulted in the washing away of the dam and severe flooding of the underground powerhouse, which led to a complete halt in project operations.

Now the PP proposed to redesign dam and replaces with the earlier Concrete Faced Rockfill Dam (CFRD) with a Concrete Gravity Dam, while maintaining the same parameters as the original, including location, dam top elevation, full reservoir level, and auxiliary components. PP submitted that a notable enhancement is the increase in spillway capacity from 7,000 cumecs to 19,946 cumecs, designed to accommodate both Glacial Lake Outburst Floods (GLOF) and Probable Maximum Flood (PMF), unlike the previous design, which accounted for PMF alone. This modification significantly enhances the dam's safety and resilience to extreme hydrological events. The PP assured that the other than the Dam most of the components can be restored in a year's time.

The EAC expressed serious concerns regarding the dam's design and stability; its ability to withstand potential natural disasters in the future. The committee emphasized the need for a thorough review of the proposed modifications to ensure the structural resilience and safety of the dam, particularly given the region's susceptibility to extreme hydrological events. It was therefore recommended to get comments from the Central Electricity Authority (CEA) on the proposed modifications. The EAC further opined to conduct a site visit by a sub-committee of the EAC members before giving any recommendation on the proposal. The sub-committee will comprise following members:

1. Prof. Govind Chakrapani
2. Dr. A.K.Sahoo, Member of EAC
3. Representative of CEA
4. Representative of CWC
5. Representative of MoEF&CC

The proposal was ***deferred*** on the above lines.

3.2.4. Deliberations by the EAC in current meetings

The Expert Appraisal Committee (EAC) deliberated on the information submitted and as presented in the meeting and observed that the proposal is for grant of amendment in Environmental Clearance Teesta Hydroelectric Project Stage-III (1200 MW) in an area of 213.8831 ha located at Village Lingdong, Kazor, Barfok, Meyong etc Sub-district Mangan and Chungthang, North District, Sikkim by M/s Sikkim Urja Limited.

The project/activity is covered under Category A of item 1 (c) 'River Valley projects' of the Schedule to

the Environmental Impact Assessment Notification, 2006 and requires appraisal at Central level by the sectoral EAC in the Ministry.

The EAC in its meeting held on 30.11.2024 noted that

i. Environmental Clearance (EC) for the Teesta Hydroelectric Project Stage-III (1200 MW) was initially issued by the Ministry of Environment, Forest and Climate Change (MoEF&CC) on 04.08.2006. An amendment to the EC was granted on 30.04.2010 for design changes related to the project execution. Subsequently, the transfer of the Environmental Clearance from "Teesta Urja Limited" to "Sikkim Urja Limited" was approved by MoEF&CC on 16.11.2024, as per letter no. J-12011/26/2006-IA-I.

ii. The project was commissioned in February 2017, had been operating successfully until it was impacted by a flash flood on 03-04 October 2023. The flood caused significant damage, including washing away the dam and severely flooding the underground powerhouse, resulting in a complete halt to project operations. The Project Proponent (PP) assured the EAC that, aside from the dam, most of the other components of the project could be restored within a year's time.

In light of the observations made by the Expert Appraisal Committee (EAC) during its meeting held on 30.11.2024, a site visit for the proposed project was conducted by a sub-committee of the EAC from 26.12.2024 to 28.12.2024. Following the site visit, the Project Proponent (PP) submitted detailed responses to the issues raised. Upon thorough examination, the EAC was satisfied with the responses provided by the PP.

The Expert Appraisal Committee (EAC) noted that an officer from the sub-office in Kolkata, under the regional office in Bhubaneswar, MoEF&CC, conducted a site visit on 16.01.2024 and 17.01.2024. The officer submitted a detailed report to MoEF&CC on 09.02.2024. The report indicates that all Environmental Clearance (EC) conditions have been complied with, except for two specific observations, which require further attention:

1. PAs need to submit the certificate for utilization of funds deposited under CAT plan (specific condition (i).
2. PAs have not provided detailed compliance status with respect to all the assurances/commitments given by the project authority in the public hearing. (specific condition vi)

Response of RO report was submitted by project proponent on 20/02/2024.

The Expert Appraisal Committee (EAC) observed that the detailed Environmental Impact Assessment (EIA) study for the Teesta-III Hydro Electric Project (HEP) was initially conducted by WAPCOS in 2005–06. The Project Proponent (PP) has now submitted that the EIA report has been updated from the perspective of restoration, focusing on project component restoration, partial generation through the coffer dam, and construction of a concrete gravity dam at the same location as the earlier dam, in accordance with the standard Terms of Reference (ToR).

Baseline data for the updated EIA was collected over three seasons—winter, pre-monsoon, and monsoon—spanning the period from January 2024 to July 2024. The EAC noted that a comprehensive impact assessment has been carried out, with appropriate mitigation and management measures proposed.

The Environmental Management Plan (EMP) has a proposed budget of ₹8189.42 lakh, including a capital cost of ₹5273.54 lakh and a recurring cost of ₹2915.88 lakh. Additionally, ₹1423 lakh has been allocated for Local Area Development.

The EAC observed that the total land requirement for the project is 213.8831 hectares, which is already in the possession of the Project Proponent (PP). It was further noted that as per the Environmental Clearance (EC) dated 04.08.2006, the total land requirement was indicated as 196.9670 hectares, comprising 80.288 hectares of forest land. The PP clarified that during the forest diversion process, based on a joint inspection by the Forest Department and the Revenue Department, the total land requirement was revised to 199.9209 hectares, which included 83.0405 hectares of forest land and 116.8804 hectares of non-forest land (112.8444 hectares private land and 4.0360 hectares government land). Accordingly, the forest proposal was approved.

Subsequently, during the land acquisition process, representations from landowners requested the inclusion of additional private lands. This resulted in an increase of 13.9622 hectares in the private land component. In response, the State Government notified and acquired a total of 126.8066 hectares of

private land for the project under the provisions of land acquisition. Compensation for all landowners has been disbursed as per the directions of the Rehabilitation and Resettlement (R&R) Committee constituted by the State Government.

The representative of the CEA informed during the meeting that the proposal for restoration of Teesta III HEP was submitted in CEA in June, 2024. The same was forwarded to various appraising groups of CWC, GSI and CSMRS. CWC has approved the value of GLOF of 12,946 cumec. However, design directorate of CWC has suggested to carry out the revised study of the PMF and Diversion flood and get it approved through concerned hydrology directorate of CWC. Further, design aspects of Dam and other components are yet to be approved by CWC, GSI and CSMRS.

The EAC observed that the proposed amendment does not require any additional land (Private/Forest). The project authorities have already obtained the Forest Clearance for forest land involved. The R&R issues have also been settled as per State Government policy and no R&R issue is involved due to proposed amendment. The EAC was of the view that the proposed amendment qualify the criteria to be considered under the provisions of the Para 7 (ii) of the EIA Notification, 2006, as amended. The PP has already submitted the revised EIA/EMP report based on Standard TOR with collection of three season baseline data. The EAC felt no requirement of fresh public hearing as there is no involvement of additional land and other R&R issues; moreover, PP has already conducted public hearing before grant of earlier Environmental Clearance on 4.08.2006.

The EAC after detailed deliberation on the information submitted and as presented during the meeting, recommended the proposal for grant of amendment in Environmental Clearance dated 04.08.2006 for Teesta Hydroelectric Project Stage-III (1200 MW) in an area of 213.8831 ha located at Village Lingdong, Kazor, Barfok, Meyong etc Sub-district Mangan and Chungthang, North District, Sikkim by M/s Sikkim Urja Limited, under the provisions of EIA Notification, 2006, as amended subject to the standard EC conditions along with following specific conditions:

3.2.5. Recommendation of EAC

Recommended

3.2.6. Details of Environment Conditions

3.2.6.1. Specific

Muck Management	
1.	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 does not pollute the natural streams and water bodies in surrounding area. The plantation on muck disposal site with local species for restoration of ecology and environment of the project site area.
2.	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.
3.	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.
4.	Disposal of the excavated muck and its filling on the low-lying area with proper measures for the stabilization and greenery to minimize the impacts of the generated construction muck shall be taken up pari passu with construction work.
Socio-economic	

1.	The compliance of above conditions shall be monitored by IRO, MoEF&CC and regularly site visit once in year. The compliance report of IRO shall be regularly submitted to MoEF&CC.
2.	Skill development Centre shall be established within 10 km radius of the project and regular training programmes for development and promotion of traditional art/products of tribal/local population.
Disaster Management	
1.	The Project Proponent (PP) shall implement the recommendations made by the Sub-committee after site visit of the project in later and sprit.
2.	PP shall install and operationalize a Telemetric Early Warning System (TEWS) to monitor and report real-time data on environmental parameters such as water levels, rainfall, and seismic activity. The system must be integrated with regional and national disaster management networks, include automated alert mechanisms for stakeholders, and be maintained with regular testing and compliance reporting in six month compliance repot to IRO.
3.	PP in consultation with state department shall develop disaster-resilient shelters at safe locations with adequate facilities, including sanitation, drinking water, emergency supplies, and provisions for vulnerable groups.
4.	PP shall conduct a detailed study of the downstream impact in case of a flood in the river, including potential risks to communities and ecosystems, and prepare a comprehensive mitigation plan including emergency response strategies, and restoration activities to minimize adverse effects. The same shall be started before construction and compliance shall be submitted in six month compliance repot to IRO.
5.	All necessary permissions from CEA/CWC or any other agency w.r.t project design and other safety parameters shall be obtained before starting the project construction work.
Miscellaneous	
1.	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.
2.	Bio-Gas plant shall be installed in the Project affected area for Utilizing Cattle waste (Cow Dung) into renewable source of fuel.
3.	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.
4.	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.
Environmental management and Biodiversity conservation	
1.	The Environmental Management Plan (EMP) shall be strictly adhered to as submitted in the EIA/EMP reports. 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.

2.	Ambient Air Quality Monitoring Stations for real time data to be installed at project site before commencement of the construction, shall be displayed at project site and its report to be submitted to IRO, MoEF&CC.
3.	10000 plants shall be planted around the muck disposal area and the survival of plants shall be submitted with the 6 monthly compliance report.
4.	Plantation of saplings shall be carried out as a part of the tree plantation campaign "Ek Ped Ma Ke Naam" and the details of the same shall be uploaded in the MeriLiFE Portal (https://merilife.nic.in).
5.	Necessary permission to be obtained for quarrying construction materials, if any required, for the project as per the EIA Notification, 2006 and as amended thereof.
6.	Necessary control measures such as water sprinkling arrangements, etc. and construction of paved roads leading to muck disposal sites shall be taken up on priority to arrest fugitive dust at all the construction sites.
7.	Real time monitoring of e-flow to be done in consultation with State PCB or any other institution.
8.	All the conditions mentioned in the EC letter dated 04.08.2006 and subsequent amendment dated 30.04.2010 shall remain unchanged.

3.2.6.2. Standard

1(c)	**River Valley/Irrigation projects**
Statutory compliance	
1.	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.
2.	The project proponent shall obtain clearance from the National Board for Wildlife, if applicable.
3.	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. (in case of the presence of Schedule-I species in the study area).
4.	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.
5.	NOC shall be obtained from National Commission of Seismic Design Parameters (NCSDS) of CWC.
6.	Necessary approval of CEA shall be obtained for those projects having the project cost more than Rs. 1,000 crores.
Air quality monitoring and preservation	
1.	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.

2.	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.
3.	Necessary control measures such as water sprinkling arrangements, etc. bet taken up to arrest fugitive dust at all the construction sites.
4.	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 (if applicable).
5.	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 (if applicable).
6.	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.
7.	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.
8.	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.
9.	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 (if applicable).
10.	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 (if applicable).
Noise monitoring and prevention	
1.	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.
2.	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.
Catchment Area Treatment Plan	
1.	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.
Waste management	
1.	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.
2.	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.
Green Belt and Wildlife Management	
1.	Based on the recommendation of Cummulative 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.
2.	Detailed information on species composition particular to fish species from previous study/literature be inventoried 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.
3.	Wildlife Conservation Plan approved by the Chief Wildlife Warden shall be implemented in consultation with the local State Forest Department.
4.	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.
5.	Compensatory afforestation programme shall be implemented as per the plan approved.
6.	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 it effectiveness.
Public hearing and Human health issues	
1.	Resettlement & Rehabilitation plan be implemented in consultation with the State Govt. as approved by the State Govt.
2.	Budget provisions made for the community and social development plan including community welfare schemes shall be implemented in toto.
3.	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.
4.	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.
5.	Labour force 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.
Risk Mitigation and Disaster Management	
1.	Early Warning Telemetric system shall be installed in the upper catchment area of the project for advance intimation of flood forecast.
2.	Drilling and blasting shall be done only either by licensed explosive agent or by the proponent after obtaining required approvals from Competent Authorities.
3.	Emergency preparedness plan be made for any eventuality of the dam failure and shall be implemented as per the Disaster Management Plan.
4.	Stabilization of muck disposal sites using biological and engineering measures shall be taken up 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. The engineering measures for the muck disposal arrangements be evolved after carrying out required slope stability analysis.
5.	Catchment area treatment plan shall be prepared and sufficient fund shall be provided for afforestation, rim plantation, pasture development, nursery development.
Corporate Environment Responsibility	
1.	The project proponent shall comply with the provisions contained in this Ministry's OM vide F.No. 22-65/2017-IA.III dated 30th September, 2020, as applicable, regarding Corporate Environment Responsibility.
2.	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
3.	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.
4.	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.
5.	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.
6.	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.
7.	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 the Committee shall be uploaded in the website of the Company.
8.	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
Miscellaneous	
1.	The project proponent shall make public the environmental clearance granted for their project along with the environmental conditions and safeguards at their cost by 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.
2.	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.
3.	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.
4.	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.
5.	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.
6.	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.
7.	The project authorities must strictly adhere to the stipulations made by the State Pollution Control Board and the State Government.
8.	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.
9.	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).
10.	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.
11.	The Ministry may revoke or suspend the clearance, if implementation of any of the above conditions is not satisfactory.
12.	The Ministry reserves the right to stipulate additional conditions if found necessary. The Company in a time bound manner shall implement these conditions.
13.	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.
14.	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.
15.	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.

3.3. Agenda Item No 3:

3.3.1. Details of the proposal

Balotra Pumped Storage Project by **ADANI GREEN ENERGY LIMITED** located at **BARMER,RAJASTHAN**			
Proposal For		Fresh ToR	
Proposal No	**File No**	**Submission Date**	**Activity (Schedule Item)**
IA/RJ/RIV/514467/2024	J-12011/01/2025-IA.I (R)	24/12/2024	River Valley/Irrigation projects (1(c))

3.3.2. Project Salient Features

The proposal is for grant of Terms of References (ToR) to the project for Balotra Close Loop Pumped Storage Project (1800 MW) in an area of 313.15 Ha located at Village Asotra, Bituja, Nal, etc, Sub District Pachpadra and Siwana, District Barmer, Rajasthan by M/s Adani Green Energy Limited.

21.2.2 The Project Proponent and the accredited Consultant R. S. Envirolinks Technologies Pvt. Ltd., made a detailed presentation on the salient features of the project and informed that:

i. Balotra Pumped Storage Project (PSP) is proposed 1800MW Off Stream Closed Loop Scheme with an installed capacity of 1800 MW (5x300 MW + 2x150 MW). Project is located in Balotra district of Rajasthan.

ii. The geographical co-ordinate of the project are Lower Reservoir: 25º 34’ 57.14” N; 72º 20’ 25.25” E; Upper Reservoir: 25º 34’ 22.89” N; 72º 20’ 11.65” E. The Balotra Pumped Storage Project envisages construction of two artificial reservoirs near Village Peeploon, Siwana Tehsil in Balotra District of Rajasthan.

iii. The upper and lower dams for the project are proposed to be newly constructed. It is proposed to utilize between upper reservoir with gross volume of 15.43 Mm3 at El. 633m and a lower reservoir with a gross volume of 15.28 Mm3 at El. 267m for the storage of energy. Both reservoirs are planned to be artificially constructed. The scheme of operation considered for the project is daily regulation to meet the demand of about 6.0 hours of peak power daily. Off-peak pumping hours are considered as 6.81 hours daily.

iv. The one-time filling is proposed to be done from the nearest point of Luni River which is 40km away and shall be used for filling up the reservoirs. The upper reservoir is proposed to be filled up by using the reversible pump turbine which is employed for the generation of the required power. Thus, water requirement for the initial filling of the reservoirs (onetime) is about 16.52 Mm3, which includes losses from upper and lower reservoirs. The annual water requirement for recuperating losses in upper & lower reservoir storage due to evaporation, transit, and seepage is estimated to be 2.91 Mm3.

District	**Tehsil**	**Village**
Barmer	Siwana	Goliya
Barmer	Siwana	Goongrot
Barmer	Siwana	Peeploon

Village Name	**No_ H.H**	**TOT_P**	**TOT_M**	**TOT_F**	**P_SC%**	**P_ST%**
Goliya	139	817	439	378	3.30	0
Goongrot	166	1074	573	501	20.29	20.67
Peeploon	292	1929	1021	908	25.19	0
Total	**597**	**3820**	**2033**	**1787**	**19.14**	**5.81**

Reservoir ID	**Reservoir Name**	**FRL**	**Gross Storage**	**Dam Length**	**Dam Height**	**Remarks**	**Approach**
		(EL. m)	(MCM)	(m)	(m)		

1 (Upper reservoir)	R_1	633	15.43	1415	67	Total submergence corresponding to dam top = 61.83 Ha (Forest land = 61.83 Ha)	New approach road needs to be constructed
2 (Lower reservoir)	R_2	267	15.28	934	51	Total submergence corresponding to dam top = 52.58 Ha (Forest land = 52.58 Ha)	Through Goliya Village Road
3 (Upper reservoir)	R_3	705	16.57	773	59	Total submergence corresponding to dam top = 59.52 Ha (Forest land = 59.52 Ha)	New approach road needs to be constructed
4 (Lower reservoir)	R_4	295	15.48	544	49	Total submergence corresponding to dam top = 59.04 Ha (Forest land = 59.04 Ha)	New approach road needs to be constructed

Alt. No.	**Upper Res.**	**Lower Res.**	**Gross Head (m)**	**L / H Ratio**	**Gross Storage (MCM)**	**Capacity (MW)**	**Total Submergence Area Corresponding to Dam Top (Ha)**	**Forest Area (Ha)**
1	R_1	R_2	366	4.83	15.28	1800	114.41	129
2	R_3	R_4	410	7.42	15.48	1800	118.56	170.31
3	R_1	R_4	338	10.40	15.43	1800	120.87	153.31
4	R_3	R_2	438	5.49	15.28	1800	112.1	146

<table>
<tr><td>12</td><td colspan="4">MISCELLANEOUS</td></tr>
<tr><td>1</td><td colspan="4">EAC MEETING DETAILS</td></tr>
<tr><td>i</td><td>EAC meeting/s</td><td>:</td><td colspan="2">22nd EAC Meeting</td></tr>
<tr><td>ii</td><td>Date of Meeting/s</td><td>:</td><td colspan="2">10th January 2025</td></tr>
<tr><td>iii</td><td>Date of earlier EAC meetings</td><td>:</td><td colspan="2">Not Applicable</td></tr>
<tr><td>2</td><td colspan="4">PROJECT DETAILS</td></tr>
<tr><td>i</td><td>Name of the Proposal</td><td>:</td><td colspan="2">Balotra Pumped Storage Project (1800 MW)</td></tr>
<tr><td>ii</td><td>Location
(including coordinates)</td><td>:</td><td colspan="2">Proposed Balotra Pumped Storage Project’s Upper Reservoir and Lower Reservoir are located near village Peeploon, Siwana tehsil, district Balotra.
<table><tr><th>Reservoir</th><th>Latitude</th><th>Longitude</th></tr><tr><td>Lower Reservoir</td><td>25º 34’ 57.14” N</td><td>72º 20’ 25.25” E</td></tr><tr><td>Upper Reservoir</td><td>25º 34’ 22.89” N</td><td>72º 20’ 11.65” E.</td></tr></table></td></tr>
<tr><td>iii</td><td>Interstate Issue</td><td>:</td><td colspan="2">No</td></tr>
<tr><td>iv</td><td>Seismic Zone</td><td>:</td><td colspan="2">Zone-III</td></tr>
<tr><td>3</td><td colspan="2">CATEGORY DETAILS</td><td colspan="2"></td></tr>
<tr><td>i</td><td>Category of the project</td><td>:</td><td colspan="2">A</td></tr>
<tr><td>ii</td><td>Provisions</td><td>:</td><td colspan="2">-</td></tr>
<tr><td>iii</td><td>Capacity</td><td>:</td><td colspan="2">1800MW</td></tr>
<tr><td>iv</td><td>Attracts the General Conditions (Yes/ No)</td><td>:</td><td colspan="2">No</td></tr>
</table>

12	**MISCELLANEOUS**		
v	Additional Information if any	:	No
4	**ELECTRICITY GENERATION AND CAPACITY**		
i	Powerhouse Installed Capacity	:	1800MW
ii	Generation of Electricity Annually	:	3744.9MU
iii	No. of Units	:	7 nos. (5X300 MW+2X150 MW)
iv	Additional information (if any)	:	Nil
5	**TOR/EC DETAILS**		
i	Cost of project	:	INR 9759.73 crore
ii	Total area of Project	:	313.15ha
iii	Height of Dam from Riverbed (EL)	:	Lower Dam – 51.0m Upper Dam – 67.0m
iv	Length of Tunnel/Channel	:	1081.0m
v	Details of Submergence area	:	129.0ha
vi	Types of Waste and quantity of generation during construction/ Operation	:	Muck from excavation, solid waste from labour colony and construction waste
vii	E-Flows for the Project	:	Not Applicable, as this is Off-Stream Closed Loop Pumped Storage Project (PSP)
viii	Is Projects earlier studies in Cumulative Impact assessment & Carrying Capacity studies (CIA&CC) for River in which project located. If yes, the	:	No
a	E-flow with TOR /Recommendation by EAC as per CIA&CC study of River Basin.	:	Not Applicable
b	If not the E-Flows maintain criteria for sustaining river ecosystem.	:	Not Applicable
6	**MUCK MANAGEMENT DETAILS**		
i	No. of proposed disposal area/ (type of land-Forest/Pvt. land)	:	35.0ha Non-Forest Land

12	**MISCELLANEOUS**		
ii	Muck Management Plan	:	Will be Provided in EIA/EMP report
iii	Monitoring mechanism for Muck Disposal	:	Will be Provided in EIA/EMP report
7	**LAND AREA BREAK-UP**		
i	Private Land	:	110.8ha
ii	Government land/Forest Land	:	202.35ha
iii	Submergence area/Reservoir area	:	129.0ha
iv	Land required for project components	:	184.15ha
v	Additional information (if any)	:	Nil
8	**PRESENCE OF ENVIRONMENTALLY SENSITIVE AREAS IN THE STUDY AREA**		
S.no	**Forest Land/ Protected Area/ Environmental Sensitivity Zone**	**Yes/ NO**	**Details of Certificate/letter/Remarks**
i	Reserve Forest/PF Land	NO	There is no Protected Area in the vicinity of the proposed project. Kumbhalgarh WLS is 112 km far from the proposed project area.
ii	National Park	NO	
iii	Wildlife Sanctuary	NO	
9	**COURT CASE DETAILS**		
i	Court Case	:	Nil
ii	Additional Information if any	:	Nil
10	**AFFIDAVIT/UNDERTAKING DETAILS**		
i	Affidavit/Undertaking	:	Enclosed
ii	Additional information (if any)	:	Nil
11	**PREVIOUS EC COMPLIANCE AND NECESSARY APPROVALS**		
i	Certified EC compliance report (if applica	:	Not Applicable

12	**MISCELLANEOUS**		
	ble)		
ii	Status of Stage- I FC	:	Yet to Apply
iii	Additional detail (If any)	:	Nil
iv	Is FRA (2006) done for FC-I		Not Applicable
i	**Details of Consultant**		
	Name of Consultant	:	M/s. RS Envirolink Technologies Pvt. Ltd. (RSET) (NABET Accredited Consultant Organization)
	Certificate No	:	NABET/EIA/2225/RA0274
	Validity	:	August 15, 2025
	Contact Person	:	Mr. Ravinder Bhatia
	Name of Sector	:	River Valley and Hydroelectric Projects
	Category	:	A
	MoEF&CC Schedule	:	1(c)
	Address	:	403, Bestech Chambers, Block-B, Sushant Lok Phase I, Sector 43, Gurugram, Haryana – 122009
	Email	:	ravi@rstechnologies.co.in
	Landline	:	(0124) 4295383
	Mobile	:	(+91) 9810136853
ii	Project Benefits	:	
			o Least expensive source of electricity, not requiring fossil fuel for generation o An emission-free renewable source o Balancing grid for demand driven variations o Balancing generation driven variations o Voltage support and grid stability Apart from this, proposed PSP will also benefit the local community by creating employment opportunities and will result in upliftment of livelihood and socio-economic conditions.

12	**MISCELLANEOUS**		
iii	Status of other statutory cl earances	:	Forest Clearance - Online application seeking forest d iversion for around 202.35ha after receipt of ToR App roval. Alongside, other statutory clearances (as applic able) from State as well as Central government will be obtained post completion of Detailed Project Report.
iv	R&R Details	:	Details shall be evaluated during EIA/EMP Studies
v	Additional Details if any	:	Nil

3.3.3. Deliberations by the committee in previous meetings

N/A

3.3.4. Deliberations by the EAC in current meetings

The EAC deliberated on the information submitted (Form 1, PFR, kml file, etc.) and as presented in the meeting and observed that the proposal is for grant of TOR to the project for conducting EIA/EMP and Public hearing for Balotra Close Loop Pumped Storage Project (1800 MW) in an area of 313.15 Ha located at Village Asotra, Bituja, Nal, etc, Sub District Pachpadra and Siwana, District Barmer, Rajasthan by M/s Adani Green Energy Limited.

The project/activity falls under Category A of item 1(c), 'River Valley Projects,' as per the Schedule of the Environmental Impact Assessment Notification, 2006, and requires appraisal at the central level by the sectoral EAC in the Ministry.

The EAC observed that the total land required for the construction of various components and related works for the Balotra Pumped Storage Project (PSP) is estimated to be approximately 313.15 hectares. This includes 110.8 hectares of non-forest land and 202.35 hectares of forest land. It was noted that an application for Stage-I Forest Clearance (FC) has not yet been submitted.

Furthermore, it was observed that there are no protected areas in the vicinity of the proposed project, with Kumbhalgarh Wildlife Sanctuary being located 112 km away from the proposed project site. No river or water body is located within the project area.

Additionally, the Project Proponent has submitted a Memorandum of Understanding (MoU), reference no. MoU/2024-25/12142, dated 03-12-2024, which has been signed between the Government of Rajasthan and M/s Adani Green Energy Limited. The MoU grants in-principle approval for the establishment of the Pumped Storage Project with a capacity of 1800 MW in Peeplu village, Balotra District, Rajasthan.

The EAC expressed concerns regarding the availability of water in the Luni River, as the Project Proponent (PP) has proposed to fill the reservoir during the monsoon season. However, based on the last 30 years of rainfall data presented by the PP, it was observed that the rainfall in the region is too less than the average rainfall in India. Furthermore, it was noted that there are three existing reservoirs upstream of the river, located on tributaries of the Luni River. In light of these factors, the EAC raised concerns about the potential water scarcity in the area and questioned the overall viability of the project. A detailed study is needed in this regard.

The EAC emphasized that the PP should make provisions in the project design to release self-catchment water downstream of the stream during the monsoon season. The PP was directed to submit hydrological data, certified by the Central Water Commission (CWC) or the State Water Resources Department, regarding the amount of water received by the small stream where the lower reservoir is proposed. Additionally, the PP was instructed to submit a monitoring mechanism for releasing the self-catchment

water from the small stream, along with an action plan for the conservation and protection of other streams and rivulets within a 10 km radius of the project.The EAC further observed that the proposed Lower Reservoir is to be constructed across a small stream; therefore, it should be treated as an open-loop project.
The EAC based on the information submitted and as presented during the meeting, recommended the proposal for grant of Specific ToR issued by the Ministry for Open Loop Pumped Storage Projects vide OM dated 14.08.2023 for conducting EIA study for proposed construction of the project for Balotra Open Loop Pumped Storage Project (1800 MW) in an area of 313.15 Ha located at Village Asotra, Bituja, Nal, etc, Sub District Pachpadra and Siwana, District Barmer, Rajasthan by M/s Adani Green Energy Limited, under the provisions of EIA Notification, 2006, as amended along with the following additional/specific ToR

3.3.5. Recommendation of EAC

Recommended

3.3.6. Details of Terms of Reference

3.3.6.1. Specific

Miscellaneous	
1.	Both capital and recurring expenditure under EMP shall be submitted.
2.	Pre-DPR Chapters viz. Layout Map and Power Potential Studies duly approved by CWC/CEA shall be submitted..
3.	The PP should submit the photograph of monitoring stations & sampling locations. The photograph should bear the date, time, latitude & longitude of the monitoring station/sampling location. In addition to this PP should submit the original test reports and certificates of the labs which will analyze the samples.
4.	Drone video of project site shall be recorded and to be submittted.
5.	Undertaking need to be submitted on affidavit stating that no activities has been started on the project site.
6.	Detailed plan to restore wider roads and convert them into narrow up to 10m after construction of the project.
7.	Specific Terms of Reference (ToRs) issued by the Ministry vide Office Memorandum No. F. No. IA3-22/33/2022-IA.III dated 14.08.2023 for Pumped storage projects shall be used for preparation of EIA/ EMP reports.
8.	As per Ministry's OM dated 1st August, 2013, PP shall submit application to obtain prior approval of Central Government under the Forest Conservation Act, 1980 for diversion of forest land required for such projects will be submitted as soon as the actual extent of forest land required for the project is known to the project proponent, and in any case, within 6 months of issuance of ToR. However, no proposal will be put up before EAC without submission of application for forest clearance, wherever applicable.
Disaster Management	

1.	Impact of Project activities (specially blasting and drilling) on the aquatic and terrestrial ecosystem, within study area to be studied and be incorporated in EIA/EMP report.
2.	The muck dumping sites shall be located with a distance of 100 mts from HFL. The PP shall submit the detailed action plan for transportation of muck along with monitoring mechanism of movement of muck carrying trucks.
Muck Management	
1.	Details of quantity of muck generation component wise, types of muck (Excavation in tunnels, pressure shaft and powerhouse etc.) and disposal site/ transportation to be provided.
2.	Details of muck management such as dumping sites and its locations, transportation plan along with monitoring mechanism for muck transportation, detailing the road map of project construction site/ indicating the distances from HFL, river, project construction site along with types of road etc.
3.	Safety measures for avoiding spill over muck into the riverbed/streams and its flow into the river during the high discharge/ flood or monsoon period. Prepare plan for stabilization of muck disposal sites using biological and engineering measures 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.
4.	Restoration plan for construction area including dumping site of excavated materials by levelling, filling up of burrow pits, landscaping etc
Socio-economic Study	
1.	Declaration by the project proponent by way of affidavit that "No" Inter-state issue/ policy issue is involved with any State in the project.
2.	All the tasks including conducting public hearing shall be done as per the provisions of EIA Notification, 2006 and as amended from time to time. A comparative chart of issues raised by General Public during Public Hearing and commitments made by the Project Proponent will be prepared and submitted in the relevant chapter of EIA/EMP report.
3.	PP shall submit the credible documents to show the status of land acquisition w.r.t project site from/through the concerned State Government as required under Ministry's OM dated 7th October, 2014 for the project land to be acquired.
4.	Land acquired for the project shall be suitably compensated in accordance with the law of the land with the prevailing guidelines. Private land (if any) shall be acquired as per provisions of Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation and Resettlement Act, 2013. Budget earmarked for R&R, CSR shall not be included in the cost of EMP.
Environmental Management and Biodiversity Conservation:	
1.	The PP shall submit 10 years water availability data certified by the CWC/State Water Resource Department for quantity of water that is received annually in the small stream on which Lower reservoir is proposed.
2.	The PP will submit a monitoring mechanism for releasing the self -catchment water of small stream draining in to lower reservoir of the project along with action plan for conservation and protection of other streams/rivulets draining in to upper and lower reservoirs.
3.	The Project Proponent (PP) shall submit a detailed action plan for the survival or diversion of any

	rivulets or streams that may be impacted by the project, particularly those that flow into or join the Luni river. The action plan should include measures to ensure that these water bodies are adequately protected or diverted in a manner that does not negatively affect the overall hydrology of the area. The PP should also provide an assessment of potential environmental impacts on these streams and propose mitigation measures to minimize any adverse effects.
4.	Detailed action plan for large scale plantation of native species of plant sapling within 10 km radius of the project shall be prepared in consultation with State Forest Department. The monitoring mechanism to ensure the survival of saplings shall be finalised in consultation with ICFRE.
5.	Explore the possibilities for reducing the Forest land requirement. The application for obtaining Stage I FC for 202.35 ha of forest land involved in the project shall be submitted within stipulated time.
6.	Muck disposal site and other components such as Township, site office, Stacking area and batching plant shall be located outside the forest area.
7.	Certificate and certified map from Chief Wildlife Warden shall be submitted mentioning that project boundary is not falling in any Ecological Sensitive Area, Wildlife Sanctuary/Tiger/elephant corridor/Critically polluted area within 10 km of Project site.
8.	PP shall submit the detailed plan for filling the reservoir from the Luni river along with necessary approval form water resource department.
9.	Transportation Plan for transporting construction materials shall be submitted. Separate chapter for risk assessment of such transportation through/within proposed the Wildlife Sanctuary shall be included in the EIA report.
10.	Environmental Cost Benefit Analysis shall be done in terms of loss of Forest ecosystem due to diversion of Forest land/loss of biodiversity, water availability, water uses for generation of hydro power and Ecological flows.
11.	The baseline data collection will cover the changes in biological and ecological profile of the region after monsoon with worst-case scenario study and critical mineral assessment.
12.	Calculation and values of GHGs (CO2, CH4 etc.) emissions during construction and during operation till the life of the project shall be estimated and submitted.
13.	The longitudinal connectivity/Free flowing sketch be provided in the EIA/EMP report. Presence of any critical mineral zone in the proposed area be clarified from GSI.
14.	Details of mineral zone, if any, in the study area, certified by Geological Survey of India or any other concerned Government Organization shall be submitted. The project area should not come up on any critical mineral zone, the same shall to be verified by GSI/NMDC.
15.	Quantitative values of Impact modelling of environmental parameters shall be submitted for during construction and operation. Also, mitigation measures shall be submitted in terms of construction and operation phase.
16.	Conducting site-specific ecological study emphasizing on riverine ecology viz. fishes diversity, fish migration, habitat and aquatic biota due to construction PSP. Impact assessment on the fish diversity based on the hydrological alteration at the water drawing sources shall be studied.
17.	Cumulative Impact of projects in the basin on carrying capacity and sustainability of Reservoir/ River /nala of catchment area due to tapping of water for filling reservoir shall be studied.

18.	Impact zone decided prior to base line data generation and accordingly, sampling location shall be finalized. Baseline data as mentioned in Specific ToR shall be collected for preparation of EIA/ EMP report along with soil characteristics which shall be studied at minimum 10 locations. The ground water level at 10 locations shall be measured in project area in all three seasons.
19.	A study shall be carried out on impact of project activity on the aquatic and terrestrial ecosystem, within project area classifying the impact zones (highly impact/low impact zone) based on seasonal variations and covering the aspects related to impacts on aquatic ecosystem/ primary productivity due to quantity of water to be lifted for power generation and thermal stratification. Accordingly, Environment Management plan shall be prepared.
20.	Reservoir/ River banks protection plan all along the submergence need to be prepared and incorporated in EIA/ EMP.
21.	Scope of watershed development in the 10 km radius of the project shall be studied in consultation with Indian Council of Agriculture Research (ICAR) Institutes/ Expert Govt. institutions and accordingly a detailed Water Shed Development Plan shall be prepared and incorporated in EIA/ EMP report.
22.	Any archaeological sites in the vicinity of the project, if any, then it shall be certified by ASI.

3.3.6.2. Standard

1(c)	**River Valley/Irrigation projects**
Scope of EIA Study	
1.	The EIA Report should identify the relevant environmental concerns and focus on potential impacts that may change due to the construction of proposed project. Based on the baseline data collected for three (3) seasons (Pre-monsoon, Monsoon and Winter seasons), the status of the existing environment in the area and capacity to bear the impact on this should be analysed. Based on this analysis, the mitigation measures for minimizing the impact shall be suggested in the EIA/EMP study.
Details of the Project and Site	
1.	General introduction about the proposed project.
2.	Details of Project and site giving L-Sections of all U/S and D/S Projects with all relevant maps and figures. Connect such information as to establish the total length of interference of Natural River and the committed unrestricted release from the site of Dam/Barrage into the main river.
3.	A map of boundary of the project site giving details of protected areas in the vicinity of 25 km of project location.
4.	Location details on a map of the project area with contours indicating main project features. The project layout shall be superimposed on a contour map of ground elevation showing main project features (viz. location of dam, Head works, main canal, branch canals, quarrying etc.) shall be depicted in a scaled map.
5.	Layout details and map of the project along with contours with project components clearly marked with proper scale maps of at least 1:50,000 scale and printed at least on A3 scale for clarity.
6.	Existence of National Park, Sanctuary, Biosphere Reserve etc. in the study area, if any, should be detailed and presented on a map with distinct distances from the project components.

7.	Drainage pattern and map of the river catchment up to the proposed project site.
8.	Delineation of critically degraded areas in the directly draining catchment on the basis of Silt Yield Index as per the methodology of Soil and Land use Survey of India.
9.	Soil characteristics and map of the project area.
10.	Geological and Seismo-tectonic details and maps of the area surrounding the proposed project site showing location of dam site and canal sites.
11.	Remote Sensing studies, interpretation of satellite imagery, topographic sheets along with ground verification shall be used to develop the land use/land cover pattern of the study using overlaying mapping techniques viz. Geographic Information System (GIS), False Color Composite (FCC) generated from satellite data of project area.
12.	Land details including forests, private and other land.
13.	Demarcation of snow fed and rain fed areas for a realistic estimate of the water availability.
14.	Different riverine habitats like rapids, pools, side pools and variations in the river substratum bedrocks, rocks, boulders, sand/silt or clay etc. need to be covered under the study
Description of Environment and Baseline Data	
1.	To know the present status of environment in the area, baseline data with respect to environmental components air, water, noise, soil, land and biology & biodiversity (flora & fauna), wildlife, socioeconomic status etc. should be collected within 10 km radius of the main components of the project/site i.e. dam site and power house site. The air quality and noise are to be monitored at such locations which are environmentally & ecologically more sensitive in the study area. The baseline studies should be collected for 1 season (Preferably Monsoon season). Flora-Fauna in the catchment and command area should be documented. The study area should comprise of the following:
2.	(i) Catchment area up to the dam/barrage site.
3.	(ii) Submergence Area.
4.	(iii) Project area or the direct impact area should comprise of area within 10 km radius of the main project components like dam, canals etc.
5.	(iv) Downstream upto 10 km from the tip of the reservoir.
Details of the Methology	
1.	The methodology followed for collection of base line data along with details of number of samples and their locations in the map should be included. Study area should be demarcated properly on the appropriate scale map. Sampling sites should be depicted on map for each parameter with proper legends. For Forest Classification, Champion and Seth (1968) methodology should be followed.
Methodology for Collection of Biodiversity Data	
1.	The number of sampling locations should be adequate to get a reasonable idea of the diversity and other attributes of flora and fauna. The guiding principles should be the size of the study area (larger area should have larger number of sampling locations) and inherent diversity at the location, as known from secondary sources (e.g. eastern Himalayan and low altitude sites should have a larger number of sampling locations owing to higher diversity).

2.	The entire area should be divided in grids of 5kmX5km preferably on a GIS domain. There after 25% of the grids should be randomly selected for sampling of which half should be in the directly affected area (grids including project components such as reservoir, dam, powerhouse, tunnel, canal etc.) and the remaining in the rest of the area (areas of influence in 10 km radius form project components). At such chosen location, the size and number of sampling units (e.g. quadrates in case of flora/transects in case of fauna) must be decided by species area curves and the details of the same (graphs and cumulative number of species in a tabulated form) should be provided in the EIA report. Some of the grids on the edges may not be completely overlapping with the study area boundaries. However, these should be counted and considered for selecting 25% of the grids. The number of grids to be surveyed may come out as a decimal number (i.e. it has an integral and a fractional part) which should be rounded to the next whole number.
3.	The conventional sampling is likely to miss the presence of rare, endangered and threatened (r.e.t.) species since they often occur in low densities and in case of faunal species are usually secretive in behaviour. Reaching the conclusion about the absence of such species in the study area based on such methodology is misleading. It is very important to document the status of such species owing to their high conservation value. Hence likely presence of such species should be ascertained from secondary sources by a proper literature survey for the said area including referring to field guides which are now available for many taxonomic groups in India. Even literature from studies/surveys in the larger landscapes which include the study area for the concerned project must be referred to, since most species from adjoining catchments is likely to be present in the catchments in question. In fact such literature form the entire state can be referred to. Once a listing of possible r.e.t. species form the said area is developed, species specific methodologies should be adopted to ascertain their presence in the study area which would be far more conclusive as compared to the conventional sampling. If the need be, modern methods like camera trapping can be resorted to, particularly for areas in the eastern Himalayas and for secretive/nocturnal species. A detailed listing of the literature referred to, for developing lists of r.e.t. species should be provided in the EIA reports.The conventional sampling is likely to miss the presence of rare, endangered and threatened (r.e.t.) species since they often occur in low densities and in case of faunal species are usually secretive in behaviour. Reaching the conclusion about the absence of such species in the study area based on such methodology is misleading. It is very important to document the status of such species owing to their high conservation value. Hence likely presence of such species should be ascertained from secondary sources by a proper literature survey for the said area including referring to field guides which are now available for many taxonomic groups in India. Even literature from studies/surveys in the larger landscapes which include the study area for the concerned project must be referred to, since most species from adjoining catchments is likely to be present in the catchments in question. In fact such literature form the entire state can be referred to. Once a listing of possible r.e.t. species form the said area is developed, species specific methodologies should be adopted to ascertain their presence in the study area which would be far more conclusive as compared to the conventional sampling. If the need be, modern methods like camera trapping can be resorted to, particularly for areas in the eastern Himalayas and for secretive/nocturnal species. A detailed listing of the literature referred to, for developing lists of r.e.t. species should be provided in the EIA reports.
4.	The R.E.T. species referred to in this point should include species listed in Schedule I and II of Wildlife (Protection) Act, 1972 and those listed in the red data books (BSI, ZSI and IUCN).
Components of the EIA Study: Various aspects to be studied and provided in the EIA/EMP report are as follow s:	
1.	null
2.	null
3.	Physical geography, Topography, Regional Geological aspects and structure of the Catchment.
4.	Tectonics, seismicity and history of past earthquakes in the area. A site specific study of the earthquake parameters will be done. The results of the site specific earthquake design shall be sent for approval of the NCSDP (National Committee of Seismic Design Parameters, Central water Commission, New Delhi for large dams.
5.	Landslide zone or area prone to landslide existing in the study area should be examined.
6.	Presence of important economic mineral deposit, if any.

7.	Justification for location & execution of the project in relation to structural components (dam /barrage height).
8.	Impact of project on geological environment.
9.	null
10.	Meteorology (viz. Temperature, Relative humidity, wind speed/direction etc.) to be collected from nearest IMD station.
11.	Ambient Air Quality with parameters viz. Suspended Particulate Matter (SPM), Respirable Suspended Particulate Matter (RSPM) i.e. suspended particulate materials < 10 microns, Sulphur dioxide (SO2) and Oxides of Nitrogen (NOX) in the study area at 5-6 Locations.
12.	Existing Noise Levels and traffic density in the study area at 5-6 Locations.
13.	null
14.	Soil classification, physical parameters (viz., texture, Porosity, Bulk Density and water holding capacity) and chemical parameters (viz. pH, electrical conductivity, magnesium, calcium, total alkalinity, chlorides, sodium, potassium, organic carbon, available potassium, available phosphorus, SAR, nitrogen and salinity, etc.) at @ one sample/ha of command area.
15.	null
16.	(i) Generation of thematic maps viz, slope map, drainage map, soil map, land use and land cover map, etc. Based on these, thematic maps, an erosion intensity map should be prepared.
17.	null
18.	History of the ground water table fluctuation in the study area.
19.	Water quality for both surface water and ground water for (i) Physical parameters (pH, temperature, electrical conductivity, TSS); (ii) Chemical parameters (Alkalinity, Hardness, BOD, COD, NO2, PO4, CI, SO4, Na, K, Ca, Mg, Silica, Oil & Grease, phenolic compounds, residual sodium carbonate); (iii) Bacteriological parameter (MPN, Total coliform) and (iv) Heavy Metals (Pb, As, Hg, Cd, Cr-6, total Cr, Cu, Zn, Fe) (6 locations).
20.	Delineation of sub and micro-watersheds, their locations and extent based on the All India Soil and Land Use Survey of India (AISLUS), Department of Agriculture, Government of India. Erosion levels in each micro-watershed and prioritization of micro-watershed through silt yield index (SYI) method of AISLUS
21.	Hydro-Meteorology of the project viz. precipitation (snowfall, rainfall), temperature, relative humidity, etc. Hydro-meteorological studies in the catchment area should be established along-with real time telemetry and data acquisition system for inflows monitoring.
22.	Run off, discharge, water availability for the project, sedimentation rate, etc.
23.	Basin characteristics
24.	Catastrophic events like cloud bursts and flash floods, if any, should be documented.

25.	For estimation of Sedimentation Rate, direct sampling of river flow is to be done during the EIA study. The study should be conducted for minimum one year. Actual silt flow rate to be expressed in ha-m km2 year-1.
26.	Set up a G&D monitoring station and a few rain gauge stations in the catchment area for collecting data during the investigation.
27.	Flow series, 10 daily with 90%, 75% and 50% dependable years discharges.
28.	Information on the 10-daily flow basis for the 90 per cent dependable year the flow intercepted at the dam, the flow diverted to the power house and the spill comprising the environmental flow and additional flow towards downstream of the dam for the project may be given.
29.	The minimum environmental flow shall be 20% of the flow of four consecutive lean months of 90% dependable year, 30% of the average monsoon flow. The flow for remaining months shall be in between 20-30%, depending on the site specific requirements. A site specific study shall be carried out by an expert organization.
30.	Sedimentation data available with CWC may be used to find out the loss in storage over the years.
31.	Hydrological studies/data as approved by CWC shall be utilized in the preparation of EIA/EMP report. Actual hydrological annual yield may also be given in the report. Sedimentation data available with CWC may be used to find out the loss in storage over the years.
32.	A minimum of 1 km distance from the tip of the reservoir to the tail race tunnel should be maintained between upstream and downstream projects.
33.	Besides primary studies, review of secondary data/literature published for project area on flora & fauna including RET species shall be reported in EIA/EMP report.
34.	null
35.	Characterization of forest types (as per Champion and Seth method) in the study area and extent of each forest type as per the Forest Working Plan.
36.	Documentation of all plant species i.e. Angiosperm, Gymnosperm, Pteriodophytes, Bryophytes (all groups).
37.	General vegetation profile and floral diversity covering all groups of flora including lichens and orchids. A species wise list may be provided.
38.	Assessment of plant species with respect to dominance, density, frequency, abundance, diversity index, similarity index, importance value index (IVI) , Shannon Weiner index etc. of the species to be provided. Methodology used for calculating various diversity indices along with details of locations of quadrates, size of quadrates etc. to be reported within the study area in different ecosystems.
39.	Existence of National park, Sanctuary, Biosphere Reserve etc in the study area, if any, should be detailed.
40.	Economically important species like medicinal plants, timber, fuel wood etc.
41.	Details of endemic species found in the project area.
4	Flora under RET categories should be documented using International Union for the Conservation of Nature and

2.	Natural Resources (IUCN) criteria and Botanical Survey of India's Red Data list along-with economic significance. Species diversity curve for RET species should be given.
43.	Cropping pattern and Horticultural Practices in the study area.
44.	null
45.	Fauna study and inventorisation should be carried out for all groups of animals in the study area. Their present status alongwith Schedule of the species.
46.	Documentation of fauna plankton (phyto and zooplankton), periphyton, benthos and fish should be done and analysed.
47.	Information (authenticated) on Avi-fauna and wildlife in the study area.
48.	Status of avifauna their resident/ migratory/ passage migrants etc.
49.	Documentation of butterflies, if any, found in the area.
50.	Details of endemic species found in the project area.
51.	RET species-voucher specimens should be collected along-with GPS readings to facilitate rehabilitation. RET faunal species to be classified as per IUCN Red Data list and as per different schedule of Indian Wildlife (Protection) Act, 1972.
52.	Existence of barriers and corridors, if any, for wild animals.
53.	Compensatory afforestation to compensate the green belt area that will be removed, if any, as part of the proposed project development and loss of biodiversity.
54.	Collection of primary data on agricultural activity, crop and their productivity and irrigation facilities components.
55.	For categorization of sub-catchment into various erosion classes and for the consequent CAT plan, the entire catchment (Indian Portion) is to be considered and not only the directly the draining catchment.
56.	Documentation of aquatic fauna like macro-invertebrates, zooplankton, phytoplantktons, benthos etc.
57.	Fish and fisheries, their migration and breeding grounds.
58.	Fish diversity composition and maximum length & weight of the measured populations to be studies for estimation of environmental flow.
59.	Conservation status of aquatic fauna.
6	Sampling for aquatic ecology and fisheries and fisheries must be conducted during three seasons Pre-monsoon

0.	(summer), monsoon and winter. Sizes (length & weight) of important fish species need to be collected and breeding and feeding grounds should also be identified along the project site or in vicinity.
61.	Collection of baseline data on human settlements, health status of the community and existing infrastructure facilities for social welfare including sources of livelihood, job opportunities and safety and security of workers and surroundings population.
62.	Collection of information with respect to social awareness about the developmental activity in the area and social welfare measures existing and proposed by project proponent.
63.	Collection of information on sensitive habitat of historical, cultural and religious and ecological importance.
64.	The socio-economic survey/ profile within 10 km of the study area for demographic profile; Economic Structure; Developmental Profile; Agricultural Practices; Infrastructure, education facilities; health and sanitation facilities; available communication network etc.
65.	Documentation of demographic, Ethnographic, Economic Structure and development profile of the area.
66.	Information on Agricultural Practices, Cultural and aesthetic sites, Infrastructure facilities etc.
67.	Information on the dependence of the local people on minor forest produce and their cattle grazing rights in the forest land.
68.	List of all the Project Affected Families with their name, age, educational qualification, family size, sex, religion, caste, sources of income, land & house holdings, other properties, occupation, source of income, house/land to be acquired for the project and house/land left with the family, any other property, possession of cattle, type of house etc.
69.	Special attention has to be given to vulnerable groups like women, aged persons etc. and to any ethnic/indigenous groups that are getting affected by the project.
Impact Prediction and Mitigation Measures	
1.	The adverse impact due to the proposed project should be assessed and effective mitigation steps to abate these impacts should be described.
2.	Changes in ambient and ground level concentrations due to total emissions from point, line and area sources.
3.	Effect on soil, material, vegetation and human health.
4.	Impact of emissions from DG set used for power during the construction, if any, on air environment.
5.	Pollution due to fuel combustion in equipments and vehicles
6.	Fugitive emissions from various sources
7.	Changes in surface and ground water quality
8.	Steps to develop pisci-culture and recreational facilities
9.	Changes in hydraulic regime and downstream flow.
1	Water pollution due to disposal of sewage

0.	
11.	Water pollution from labour colonies/ camps and washing equipment.
12.	Adverse impact on land stability, catchment of soil erosion, reservoir sedimentation and spring flow (if any) (a) due to considerable road construction / widening activity (b) interference of reservoir with the inflowing stream (c) blasting for commissioning of HRT, TRT and some other structures.
13.	Changes in land use / land cover and drainage pattern
14.	Immigration of labour population
15.	Quarrying operation and muck disposal
16.	Changes in land quality including effects of waste disposal
17.	River bank and their stability
18.	Impact due to submergence.
19.	Impact on forests, flora, fauna including wildlife, migratory avi-fauna, rare and endangered species, medicinal plants etc.
20.	Pressure on existing natural resources
21.	Deforestation and disturbance to wildlife, habitat fragmentation and wild animal's migratory corridors
22.	Compensatory afforestation-identification of suitable native tree species for compensatory afforestation and green belt.
23.	Impact on fish migration and habitat degradation due to decreased flow of water
24.	Impact on breeding and nesting grounds of animals and fish.
25.	Impact on local community including demographic profile.
26.	Impact on socio-economic status
27.	Impact on economic status.
28.	Impact on human health due to water / vector borne disease

29.	Impact on increase traffic
30.	Impact on Holy Places and Tourism
31.	Impacts of blasting activity during project construction which generally destabilize the land mass and leads to landslides, damage to properties and drying up of natural springs and cause noise population will be studies. Proper record shall be maintained of the baseline information in the post project period.
32.	Positive and negative impacts likely to be accrued due to the project are listed.
Environmental Management Plan	
1.	Biodiversity and Wildlife Conservation and Management Plan for the conservation and preservation of rare, endangered or endemic floral/faunal species or some National Park/Sanctuary/ Biosphere Reserve or other protected area is going to get affected directly or indirectly by construction of the project, then suitable conservation measures should be prepared in consultation with the State Forest Department and with the physical and financial details. Suitable conservation techniques (in-situ/ ex-situ) will be proposed under the plan and the areas where such conservation is proposed will be marked on a project layout map.
2.	Compensatory Afforestation shall be prepared by the State Forest Department in lieu of the forest land proposed to be diverted for construction of the project as per the Forest (Conservation) Act, 1980. Choice of plants for afforestation should include native and RET species, if any. This will be a part of the forest clearance proposal.
3.	Fisheries Conservation and Management Plan - a specific fisheries management measures should be prepared for river and reservoir. If the construction of fish ladder/ fish-way etc. is not feasible then measures for reservoir fisheries will be proposed. The plan will detail out the number of hatcheries, nurseries, rearing ponds etc. proposed under the plan with proper drawings. If any migratory fish species is getting affected then the migratory routes, time/season of upstream and downstream migration, spawning grounds etc will be discussed in details.
4.	Green Belt Development Plan along the periphery of the reservoir, approach roads around the colonies and other project components, local plant species must be suggested with physical and financial details. A layout map showing the proposed sites for developing the green belt should be prepared.
5.	Environmental Monitoring Programme to monitor the mitigatory measures implemented at the project site is required will be prepared. Provision for Environment Management Cell should be made. The plan will spell out the aspects required to be monitored, monitoring indicators/parameters with respect to each aspect and the agency responsible for the monitoring of that particular aspect throughout the project implementation.
6.	Catchment Area Treatment (CAT) Plan should be prepared micro-watershed wise. Identification of free draining/ directly draining catchment based upon Remote Sensing and Geographical Information System (GIS) methodology and Sediment Yield Index (SYI) method of AISLUS, Deptt. of Agriculture, Govt. of India coupled with ground survey. Areas or watersheds falling under 'very severe' and 'severe' erosion categories should be provided and required to be treated. Both biological as well as engineering measures should be proposed in consultation with State Forest Department for areas requiring treatment. Year-wise schedule of work and monetary allocation should be provided. Mitigation measures to check shifting cultivation in the catchment area with provision for alternative and better agricultural practices should be included.
7.	Study of Design Earthquake Parameters: A site specific study of earthquake parameters should be done. Results of the site specific earthquake design parameters should be approved by National Committee of Seismic Design Parameters, Central Water Commission (NCSDP), New Delhi.
8.	Dam Break Analysis and Disaster Management Plan The outputs of dam break model should be illustrated with appropriate graphs and maps clearly bringing out the impact of Dam Break scenario. To identify inundation areas, population and structures likely to be affected due to catastrophic floods in the event of dam failure. DMP will be prepared with the help of Dam Break Analysis. Maximum water level that would be attained at various points on

	the downstream in case of dam break will be marked on a detailed contour map of the downstream area, to show the extent of inundation. The action plan will include Emergency Action and Management plan including measures like preventive action notification, warning procedure and action plan for co-ordination with various authorities.
9.	Reservoir Rim Treatment Plan for stabilization of land slide / land slip zones, if any, around the reservoir periphery is to be prepared based on detailed survey of geology of the reservoir rim area. Suitable engineering and biological measures for treatment of identified slip zones to be suggested with physical and financial schedule. Layout map showing the landslide/landslip zones shall be prepared and appended in the chapter.
10.	Muck Disposal Plan- suitable sites for dumping of excavated material should be identified in consultation with the State Pollution Control Board and Forest Department. All Muck disposal sites should be minimum 30 m away from the HFL of river. Plan for rehabilitation of muck disposal sites should also be given. The L- section/ cross section of muck disposal sites and approach roads to be given. Financial out lay for this may be given separately. Deatailed muck transportation plan delinating the path ways, number of trucks, quantity of muck to be transportated along with monitoring mechanism using latest technology, shall be prepared.
11.	Restoration Plan for Quarry Sites and landscaping of colony areas, working areas, roads etc. Details of the coarse/fine aggregate/clay etc. required for construction of the project and the rock/clay quarries/river shoal sites identified for the project should be discussed along-with the Engineering and Biological measures proposed for their restoration with physical and financial details. Layout map showing quarry sites vis-à-vis other project components, should be prepared.
12.	Resettlement and Rehabilitation Plan needed to be prepared on the basis of findings of the socio- economic survey coupled with the outcome of public consultation held. The R&R package shall be prepared after consultation with the representatives of the project affected families and the State Government. Detailed budgetary estimates are to be provided. Resettlements site should be identified. The plan will also incorporate community development strategies.
13.	Public Health Delivery Plan including the provisions of drinking water supply for local population shall be in the EIA/EMP Report. Status of the existing medical facilities in the project area shall be discussed. Possibilities of strengthening of existing medical facilities, construction of new medical infrastructure etc. will be explored after assessing the need of the labour force and local populace.
14.	Local Area Development Plan to be formulated in consultation with the Revenue Officials and Village Pancahayats. Appropriate schemes shall be prepared under EMP for the Local Area Development Plan with sufficient financial provisions.
15.	Labour Management Plan for their Health and Safety.
16.	Sanitation and Solid waste management plan for domestic waste from colonies and labour camps etc.
17.	Energy Conservation Measures for the work force during construction with physical and financial details. Alternatives will be proposed for the labour force so that the exploitation of the natural resource (wood) for the domestic and commercial use is curbed.
18.	Environmental safeguards during construction activities including Road Construction.
19.	A summary of Cost Estimates for all the plans, cost for implementing all the Environmental Management Plans.
20.	Water, Air and Noise Management Plans to be implemented during construction and post-construction periods.

3.4. Agenda Item No 4:

3.4.1. Details of the proposal

Construction of SUKHPURA OFF-STREAM CLOSED LOOP PUMPED STORAGE PROJECT (OCPSP) -2560 MW by M/s Greenko Energies Private Limited, in District -Chittorgarh, Rajasthan. by **GREENKO ENERGIES PRIVATE LIMITED** located at **CHITTORGARH,RAJASTHAN**			
Proposal For		Application for Corrigendum	
Proposal No	**File No**	**Submission Date**	**Activity (Schedule Item)**
IA/RJ/RIV/517250/2025	J-12011/20/2019-IA-I	04/01/2025	River Valley/Irrigation projects (1(c))

3.4.2. Project Salient Features

22.4.1: The proposal is for grant of Corrigendum in amendment in Terms of Reference (TOR) to the project for Sukhpura Off-Stream Closed Loop Pumped Storage Project (OCPSP)-2560 MW in an area of 788.6761Ha in Village Sukhpura, Lakshmikhera, and Nahargarh etc, Sub District Rawatbhata, District Chittaurgarh, Rajasthan by M/s Greenko Energies Private Limited.

22.4.2: The Project Proponent and the accredited Consultant R. S. Envirolinks Technologies Pvt. Ltd., made a detailed presentation on the salient features of the project and informed that:

i. The proposal is for Corrigendum in the Terms of Reference granted by the Ministry vide letter dated 03.12.2024 for the project Sukhpura Off-Stream Closed Loop Pumped storage project (OCPSP) located at Sukhpura, Gorakiya, Nahargarh, Patappura, Borav, Laxmikhera Villages; Tehsil-Rawatbhata, Chittorgarh District, Rajasthan. in favour of M/s Greenko Energies Private. Ltd.

ii. Project was appraised and recommended for grant of TOR in 29th meeting of EAC held on 15.12.2019 for 5040 MW installed capacity. TOR was issued by MoEF&CC vide its letter dated 28.02.2020.

iii. M/s Greenko Energies Private Limited (GEPL) conducted a detailed ground survey at the project site. Following surveys and investigations, the project capacity was optimized and revised to 2560 MW with a storage capacity of 6.03 hours. The revised water requirement is 1.176 TMC, and the total land requirement was reduced to 815.0771 Ha, of which 678.5318 Ha was forest land and 136.5453 Ha was non-forest land. Accordingly, amendment to TOR granted was obtained from MoEF&CC vide letter No F.No. J-12011/20/2019-IA-I dated 03.08.2022.

iv. Consequently, the total land area requirement has now been revised/updated to 788.6761 Ha, with 610.8427 Ha as forest land and 177.8334 Ha as non-forest land. There was no change in location or capacity of project, however, there were minor changes in component sizing and levels. Accordingly, amendment to TOR granted was granted by MoEF & CC vide letter No J-12011/20/2019-IA-I, dated 04.12.2024.

v. Due to minor mismatch in dates of TOR granted and validity of TOR extension, application for Corrigendum to TOR was submitted to MOEF& CC on 04.01.2025.

vi. The project proponent has requested for Corrigendum in the ToR with the details are as under;

S. No	**TOR amendment granted vide letter dated 04-12-2024**	**Sukhpura Off-Stream Closed Loop Pumped Storage Project (2560 MW) [TOR amendment granted vide letter dated 04-12-2024]**	**Sukhpura Off-Stream Closed Loop Pumped Storage Project (2560MW) [Corrigendum Sought in TOR amendment dated 04-12-2024]**	**Remarks**
1	Point 6	The Ministry granted Terms of Reference vide	The Ministry granted Terms of Reference vide lett	-

		letter dated 03.08.2022 for the proposed projec t and PP has submitted the proposal for amend ment in ToR for chang e in the coordinates of t he project, water requir ement, and land area re quirement alongside de sign parameters.	er dated 28.02.2020 and TOR amendment was iss ued on 03.08.2022 for th e proposed project and P P has submitted the prop osal for amendment in T oR for change in the coor dinates of the project, wa ter requirement, and land area requirement alongsi de design parameters.	
2	Point 12	You are requested to ki ndly submit the final E IA/EMP, prepared as p er the Terms of Refere nce (ToRs), to the Mini stry for consideration o f the proposal for envir onmental clearance wit hin 5 years (from the gr ant of ToR letter dated 30.01.2024), as per the extant rules of the Mini stry notified from time to time.	You are requested to kin dly submit the final EIA/ EMP, prepared as per the Terms of Reference (To Rs), to the Ministry for c onsideration of the propo sal for environmental cle arance within TOR validi ty i.e 28.02.2026 as per t he extant rules of the Mi nistry notified from time to time	Sukhpura (RJ02) PS P TOR was granted in 28th Feb, 2020 an d is valid for 5 Year s as per MoEF&CC OM dated 17.02.20 20. However, as per Mo EF & CC Gazette d ated 18.01.2021 the validity of TOR is e xtendable by 1 year considering COVI D-19 scenario, Acco rdingly the ToR is v alid upto 28th Febru ary 2026.

3.4.3. Deliberations by the committee in previous meetings

N/A

3.4.4. Deliberations by the EAC in current meetings

The EAC deliberated on the information submitted and as presented in the meeting and observed that the proposal is for grant of corrigendum in amendment in Terms of Reference (ToR) to the project for Sukhpura Off-Stream Closed Loop Pumped Storage Project (OCPSP)-2560 MW in an area of 788.6761Ha in Village Sukhpura, Lakshmikhera, and Nahargarh etc, Sub District Rawatbhata, District Chittaurgarh, Rajasthan by M/s Greenko Energies Private Limited.

The project/activity is covered under Category A of item 1 (c) 'River Valley projects' of the Schedule to the Environmental Impact Assessment Notification, 2006 and requires appraisal at Central level by the sectoral EAC in the Ministry.

The Ministry granted the Terms of Reference (ToR) for the proposed project vide letter dated 28.02.2020. Subsequently, an amendment to the ToR was granted on 03.08.2022 for changes in water requirement and land area.

The Expert Appraisal Committee (EAC) noted that, due to further revised details regarding land area requirements and minor adjustments in component sizing and levels, another amendment to the ToR was granted by MoEF&CC on 04.12.2024. It was further noted that due to inadvertent submission of incorrect information regarding the ToR date by the Project Proponent (PP), the wrong date, i.e., 28.02.2020, was mentioned in the Minutes of the 19th EAC meeting and the corresponding ToR letter.

The EAC after examining the information submitted and detailed deliberations recommended the

proposal grant of corrigendum in amendment in Terms of References as proposed by the PP to Sukhpura Off-Stream Closed Loop Pumped Storage Project (OCPSP)-2560 MW in an area of 788.6761Ha in Village Sukhpura, Lakshmikhera, and Nahargarh etc, Sub District Rawatbhata, District Chittaurgarh, Rajasthan by M/s Greenko Energies Private Limited, under the provisions of EIA Notification, 2006 and as amended with subject to the following additional conditions:

3.4.5. Recommendation of EAC

Recommended

3.4.6. Details of Environment Conditions

3.4.6.1. Specific

Additional Conditions	
1.	All ToR points mentioned in the ToR letter dated 28.02.2020 and amendment in TOR dated 03.08.2022 and shall remain unchanged.
2.	EIA/EMP, collection of baseline data, other statuary clearance and the public hearing shall be carried out as per revised layout.
3.	Validity of ToR shall be counted from original date of grant to ToR i.e. 28.02.2020.

4. Any Other Item(s)

N/A

5. List of Attendees

Sr. No.	Name	Designation	Email ID	Remarks
1	Prof G J Chakrapani	Chairman, EAC	cha**********@gmail.com	
2	Shri Ajay Kumar Lal	Member (EAC)	akl****@gmail.com	
3	Dr Uday Kumar R Y	Member (EAC)	uda********@yahoo.com	
4	Dr Mukesh Sharma	Member (EAC)	muk***@iitk.ac.in	Absent
5	Dr J V Tyagi	Member (EAC)	jvt******@gmail.com	
6	Shri Kartik Sapre	Member (EAC)	kar********@gmail.com	
7	Dr A K Sahoo	Member (EAC)	ami***@gmail.com	
8	Dr J A Johnson	Member (EAC)	jaj@wii.gov.in	Absent
9	Shri Rajeev Varshney	Member	rva**********@gov.in	
10	Representative of CWC	Member	emo***@nic.in	

11	Yogendra Pal Singh	Scientist E	yog*******@nic.in	

MINUTES OF THE 22ND MEETING (VIRTUAL) OF THE EXPERT APPRAISAL COMMITTEE FOR RIVER VALLEY AND HYDROELECTRIC PROJECTS HELD ON 10TH JANUARY, 2024

The 22nd meeting of the EAC for River Valley & Hydro-electric Projects organized by the Ministry of Environment, Forest and Climate Change, Indira Paryavaran Bhawan, Jor Bagh Road, New Delhi, was held on Physical Mode, under the Chairmanship of Prof. G. J. Chakrapani. The list of Members present in the meeting is at **Annexure**.

Confirmation of the Minutes of the 21st EAC meeting:

The Minutes of the Meeting held on 21st EAC meeting on 31st December, 2024 were confirmed.

Agenda Item No. 22.1

Expansion of Tembhu Lift Irrigation Project in an area of 2284.601 ha at Village Tembhu, Ranad, Govare and etc, Sub District Khatav, Atpadi, Karad and etc, District Satara, Sangli and Solapur, Maharashtra by M/s Department of Irrigation, Maharashtra – Environmental Clearance (EC) - reg.

[Proposal No. IA/MH/RIV/482689/2024; F. No. J-12011/48/2023-IA.I (R)]

22.1.1: The proposal is for grant of Environmental Clearance (EC) to the project for Expansion of Tembhu Lift Irrigation Project in an area of 2284.601 ha at Village Tembhu, Ranad, Govare and etc, Sub District Khatav, Atpadi, Karad and etc, District Satara, Sangli and Solapur, Maharashtra by M/s Department of Irrigation, Maharashtra.

The accredited consultant 'MITCON Consultancy & Engineering Services Limited' vide email dated 10.01.2025 informed that they will be unable to attend meeting and present their case.

Accordingly, the EAC decided to **defer** the matter.

Agenda Item No. 22.2

Teesta Hydro-electric Project Stage-III (1200 MW) in an area of 213.8831 ha located at Village Lingdong, Kazor, Barfok, Meyong etc, Sub-district Mangan and Chungthang, district Mangan (earlier North Sikkim), Sikkim by M/s Sikkim Urja Limited – Reconsideration of Amendment in Environmental Clearance (EC) - reg.

[Proposal No. IA/SK/RIV/499039/2024; F. No. J-12011/26/2006-IA.I]

22.2.1: The Project Proponent and the accredited Consultant R. S. Envirolink Technologies Pvt. Ltd., made a detailed presentation on the salient features of the project and informed as under:

i. The proposal is for grant of amendment in Environmental Clearance to the project for Teesta Hydroelectric Project Stage-III (1200 MW) in an area of 213.8831 ha located at Village Lingdong, Kazor, Barfok, Meyong etc Sub-district Mangan and Chungthang, District Mangan (earlier North Sikkim), Sikkim by M/s Sikkim Urja Limited.

ii. The Teesta-III Hydro Electric Project (1200 MW) is a run-of-the-river scheme with diurnal storage to generate a power of 1200 MW by utilizing the discharge of River Teesta with a gross head of 817.00m between EL.1585.0 m and EL.768.0 m.

iii. The project is located on the main Teesta River in the Mangan district, utilizing drop of about 800 m in the river between Chungthang and Sankalang villages. The project is about 90 km from district headquarters Gangtok via Mangan. Nearest railhead is (Jalpaiguri and Siliguri) and airport are located at Bagdogra respectively. The nearest village to the project is Sankalang about 0.8 Km, which comes under, Mangan District.

iv. The Govt of Sikkim has signed Implementation Agreement (IA) with M/s Teesta Urja Limited for development of Teesta-III hydroelectric project (1200 MW) located in Mangan district of Sikkim. MoEF & CC, New Delhi has granted Environmental Clearance on 04.08.2006 and vide letter dated 30.04.2010, MoEFCC has granted approval for Design Changes for execution of the Project. MoEF&CC vide letter no. J-12011/26/2006-IA-I dated 16.11.2024 has granted approval for transfer of Environment Clearance of Teesta Hydroelectric Project Stage-III (1200 MW) from "Teesta Urja Limited' to "Sikkim Urja Limited'.

v. The Project was commissioned in February 2017 and was in successful operation till 03/04 October 2023 when the Project faced a flash flood which led to the washing away of the Dam and flooding of the underground Powerhouse leading to halting of Project operations. The underground Powerhouse and electro-mechanical equipment can be restored to their original condition in about 10-12 months. The water conductor system is mostly unaffected in the flash flood, hence, other than the Dam most of the components can be restored in a year's time. As most of the components would be ready in a year, there is a case for restoring the Dam and bringing back the Project in operation at the earliest for which EC amendment is requested.

vi. The project proponent has requested for amendment in the EC with the details are as under:

Description	**Reference**	**Existing**	**Proposed / Amendment**	**Reason**
Approved EC	Para 3	CFRD (concrete faced rockfill dam)	Concrete Gravity dam	To accommodate release of safe discharge of

Description	Reference	Existing	Proposed / Amendment	Reason
				revised Design Flood of 19,946 m3/s (PMF: 7000 cumecs + GLOF: 12,946 cumecs) through open spillway which is not possible in CFRD.
Approved EC	Para 3	Total Land requirement is 196.967 ha. Out of which 80.288 ha is forest land.	Total Land requirement is 213.8831 ha (Forest 83.0405 ha, Govt 4.0360 ha & Pvt 126.8066 ha)	In EIA report (2006), the total land requirement is indicated as 196.9670 Ha, out of which 80.288 ha as forest land. However, during Forest Proposal based on the joint inspection carried out by the Forest Dept/Revenue dept, the total land requirement was evaluated as 199.9209 Ha (Forest 83.0405 Ha, Govt 4.0360 & Pvt 112.8444 Ha) and accordingly forest proposal was submitted. Thereafter during land acquisition process, State Govt has notified and acquired Private Land of 126.8066 Ha for the project under provisions of land acquisition

Description	Reference	Existing	Proposed / Amendment	Reason
				considering the representations it received from landowners to include their lands. On account of this, there is a minor increase of 13.9622 Ha in private land with forest land of 83.0405 ha and Govt land of 4.0360 ha.
Approved EC	Para 3	Forest clearance is yet to be obtained	Stage I Forest clearance of Teesta-III HE project for diversion of 83.0405 ha of forest land was approved by Ministry of Environment Forest and Climate Change, Government of India vide letter No. 8-142/2006-FC on 12.10.2007 and Stage II on 02.11.2007.	NA
Approved EC	Para 3	No Human population will be displaced. However, 158 families are likely to lose their land partially in nine project affected villages. R&R package has been prepared based on NPRR-2003	265 families	All the landowners have been paid compensation as per the directions of R & R committee constituted by State Govt under NPRR, 2003.

Description	Reference	Existing	Proposed / Amendment	Reason
Approved EC	Para 3	The estimated cost of the project is INR 5705.55 Cr	The estimated cost for project restoration is INR 4189.51 Cr (incl GST excluding IDC)	Existing project Cost was INR 13,965 Cr (COD-Mar 2017)
Approved EC	Subject	Teesta Hydro-electric Project Stage III (1200 MW) in North District, Sikkim	Teesta Hydro-electric Project Stage III (1200 MW) in Mangan District, Sikkim	North Sikkim district is renamed as Mangan district

Proposal was earlier considered by the EAC in its 19th EAC meeting held on 30.11.2024 and EAC decided to defer the proposal with following observations:

"…..*The EAC expressed serious concerns regarding the dam's design and stability; its ability to withstand potential natural disasters in the future. The committee emphasized the need for a thorough review of the proposed modifications to ensure the structural resilience and safety of the dam, particularly given the region's susceptibility to extreme hydrological events. It was therefore recommended to get comments from the Central Electricity Authority (CEA) on the proposed modifications.* ***Therefore, the EAC opined to conduct a site visit by sub-committee of EAC members before giving any further recommendation to the project….*****"**

In view of the above, the site visit of Teesta III Project was conducted from 26.12.2024 to 28.12.2024 by a sub-committee of the EAC. The site visit report was deliberated by the EAC in its meeting held on 31.12.2024 and directed the PP to incorporate certain measures in construction / operation stage of the Project to enhance Dam safety parameters.

22.2.3 [A] PP during the presentation submitted the response on the observations raised by the EAC in its meeting held on 30-11-2024:

Observation 1: The EAC expressed serious concerns regarding the dam's design and stability; its ability to withstand potential natural disasters in the future.

Reply:

- Type of Dam has been changed from CFRD to concrete gravity which is a much more resilient structure minimizing the chance of Dam failure due to overtopping. SUL is employing various measures like jet grouting, permeation grouting to improve the ground conditions and control seepage for the Stage I works.

- Dam spillway capacity has been enhanced from 7,000 cumecs to 19,946 cumecs by considering both GLOF and PMF. The spillway crest is lowered to enhance spillway safety in operation.
- To enhance the safety of the personnel working during Project operations, SUL has plans to shift the Dam control room to a higher elevation.
- Further, SUL will implement a Early Warning System in the upper catchment which gives sufficient time to shift the working manpower from the Dam site and safely operate and open all Dam gates in the event of a flood.
- Operation of spillway gates will be synchronised with the early warning system to ensure all gates opening in time such that gates are operated before travel of flood water to the Dam.

Observation 2: The committee emphasized the need for a thorough review of the proposed modifications to ensure the structural resilience and safety of the dam, particularly given the region's susceptibility to extreme hydrological events.

Reply:

- A comprehensive study for identification of potential threats due to Glacial lakes has been carried out.
- Total 119 Glacial lakes were identified in the catchment. Out of these, 50 glacial lakes were shortlisted with area of 10 ha or more for further evaluation. After detailed study, 13 potentially dangerous glacial lakes were identified based on the water spread area (40 Ha or more), volume and distance. During criticality analysis, combination of lakes was studied to find out the worst-case scenario. Three different combinations were studied, and worst combination was considered for GLOF. In the worst-case combination, highest volume outflow from simultaneous breach of two lakes of 12,946 cumecs was considered. This GLOF capacity has been added to the PMF for deciding the spillway capacity.
- Joint site visit of GSI & CWC was conducted to confirm site suitability. GSI confirmed Dam site suitability based on evaluation of study of 3D geological logs of drifts/tunnels, Bore hole logs and other site investigation Data.
- The CFRD failed due to overtopping as the flood faced was higher than the spillway capacity. To improve the design, safety and structural resilience:
    i. The spillway capacity is enhanced to 19,946 cumecs (7000 cumecs PMF + 12,946 cumecs GLOF) leading to capability to tackle a much higher flood.
    ii. Further Dam type chosen for reconstruction is concrete gravity which has better resilience and performance in the events of flash floods/ GLOFs etc. and not likely to fail in case of overtopping.

Observation 3: It was therefore recommended to get comments from the Central Electricity Authority (CEA) on the proposed modifications.

Reply: Member of CEA was part of the EAC sub-committee that visited the Project from 26.12.2024 to 28.12.2024 and may have furnished requisite details to EAC.

Observation 4: The EAC further opined to conduct a site visit by a sub-committee of the EAC members before giving any recommendation on the proposal.

Reply: In pursuant to the decision taken by the EAC in its meeting held on 30.11.2024, the sub-committee of EAC visited the project from 26.12.2024 to 28.12.2024.

[B] Additionally, PP during the presentation submitted the point-wise response on the measures recommended by the Sub-Committee to implement in construction / operation stage of the Project to enhance Dam safety parameters:

Recommendation 1: To map all potential glacial lakes in the upper catchment of the Project and coordinate with the Central and State Disaster management authorities for taking information regarding monitoring of these lakes.

Reply:

- A comprehensive study for identification of potential threats due to Glacial lakes has been carried out.
- Total 119 Glacial lakes were identified in the catchment. Out of these, 50 glacial lakes were shortlisted with area of 10 ha or more for further evaluation. After detailed study, 13 potentially dangerous glacial lakes were identified based on the water spread area (40 Ha or more), volume and distance. During criticality analysis, combination of lakes was studied to find out the worst-case scenario. Three different combinations were studied, and worst combination was considered for GLOF. In the worst-case combination, highest volume outflow from simultaneous breach of two lakes of 12,946 cumecs was considered. This GLOF capacity has been added to the PMF for deciding the spillway capacity.
- Further as directed SUL will take necessary steps to coordinate with the Central and State Disaster management authorities for taking information regarding monitoring of these lakes.

Recommendation 2: Project should conduct workshops/ seminars/ conferences and invite domain experts from the fields of glacial studies, disaster management authorities from time to time.

Reply: Shall be complied.

Recommendation 3: To map the landslides in the reservoir area of the Dam and extend the landslide study to 5 km in both Lachen and Lachung catchment and take actions for monitoring of potential landslides and mitigation measures for Dam safety.

Reply:

- Study for mapping the land slides in the reservoir area of the dam is already conducted.

- Further study for mapping landslides upto 5 km in both Lachen and Lachung catchment shall be immediately undertaken.
- Based on the study, further action plan for monitoring of potential landslides and adoption of mitigation measures shall be taken.

Recommendation 4: To carry out detailed geological mapping the Dam area for potential weak zones and take structural measures including slope stabilization measures for ensuring safety and integrity of the structure.

Reply:

- Detailed geological mapping of the Dam area already completed and report submitted to GSI for appraisal on 04.01.2025. As per the geological mapping, there is no potential weak zone identified in the Dam area.
- Further, slope stabilization measures for ensuring safety & integrity as per recommendation of GSI shall be adopted at the detailed design stage.

Recommendation 5: To engage an independent third party expert/ committee/ consultant/ institute for monitoring of safe work procedures during Dam construction and later safe operation during Dam operations. This independent agency shall be mandated to visit the Project twice in a year to review the construction/ operations and submit observations & recommendations for the Project to implement.

Reply:

- The directions of EAC shall be complied with.
- Further, it is submitted that the Company is already having 3 tier review system comprising of detailed engineering consultant, review by internal engineering team comprising of about 60-70 engineers and further monitored by review consultant to make the whole process fool proof.

Recommendation 6: To develop and implement a robust Early Warning System (EWS) for generation and dissemination of timely warning information of the extreme flood events in the river catchment. The EWS should be integrated with Dam Gate operations to ensure Public Safety and the protection of human lives and enhance safe Dam operations. The EWS should have capability for transmission of warning signal generated to be transmitted to State Disaster Management Authority, NDMA, Sikkim State administration and downstream Projects to alert and safeguard the downstream areas. The EWS of the Project should be linked with the NDMA/ SSDMA and Sikkim Government comprehensive EWS.

Reply:

- Preliminary study of Catchment area for implementation of robust EWS and fixing of location of sensor stations was undertaken.
- Confirmatory study shall be undertaken for implementation of EWS system to meet the Government of India guidelines, directions of CEA/ CWC.

- While finalizing the specifications of EWS system all the recommendation of the EAC regarding robust EWS and linking with NDMA/ SSDMA & Sikkim Government comprehensive EWS shall be complied.

Recommendation 7: SUL should develop response criterion for Dam gate operations based on the EWS signal.

Reply:

- Already being considered in the safety requirements for the project.
- EWS signal will be integrated with the Dam Control Room so that gate operation is synchronized with the EWS signal.

Recommendation 8: The speed of opening of Dam Gates should be improved and implemented such that the full Dam Gates are operated and opened in the available time so that gates are fully opened in time in case of a natural disaster like flash flood or GLOF.

Reply:

- Already being considered in the detailed designs, accordingly SUL is currently finalizing the technical specifications of the Dam gates.
- In line with the recommendations of EAC, the speed of gate opening of the Dam shall be designed such that full gate opening happens in time for safe passing through the Dam in case of a flash flood or GLOF.

22.2.4 The EAC during deliberations noted the following:

The Expert Appraisal Committee (EAC) deliberated on the information submitted and as presented in the meeting and observed that the proposal is for grant of amendment in Environmental Clearance Teesta Hydroelectric Project Stage-III (1200 MW) in an area of 213.8831 ha located at Village Lingdong, Kazor, Barfok, Meyong etc Sub-district Mangan and Chungthang, North District, Sikkim by M/s Sikkim Urja Limited.

The project/activity is covered under Category A of item 1 (c) 'River Valley projects' of the Schedule to the Environmental Impact Assessment Notification, 2006 and requires appraisal at Central level by the sectoral EAC in the Ministry.

The EAC in its meeting held on 30.11.2024 noted that

i. Environmental Clearance (EC) for the Teesta Hydroelectric Project Stage-III (1200 MW) was initially issued by the Ministry of Environment, Forest and Climate Change (MoEF&CC) on 04.08.2006. An amendment to the EC was granted on 30.04.2010 for design changes related to the project execution. Subsequently, the transfer of the Environmental Clearance from "Teesta Urja Limited" to "Sikkim Urja Limited" was approved by MoEF&CC on 16.11.2024, as per letter no. J-12011/26/2006-IA-I.

ii. The project was commissioned in February 2017, had been operating successfully until it was impacted by a flash flood on 03-04 October 2023. The flood caused significant damage, including washing away the dam and severely flooding the underground powerhouse, resulting in a complete halt to project operations. The Project Proponent (PP) assured the EAC that, aside from the dam, most of the other components of the project could be restored within a year's time.

In light of the observations made by the Expert Appraisal Committee (EAC) during its meeting held on 30.11.2024, a site visit for the proposed project was conducted by a sub-committee of the EAC from 26.12.2024 to 28.12.2024. Following the site visit, the Project Proponent (PP) submitted detailed responses to the issues raised. Upon thorough examination, the EAC was satisfied with the responses provided by the PP.

The Expert Appraisal Committee (EAC) noted that an officer from the sub-office in Kolkata, under the regional office in Bhubaneswar, MoEF&CC, conducted a site visit on 16.01.2024 and 17.01.2024. The officer submitted a detailed report to MoEF&CC on 09.02.2024. The report indicates that all Environmental Clearance (EC) conditions have been complied with, except for two specific observations, which require further attention:

1. PAs need to submit the certificate for utilization of funds deposited under CAT plan (specific condition (i).
2. PAs have not provided detailed compliance status with respect to all the assurances/commitments given by the project authority in the public hearing. (specific condition vi)

Response of RO report was submitted by project proponent on 20/02/2024.

The Expert Appraisal Committee (EAC) observed that the detailed Environmental Impact Assessment (EIA) study for the Teesta-III Hydro Electric Project (HEP) was initially conducted by WAPCOS in 2005–06. The Project Proponent (PP) has now submitted that the EIA report has been updated from the perspective of restoration, focusing on project component restoration, partial generation through the coffer dam, and construction of a concrete gravity dam at the same location as the earlier dam, in accordance with the standard Terms of Reference (ToR).

Baseline data for the updated EIA was collected over three seasons—winter, pre-monsoon, and monsoon—spanning the period from January 2024 to July 2024. The EAC noted that a comprehensive impact assessment has been carried out, with appropriate mitigation and management measures proposed. The Environmental Management Plan (EMP) has a proposed budget of ₹8189.42 lakh, including a capital cost of ₹5273.54 lakh and a recurring cost of ₹2915.88 lakh. Additionally, ₹1423 lakh has been allocated for Local Area Development.

The EAC observed that the total land requirement for the project is 213.8831 hectares, which is already in the possession of the Project Proponent (PP). It was further noted that as per the Environmental Clearance (EC) dated 04.08.2006, the total land requirement was indicated as 196.9670 hectares, comprising 80.288 hectares of forest land. The PP clarified that during the forest diversion process, based on a joint inspection by the Forest Department and the Revenue Department, the total land requirement was revised to 199.9209 hectares, which included 83.0405 hectares of forest land and 116.8804 hectares of non-forest land (112.8444 hectares private land and 4.0360 hectares government land). Accordingly, the forest proposal was approved.

Subsequently, during the land acquisition process, representations from landowners requested the inclusion of additional private lands. This resulted in an increase of 13.9622 hectares in the private land component. In response, the State Government notified and acquired a total of 126.8066 hectares of private land for the project under the provisions of land acquisition. Compensation for all landowners has been disbursed as per the directions of the Rehabilitation and Resettlement (R&R) Committee constituted by the State Government.

The representative of the CEA informed during the meeting that the proposal for restoration of Teesta III HEP was submitted in CEA in June, 2024. The same was forwarded to various appraising groups of CWC, GSI and CSMRS. CWC has approved the value of GLOF of 12,946 cumec. However, design directorate of CWC has suggested to carry out the revised study of the PMF and Diversion flood and get it approved through concerned hydrology directorate of CWC. Further, design aspects of Dam and other components are yet to be approved by CWC, GSI and CSMRS.

The EAC observed that the proposed amendment does not require any additional land (Private/Forest). The project authorities have already obtained the Forest Clearance for forest land involved. The R&R issues have also been settled as per State Government policy and no R&R issue is involved due to proposed amendment. The EAC was of the view that the proposed amendment qualify the criteria to be considered under the provisions of the Para 7 (ii) of the EIA Notification, 2006, as amended. The PP has already submitted the revised EIA/EMP report based on Standard TOR with collection of three season baseline data. The EAC felt no requirement of fresh public hearing as there is no involvement of additional land and other R&R issues; moreover, PP has already conducted public hearing before grant of earlier Environmental Clearance on 4.08.2006.

22.2.5 The EAC after detailed deliberation on the information submitted and as presented during the meeting, recommended the proposal for grant of amendment in Environmental Clearance dated 04.08.2006 for Teesta Hydroelectric Project Stage-III (1200 MW) in an area of 213.8831 ha located at Village Lingdong, Kazor, Barfok, Meyong etc Sub-district Mangan

and Chungthang, North District, Sikkim by M/s Sikkim Urja Limited, under the provisions of EIA Notification, 2006, as amended subject to the standard EC conditions along with following specific conditions:

[A] Environmental management and Biodiversity conservation:

i. All the conditions mentioned in the EC letter dated 04.08.2006 and subsequent amendment dated 30.04.2010 shall remain unchanged.

ii. The Environmental Management Plan (EMP) shall be strictly adhered to as submitted in the EIA/EMP reports. 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.

iii. Ambient Air Quality Monitoring Stations for real time data to be installed at project site before commencement of the construction, shall be displayed at project site and its report to be submitted to IRO, MoEF&CC.

iv. 10000 plants shall be planted around the muck disposal area and the survival of plants shall be submitted with the 6 monthly compliance report.

v. Plantation of saplings shall be carried out as a part of the tree plantation campaign "Ek Ped Ma Ke Naam" and the details of the same shall be uploaded in the MeriLiFE Portal (https://merilife.nic.in).

vi. Necessary permission to be obtained for quarrying construction materials, if any required, for the project as per the EIA Notification, 2006 and as amended thereof.

vii. Necessary control measures such as water sprinkling arrangements, etc. and construction of paved roads leading to muck disposal sites shall be taken up on priority to arrest fugitive dust at all the construction sites.

viii. Real time monitoring of e-flow to be done in consultation with State PCB or any other institution.

[B] Muck Management:

i. Disposal of the excavated muck and its filling on the low-lying area with proper measures for the stabilization and greenery to minimize the impacts of the generated construction muck shall be taken up pari passu with construction work.

ii. 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 does not pollute the natural streams and water bodies in surrounding area. The plantation on muck disposal site with local species for restoration of ecology and environment of the project site area.

iii. 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.

iv. 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.

[C] Socio-economic:

i. The compliance of above conditions shall be monitored by IRO, MoEF&CC and regularly site visit once in year. The compliance report of IRO shall be regularly submitted to MoEF&CC.

ii. Skill development Centre shall be established within 10 km radius of the project and regular training programmes for development and promotion of traditional art/products of tribal/local population.

[D] Disaster Management:

i. The Project Proponent (PP) shall implement the recommendations made by the Sub-committee after site visit of the project in later and sprit.

ii. PP shall install and operationalize a Telemetric Early Warning System (TEWS) to monitor and report real-time data on environmental parameters such as water levels, rainfall, and seismic activity. The system must be integrated with regional and national disaster management networks, include automated alert mechanisms for stakeholders, and be maintained with regular testing and compliance reporting in six month compliance repot to IRO.

iii. PP in consultation with state department shall develop disaster-resilient shelters at safe locations with adequate facilities, including sanitation, drinking water, emergency supplies, and provisions for vulnerable groups.

iv. PP shall conduct a detailed study of the downstream impact in case of a flood in the river, including potential risks to communities and ecosystems, and prepare a comprehensive mitigation plan including emergency response strategies, and restoration activities to minimize adverse effects. The same shall be started before construction and compliance shall be submitted in six month compliance repot to IRO.

v. All necessary permissions from CEA/CWC or any other agency w.r.t project design and other safety parameters shall be obtained before starting the project construction work.

[E] Miscellaneous:

i. 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.
ii. Bio-Gas plant shall be installed in the Project affected area for Utilizing Cattle waste (Cow Dung) into renewable source of fuel.
iii. 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.
iv. 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.

Agenda Item No. 22.3

Balotra Close Loop Pumped Storage Project (1800 MW) in an area of 313.15 Ha located at Village Asotra, Bituja, Nal, etc, Sub District Pachpadra and Siwana, District Barmer, Rajasthan by M/s Adani Green Energy Limited – Terms of Reference (TOR) - reg.

[Proposal No. IA/RJ/RIV/514467/2024; F. No. J-12011/01/2025-IA.I (R)]

21.2.1: The proposal is for grant of Terms of References (ToR) to the project for Balotra Close Loop Pumped Storage Project (1800 MW) in an area of 313.15 Ha located at Village Asotra, Bituja, Nal, etc, Sub District Pachpadra and Siwana, District Barmer, Rajasthan by M/s Adani Green Energy Limited.

21.2.2 The Project Proponent and the accredited Consultant R. S. Envirolinks Technologies Pvt. Ltd., made a detailed presentation on the salient features of the project and informed that:

i. Balotra Pumped Storage Project (PSP) is proposed 1800MW Off Stream Closed Loop Scheme with an installed capacity of 1800 MW (5x300 MW + 2x150 MW). Project is located in Balotra district of Rajasthan.

ii. The geographical co-ordinate of the project are Lower Reservoir: 25º 34' 57.14" N; 72º 20' 25.25" E; Upper Reservoir: 25º 34' 22.89" N; 72º 20' 11.65" E. The Balotra Pumped Storage Project envisages construction of two artificial reservoirs near Village Peeploon, Siwana Tehsil in Balotra District of Rajasthan.

iii. The upper and lower dams for the project are proposed to be newly constructed. It is proposed to utilize between upper reservoir with gross volume of 15.43 Mm3 at El. 633m and a lower reservoir with a gross volume of 15.28 Mm3 at El. 267m for the storage of energy. Both reservoirs are planned to be artificially constructed. The scheme of operation considered for the project is daily regulation to meet the demand of about 6.0 hours of peak power daily. Off-peak pumping hours are considered as 6.81 hours daily.

iv. The one-time filling is proposed to be done from the nearest point of Luni River which is 40km away and shall be used for filling up the reservoirs. The upper reservoir is proposed to be filled up by using the reversible pump turbine which is employed for the generation of the required power. Thus, water requirement for the initial filling of the reservoirs (onetime) is about 16.52 Mm3, which includes losses from upper and lower reservoirs. The annual water requirement for recuperating losses in upper & lower reservoir storage due to evaporation, transit, and seepage is estimated to be 2.91 Mm3.

v. **Land requirement:** The total land required for the construction of various components and related works for Balotra PSP is estimated to be around 313.15ha, out of which 110.8ha is non-forest land and 202.35ha is forest land. Diversion of forest land for non-forest purpose will be involved for construction of Balotra project components. Therefore, Forest Clearance is required to be obtained under Forest Conservation Act. There is no Protected Area in the vicinity of the proposed project.

vi. **Water requirement:** Balotra PSP (1800 MW) will require 16.52MCM for initial reservoir filling and thereafter ~ 2.91MCM per year will be required on annual basis from Luni River for restoring the storage capacity lost due to evaporation.

vii. **Project Cost:** The estimated project cost is Rs 9759.73/- crore. Total capital cost earmarked towards environmental pollution control measures will be worked out during EIA study as well as the Recurring cost (operation and maintenance).

viii. **Project Benefit:** Total Employment will be 1200 people direct & 200 persons indirect.

ix. **Environmental Sensitive area**: There is no Protected Area in the vicinity of the proposed project. Kumbhalgarh WLS is 112 km far from the proposed project area. River/ water body, Luni River is flowing at the aerial distance of 0.10 km in east to west direction.

x. MoU signed with Government of Rajasthan vide ref. no. MoU/2024-25/12142 dated 03-12-2024.

xi. **Demographic Profile**:

The proposed Project impact area i.e. within 0-2 km radius of its components like

proposed upper and lower reservoir sites, power house and pumping alignment falling under Siwana tehsil in Barmer district of Rajasthan.

There are 3 villages within 0-2 km radius of the project components. The table below presents the list of villages according to their proximity to the project area components.

Villages in the Project Impact Area

District	Tehsil	Village
Barmer	Siwana	Goliya
Barmer	Siwana	Goongrot
Barmer	Siwana	Peeploon

Demographic Profile of the Project Impacted Area Villages

As per Census of India, 2011, total population in the project impact area villages is 3820 of which 2033 (53.22%) are males and 1787 (46.78%) are females. The number of houses is 597 and on an average 6 to 7 persons live per house. The sex ratio was found to be 879 females per 1000 males. Village wise demographic details are given in the Table below.

Demographic Profile of the Project area Villages

Village Name	No_ H.H	TOT_P	TOT_M	TOT_F	P_SC%	P_ST%
Goliya	139	817	439	378	3.30	0
Goongrot	166	1074	573	501	20.29	20.67
Peeploon	292	1929	1021	908	25.19	0
Total	**597**	**3820**	**2033**	**1787**	**19.14**	**5.81**

(Source: Census of India 2011)
(*No_HH-Total House Hold, TOP_P-Total Population, TOT_M-Total Male, TOT_F-Total Female, P_SC- Scheduled Caste population, P_ST-Scheduled Tribe Population)*

The percentage of Scheduled Caste in the total population is ***19.14%***. The highest schedule caste population is in **Peeploon Village (25.19%)**, followed by Goongrot (20.29%) and Goliya (3.30%). The percentage of Scheduled Tribe is **5.81%**. Notably, Village **Goongrot** has a significantly higher ST population percentage with 20.67%, while other villages have no population of schedule tribe.

xii. Alternative Studies: 4 alternative layouts have been prepared and compared for development of PSP.

The characteristics of these alternatives are provided in below:

Table: Alternatives for Upper and Lower Reservoir

Reservoir ID	Reservoir	FRL	Gross Storage	Dam Length	Dam Height	Remarks	Approach

	Name	(EL. m)	(MCM)	(m)	(m)		
1 (Upper reservoir)	R_1	633	15.43	1415	67	Total submergence corresponding to dam top = 61.83 Ha (Forest land = 61.83 Ha)	New approach road needs to be constructed
2 (Lower reservoir)	R_2	267	15.28	934	51	Total submergence corresponding to dam top = 52.58 Ha (Forest land = 52.58 Ha)	Through Goliya Village Road
3 (Upper reservoir)	R_3	705	16.57	773	59	Total submergence corresponding to dam top = 59.52 Ha (Forest land = 59.52 Ha)	New approach road needs to be constructed
4 (Lower reservoir)	R_4	295	15.48	544	49	Total submergence corresponding to dam top = 59.04 Ha (Forest land = 59.04 Ha)	New approach road needs to be constructed

Subsequently, alternative layouts considering various combinations for upper and lower reservoirs were evaluated and details are tabulated as under:

Table: Alternative layouts considering various combinations for upper and lower reservoirs

Alt. No.	**Upper Res.**	**Lower Res.**	**Gross Head (m)**	**L / H Ratio**	**Gross Storage (MCM)**	**Capacity (MW)**	**Total Submergence Area Corresponding to Dam Top (Ha)**	**Forest Area (Ha)**

1	R_1	R_2	366	4.83	15.28	1800	114.41	129
2	R_3	R_4	410	7.42	15.48	1800	118.56	170.31
3	R_1	R_4	338	10.40	15.43	1800	120.87	153.31
4	R_3	R_2	438	5.49	15.28	1800	112.1	146

The initial filling arrangement for all the reservoirs shall be met from Luni River.

On perusal and comparative study of the above four alternatives, Alternative 1 option has been selected due to the following reasons:

a. Due to favourable L/H ratio compared to other alternatives
b. Due to better approach compared to Alternative 2 and 3
c. Alternative 1 has less land requirement than alternative 2 and 3 due to less submergence
d. In all the 4 alternatives, for the construction of both artificial reservoirs, no private land is encroached and no R&R is envisaged at this stage. However, detailed surveys of the same shall be carried out during the DPR stage.

The alternative-1 has been finalized.

xiii. Status of Litigation Pending against the proposal, if any. **No**

xiv. The salient features of the project are as under: -

1	**EAC MEETING DETAILS**				
i	EAC meeting/s	:	22nd EAC Meeting		
ii	Date of Meeting/s	:	10th January 2025		
iii	Date of earlier EAC meetings	:	Not Applicable		
2	**PROJECT DETAILS**				
i	Name of the Proposal	:	Balotra Pumped Storage Project (1800 MW)		
ii	Location (including coordinates)	:	Proposed Balotra Pumped Storage Project's Upper Reservoir and Lower Reservoir are located near village Peeploon, Siwana tehsil, district Balotra.		
			Reservoir	**Latitude**	**Longitude**

			Lower Reservoir	25º 34’ 57.14” N	72º 20’ 25.25” E
			Upper Reservoir	25º 34’ 22.89” N	72º 20’ 11.65” E.
iii	Interstate Issue	:	No		
iv	Seismic Zone	:	Zone-III		
3	**CATEGORY DETAILS**				
i	Category of the project	:	A		
ii	Provisions	:	-		
iii	Capacity	:	1800MW		
iv	Attracts the General Conditions (Yes/No)	:	No		
v	Additional Information if any	:	No		
4	**ELECTRICITY GENERATION AND CAPACITY**				
i	Powerhouse Installed Capacity	:	1800MW		
ii	Generation of Electricity Annually	:	3744.9MU		
iii	No. of Units	:	7 nos. (5X300 MW+2X150 MW)		
iv	Additional information (if any)	:	Nil		
5	**TOR/EC DETAILS**				
i	Cost of project	:	INR 9759.73 crore		
ii	Total area of Project	:	313.15ha		
iii	Height of Dam from Riverbed (EL)	:	Lower Dam – 51.0m Upper Dam – 67.0m		
iv	Length of Tunnel/Channel	:	1081.0m		
v	Details of Submergence area	:	129.0ha		
vi	Types of Waste and quantity of generation during construction/ Operation	:	Muck from excavation, solid waste from labour colony and construction waste		
vii	E-Flows for the Project	:	Not Applicable, as this is Off-Stream Closed Loop Pumped Storage Project (PSP)		
viii	Is Projects earlier studies in Cumulative Impact assessment & Carrying Capacity studies (CIA&CC) for River in which project located. If yes, the	:	No		

a	E-flow with TOR /Recommendation by EAC as per CIA&CC study of River Basin.	:	Not Applicable
b	If not the E-Flows maintain criteria for sustaining river ecosystem.	:	Not Applicable
6	**MUCK MANAGEMENT DETAILS**		
i	No. of proposed disposal area/ (type of land-Forest/Pvt. land)	:	35.0ha Non-Forest Land
ii	Muck Management Plan	:	Will be Provided in EIA/EMP report
iii	Monitoring mechanism for Muck Disposal	:	Will be Provided in EIA/EMP report
7	**LAND AREA BREAK-UP**		
i	Private Land	:	110.8ha
ii	Government land/Forest Land	:	202.35ha
iii	Submergence area/Reservoir area	:	129.0ha
iv	Land required for project components	:	184.15ha
v	Additional information (if any)	:	Nil
8	**PRESENCE OF ENVIRONMENTALLY SENSITIVE AREAS IN THE STUDY AREA**		
S.no	**Forest Land/ Protected Area/ Environmental Sensitivity Zone**	**Yes/ NO**	**Details of Certificate/letter/Remarks**
i	Reserve Forest/PF Land	NO	There is no Protected Area in the vicinity of the proposed project. Kumbhalgarh WLS is 112 km far from the proposed project area.
ii	National Park	NO	
iii	Wildlife Sanctuary	NO	
9	**COURT CASE DETAILS**		
i	Court Case	:	Nil
ii	Additional Information if any	:	Nil
10	**AFFIDAVIT/UNDERTAKING DETAILS**		
i	Affidavit/Undertaking	:	Enclosed
ii	Additional information (if any)	:	Nil
11	**PREVIOUS EC COMPLIANCE AND NECESSARY APPROVALS**		
i	Certified EC compliance report (if applicable)	:	Not Applicable
ii	Status of Stage- I FC	:	Yet to Apply
iii	Additional detail (If any)	:	Nil
iv	Is FRA (2006) done for FC-I		Not Applicable

12	**MISCELLANEOUS**		
i	**Details of Consultant**		
	Name of Consultant	:	M/s. RS Envirolink Technologies Pvt. Ltd. (RSET) (NABET Accredited Consultant Organization)
	Certificate No	:	NABET/EIA/2225/RA0274
	Validity	:	August 15, 2025
	Contact Person	:	Mr. Ravinder Bhatia
	Name of Sector	:	River Valley and Hydroelectric Projects
	Category	:	A
	MoEF&CC Schedule	:	1(c)
	Address	:	403, Bestech Chambers, Block-B, Sushant Lok Phase I, Sector 43, Gurugram, Haryana – 122009
	Email	:	ravi@rstechnologies.co.in
	Landline	:	(0124) 4295383
	Mobile	:	(+91) 9810136853
ii	Project Benefits	:	
			• Pumped storage hydropower is a modified use of conventional hydropower technology to store and manage energy or electricity by moving water between an upper and lower reservoir. Currently, pumped storage round-trip or cycle energy efficiencies exceed 80%, comparing favorably to other energy storage technologies and thermal technologies. This effectively shifts, stores, and reuses energy generated until there is corresponding demand for system reserves and variable energy integration. This shifting can also occur to avoid transmission congestion periods, to help more efficiently manage transmission grid, and to avoid potential interruptions to energy supply. This is important because many of the renewable energy resources being developed (e.g., wind and solar) are generated at times of low demand and off-peak energy demand periods are still being met with fossil fuel resources, often at inefficient performance levels that increase the release of greenhouse gas emissions. • Further, pumped storage projects are critical to

			the national economy and overall energy reliability because it's: o Least expensive source of electricity, not requiring fossil fuel for generation o An emission-free renewable source o Balancing grid for demand driven variations o Balancing generation driven variations o Voltage support and grid stability Apart from this, proposed PSP will also benefit the local community by creating employment opportunities and will result in upliftment of livelihood and socio-economic conditions.
iii	Status of other statutory clearances	:	Forest Clearance - Online application seeking forest diversion for around 202.35ha after receipt of ToR Approval. Alongside, other statutory clearances (as applicable) from State as well as Central government will be obtained post completion of Detailed Project Report.
iv	R&R Details	:	Details shall be evaluated during EIA/EMP Studies
v	Additional Details if any	:	Nil

22.3.3 The EAC during deliberations noted the following:

The EAC deliberated on the information submitted (Form 1, PFR, kml file, etc.) and as presented in the meeting and observed that the proposal is for grant of TOR to the project for conducting EIA/EMP and Public hearing for Balotra Close Loop Pumped Storage Project (1800 MW) in an area of 313.15 Ha located at Village Asotra, Bituja, Nal, etc, Sub District Pachpadra and Siwana, District Barmer, Rajasthan by M/s Adani Green Energy Limited.

The project/activity falls under Category A of item 1(c), 'River Valley Projects,' as per the Schedule of the Environmental Impact Assessment Notification, 2006, and requires appraisal at the central level by the sectoral EAC in the Ministry.

The EAC observed that the total land required for the construction of various components and related works for the Balotra Pumped Storage Project (PSP) is estimated to be approximately 313.15 hectares. This includes 110.8 hectares of non-forest land and 202.35 hectares of forest land. It was noted that an application for Stage-I Forest Clearance (FC) has not yet been submitted.

Furthermore, it was observed that there are no protected areas in the vicinity of the proposed project, with Kumbhalgarh Wildlife Sanctuary being located 112 km away from the proposed project site. No river or water body is located within the project area.

Additionally, the Project Proponent has submitted a Memorandum of Understanding (MoU), reference no. MoU/2024-25/12142, dated 03-12-2024, which has been signed between the Government of Rajasthan and M/s Adani Green Energy Limited. The MoU grants in-principle approval for the establishment of the Pumped Storage Project with a capacity of 1800 MW in Peeplu village, Balotra District, Rajasthan.

The EAC expressed concerns regarding the availability of water in the Luni River, as the Project Proponent (PP) has proposed to fill the reservoir during the monsoon season. However, based on the last 30 years of rainfall data presented by the PP, it was observed that the rainfall in the region is too less than the average rainfall in India. Furthermore, it was noted that there are three existing reservoirs upstream of the river, located on tributaries of the Luni River. In light of these factors, the EAC raised concerns about the potential water scarcity in the area and questioned the overall viability of the project. A detailed study is needed in this regard.

The EAC emphasized that the PP should make provisions in the project design to release self-catchment water downstream of the stream during the monsoon season. The PP was directed to submit hydrological data, certified by the Central Water Commission (CWC) or the State Water Resources Department, regarding the amount of water received by the small stream where the lower reservoir is proposed. Additionally, the PP was instructed to submit a monitoring mechanism for releasing the self-catchment water from the small stream, along with an action plan for the conservation and protection of other streams and rivulets within a 10 km radius of the project.The EAC further observed that the proposed Lower Reservoir is to be constructed across a small stream; therefore, it should be treated as an open-loop project.

22.3.4 The EAC based on the information submitted and as presented during the meeting, recommended the proposal for grant of Specific ToR issued by the Ministry for Open Loop Pumped Storage Projects vide OM dated 14.08.2023 for conducting EIA study for proposed construction of the project for Balotra Open Loop Pumped Storage Project (1800 MW) in an area of 313.15 Ha located at Village Asotra, Bituja, Nal, etc, Sub District Pachpadra and Siwana, District Barmer, Rajasthan by M/s Adani Green Energy Limited, under the provisions of EIA Notification, 2006, as amended along with the following additional/specific ToR:

[A] Environmental Management and Biodiversity Conservation:

i. The PP shall submit 10 years water availability data certified by the CWC/State Water Resource Department for quantity of water that is received annually in the small stream on which Lower reservoir is proposed.

ii. The PP will submit a monitoring mechanism for releasing the self -catchment water of small stream draining in to lower reservoir of the project along with action plan for conservation and protection of other streams/rivulets draining in to upper and lower reservoirs.

iii. The Project Proponent (PP) shall submit a detailed action plan for the survival or diversion of any rivulets or streams that may be impacted by the project, particularly those that flow into or join the Luni river. The action plan should include measures to ensure that these water bodies are adequately protected or diverted in a manner that does not negatively affect the overall hydrology of the area. The PP should also provide an assessment of potential environmental impacts on these streams and propose mitigation measures to minimize any adverse effects.

iv. Detailed action plan for large scale plantation of native species of plant sapling within 10 km radius of the project shall be prepared in consultation with State Forest Department. The monitoring mechanism to ensure the survival of saplings shall be finalised in consultation with ICFRE.

v. Explore the possibilities for reducing the Forest land requirement. The application for obtaining Stage I FC for 202.35 ha of forest land involved in the project shall be submitted within stipulated time.

vi. Muck disposal site and other components such as Township, site office, Stacking area and batching plant shall be located outside the forest area.

vii. Certificate and certified map from Chief Wildlife Warden shall be submitted mentioning that project boundary is not falling in any Ecological Sensitive Area, Wildlife Sanctuary/Tiger/elephant corridor/Critically polluted area within 10 km of Project site.

viii. PP shall submit the detailed plan for filling the reservoir from the Luni river along with necessary approval form water resource department.

ix. Transportation Plan for transporting construction materials shall be submitted. Separate chapter for risk assessment of such transportation through/within proposed the Wildlife Sanctuary shall be included in the EIA report.

x. Environmental Cost Benefit Analysis shall be done in terms of loss of Forest ecosystem due to diversion of Forest land/loss of biodiversity, water availability, water uses for generation of hydro power and Ecological flows.

xi. The baseline data collection will cover the changes in biological and ecological profile of the region after monsoon with worst-case scenario study and critical mineral assessment.

xii. Calculation and values of GHGs (CO2, CH4 etc.) emissions during construction and during operation till the life of the project shall be estimated and submitted.

xiii. The longitudinal connectivity/Free flowing sketch be provided in the EIA/EMP report. Presence of any critical mineral zone in the proposed area be clarified from GSI.

xiv. Details of mineral zone, if any, in the study area, certified by Geological Survey of India or any other concerned Government Organization shall be submitted. The project area should not come up on any critical mineral zone, the same shall to be verified by GSI/NMDC.

xv. Quantitative values of Impact modelling of environmental parameters shall be submitted for during construction and operation. Also, mitigation measures shall be submitted in terms of construction and operation phase.

xvi. Conducting site-specific ecological study emphasizing on riverine ecology viz. fishes diversity, fish migration, habitat and aquatic biota due to construction PSP. Impact assessment on the fish diversity based on the hydrological alteration at the water drawing sources shall be studied.

xvii. Cumulative Impact of projects in the basin on carrying capacity and sustainability of Reservoir/ River /nala of catchment area due to tapping of water for filling reservoir shall be studied.

xviii. Impact zone decided prior to base line data generation and accordingly, sampling location shall be finalized. Baseline data as mentioned in Specific ToR shall be collected for preparation of EIA/ EMP report along with soil characteristics which shall be studied at minimum 10 locations. The ground water level at 10 locations shall be measured in project area in all three seasons.

xix. A study shall be carried out on impact of project activity on the aquatic and terrestrial ecosystem, within project area classifying the impact zones (highly impact/low impact zone) based on seasonal variations and covering the aspects related to impacts on aquatic ecosystem/ primary productivity due to quantity of water to be lifted for power generation and thermal stratification. Accordingly, Environment Management plan shall be prepared.

xx. Reservoir/ River banks protection plan all along the submergence need to be prepared and incorporated in EIA/ EMP.

xxi. Scope of watershed development in the 10 km radius of the project shall be studied in consultation with Indian Council of Agriculture Research (ICAR) Institutes/ Expert

Govt. institutions and accordingly a detailed Water Shed Development Plan shall be prepared and incorporated in EIA/ EMP report.

xxii. Any archaeological sites in the vicinity of the project, if any, then it shall be certified by ASI.

[B] Socio-economic Study

xxiii. Declaration by the project proponent by way of affidavit that "No" Inter-state issue/ policy issue is involved with any State in the project.

xxiv. All the tasks including conducting public hearing shall be done as per the provisions of EIA Notification, 2006 and as amended from time to time. A comparative chart of issues raised by General Public during Public Hearing and commitments made by the Project Proponent will be prepared and submitted in the relevant chapter of EIA/EMP report.

xxv. PP shall submit the credible documents to show the status of land acquisition w.r.t project site from/through the concerned State Government as required under Ministry's OM dated 7th October, 2014 for the project land to be acquired.

xxvi. Land acquired for the project shall be suitably compensated in accordance with the law of the land with the prevailing guidelines. Private land (if any) shall be acquired as per provisions of Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation and Resettlement Act, 2013. Budget earmarked for R&R, CSR shall not be included in the cost of EMP.

[C] Muck Management

xxvii. Details of quantity of muck generation component wise, types of muck (Excavation in tunnels, pressure shaft and powerhouse etc.) and disposal site/ transportation to be provided.

xxviii. Details of muck management such as dumping sites and its locations, transportation plan along with monitoring mechanism for muck transportation, detailing the road map of project construction site/ indicating the distances from HFL, river, project construction site along with types of road etc.

xxix. Safety measures for avoiding spill over muck into the riverbed/streams and its flow into the river during the high discharge/ flood or monsoon period. Prepare plan for stabilization of muck disposal sites using biological and engineering measures 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.

xxx. Restoration plan for construction area including dumping site of excavated materials by levelling, filling up of burrow pits, landscaping etc.

[D] Disaster Management

xxxi. Impact of Project activities (specially blasting and drilling) on the aquatic and terrestrial ecosystem, within study area to be studied and be incorporated in EIA/EMP report.

xxxii. The muck dumping sites shall be located with a distance of 100 mts from HFL. The PP shall submit the detailed action plan for transportation of muck along with monitoring mechanism of movement of muck carrying trucks.

[E] Miscellaneous

xxxiii. Both capital and recurring expenditure under EMP shall be submitted.

xxxiv. Pre-DPR Chapters viz. Layout Map and Power Potential Studies duly approved by CWC/CEA shall be submitted.

xxxv. The PP should submit the photograph of monitoring stations & sampling locations. The photograph should bear the date, time, latitude & longitude of the monitoring station/sampling location. In addition to this PP should submit the original test reports and certificates of the labs which will analyze the samples.

xxxvi. Drone video of project site shall be recorded and to be submittted.

xxxvii. Undertaking need to be submitted on affidavit stating that no activities has been started on the project site.

xxxviii. Detailed plan to restore wider roads and convert them into narrow up to 10m after construction of the project.

xxxix. Specific Terms of Reference (ToRs) issued by the Ministry vide Office Memorandum No. F. No. IA3-22/33/2022-IA.III dated 14.08.2023 for Pumped storage projects shall be used for preparation of EIA/ EMP reports.

xl. As per Ministry's OM dated 1st August, 2013, PP shall submit application to obtain prior approval of Central Government under the Forest Conservation Act, 1980 for diversion of forest land required for such projects will be submitted as soon as the actual extent of forest land required for the project is known to the project proponent, and in any case, within 6 months of issuance of ToR. However, no proposal will be put up before EAC without submission of application for forest clearance, wherever applicable.

Agenda Item No. 22.4

Sukhpura Off-Stream Closed Loop Pumped Storage Project (OCPSP)-2560 MW in an area of 788.6761Ha in Village Sukhpura, Lakshmikhera, and Nahargarh etc, Sub District Rawatbhata, District Chittaurgarh, Rajasthan by M/s Greenko Energies Private Limited– Corrigendum in amendment in Terms of Reference (TOR) - reg.

[Proposal No. IA/RJ/RIV/517250/2025; F. No. J-12011/20/2019-IA-I]

22.4.1: The proposal is for grant of Corrigendum in amendment in Terms of Reference (TOR) to the project for Sukhpura Off-Stream Closed Loop Pumped Storage Project (OCPSP)-2560 MW in an area of 788.6761Ha in Village Sukhpura, Lakshmikhera, and Nahargarh etc, Sub District Rawatbhata, District Chittaurgarh, Rajasthan by M/s Greenko Energies Private Limited.

22.4.2: The Project Proponent and the accredited Consultant R. S. Envirolinks Technologies Pvt. Ltd., made a detailed presentation on the salient features of the project and informed that:

i. The proposal is for Corrigendum in the Terms of Reference granted by the Ministry vide letter dated 03.12.2024 for the project Sukhpura Off-Stream Closed Loop Pumped storage project (OCPSP) located at Sukhpura, Gorakiya, Nahargarh, Patappura, Borav, Laxmikhera Villages; Tehsil-Rawatbhata, Chittorgarh District, Rajasthan. in favour of M/s Greenko Energies Private. Ltd.

ii. Project was appraised and recommended for grant of TOR in 29th meeting of EAC held on 15.12.2019 for 5040 MW installed capacity. TOR was issued by MoEF&CC vide its letter dated 28.02.2020.

iii. M/s Greenko Energies Private Limited (GEPL) conducted a detailed ground survey at the project site. Following surveys and investigations, the project capacity was optimized and revised to 2560 MW with a storage capacity of 6.03 hours. The revised water requirement is 1.176 TMC, and the total land requirement was reduced to 815.0771 Ha, of which 678.5318 Ha was forest land and 136.5453 Ha was non-forest land. Accordingly, amendment to TOR granted was obtained from MoEF&CC vide letter No F.No. J-12011/20/2019-IA-I dated 03.08.2022.

iv. Consequently, the total land area requirement has now been revised/updated to 788.6761 Ha, with 610.8427 Ha as forest land and 177.8334 Ha as non-forest land. There was no change in location or capacity of project, however, there were minor changes in component sizing and levels. Accordingly, amendment to TOR granted was granted by MoEF & CC vide letter No J-12011/20/2019-IA-I, dated 04.12.2024.

v. Due to minor mismatch in dates of TOR granted and validity of TOR extension, application for Corrigendum to TOR was submitted to MOEF& CC on 04.01.2025.

vi. The project proponent has requested for Corrigendum in the ToR with the details are as under;

S. No	TOR amendment granted vide letter dated 04-12-2024	Sukhpura Off-Stream Closed Loop Pumped Storage Project (2560MW) [TOR amendment granted vide letter dated 04-12-2024]	Sukhpura Off-Stream Closed Loop Pumped Storage Project (2560MW) [Corrigendum Sought in TOR amendment dated 04-12-2024]	Remarks
1	Point 6	The Ministry granted Terms of Reference vide letter dated 03.08.2022 for the proposed project and PP has submitted the proposal for amendment in ToR for change in the coordinates of the project, water requirement, and land area requirement alongside design parameters.	The Ministry granted Terms of Reference vide letter dated 28.02.2020 and TOR amendment was issued on 03.08.2022 for the proposed project and PP has submitted the proposal for amendment in ToR for change in the coordinates of the project, water requirement, and land area requirement alongside design parameters.	-
2	Point 12	You are requested to kindly submit the final EIA/EMP, prepared as per the Terms of Reference (ToRs), to the Ministry for consideration of the proposal for environmental clearance within 5 years (from the grant of ToR letter dated 30.01.2024), as per the extant rules of the Ministry notified from time to time.	You are requested to kindly submit the final EIA/EMP, prepared as per the Terms of Reference (ToRs), to the Ministry for consideration of the proposal for environmental clearance within TOR validity i.e 28.02.2026 as per the extant rules of the Ministry notified from time to time	Sukhpura (RJ02) PSP TOR was granted in 28th Feb, 2020 and is valid for 5 Years as per MoEF&CC OM dated 17.02.2020. However, as per MoEF & CC Gazette dated 18.01.2021 the validity of TOR is extendable by 1 year considering COVID-19 scenario, Accordingly the ToR is valid upto 28th February 2026.

22.4.3 The EAC deliberated on the information submitted and as presented in the meeting and observed that the proposal is for grant of corrigendum in amendment in Terms of Reference (ToR) to the project for Sukhpura Off-Stream Closed Loop Pumped Storage Project (OCPSP)-2560 MW in an area of 788.6761Ha in Village Sukhpura, Lakshmikhera, and Nahargarh etc, Sub District Rawatbhata, District Chittaurgarh, Rajasthan by M/s Greenko Energies Private Limited.

The project/activity is covered under Category A of item 1 (c) 'River Valley projects' of the Schedule to the Environmental Impact Assessment Notification, 2006 and requires appraisal at Central level by the sectoral EAC in the Ministry.

The Ministry granted the Terms of Reference (ToR) for the proposed project vide letter dated 28.02.2020. Subsequently, an amendment to the ToR was granted on 03.08.2022 for changes in water requirement and land area.

The Expert Appraisal Committee (EAC) noted that, due to further revised details regarding land area requirements and minor adjustments in component sizing and levels, another amendment to the ToR was granted by MoEF&CC on 04.12.2024. It was further noted that due to inadvertent submission of incorrect information regarding the ToR date by the Project Proponent (PP), the wrong date, i.e., 28.02.2020, was mentioned in the Minutes of the 19th EAC meeting and the corresponding ToR letter.

22.4.4 The EAC after examining the information submitted and detailed deliberations recommended the proposal grant of corrigendum in amendment in Terms of References as proposed by the PP to Sukhpura Off-Stream Closed Loop Pumped Storage Project (OCPSP)-2560 MW in an area of 788.6761Ha in Village Sukhpura, Lakshmikhera, and Nahargarh etc, Sub District Rawatbhata, District Chittaurgarh, Rajasthan by M/s Greenko Energies Private Limited, under the provisions of EIA Notification, 2006 and as amended with subject to the following additional conditions:

i. All ToR points mentioned in the ToR letter dated 28.02.2020 and amendment in TOR dated 03.08.2022 and shall remain unchanged.
ii. EIA/EMP, collection of baseline data, other statuary clearance and the public hearing shall be carried out as per revised layout.
iii. Validity of ToR shall be counted from original date of grant to ToR i.e. 28.02.2020.

22.4 Additional Agenda item:

Site visit Report on Proposed Bhavali Pumped Storage Project" (1500MW) at Village Jamunde, Tehsil lgatpuri, District Nashik and villages Kalbhonde and Site visit Report on Proposed Bhavali Pumped Storage Project" (lS00MW) at Village Jamunde, Tehsil Igatpuri, District Nashik and villages Kalbhonde and Kothale, Tehsil Shahpur Thane (Maharashtra)

The Member Secretary, EAC informed that the Terms of Reference (TOR) was granted by the MoEF&CC, vide letter no. J-12011/08/2022-IA.I(R), 27.06.2022 and accordingly, Public hearing were conducted on 10.01.2024 for Nashik District and on 13.02.2024 for Thane District (Maharashtra). Final EIA report was submitted to MoEF&CC on18.06.2024 and an EDS was generated on 03.07.2024, in which clarification w.r.t. change in project area from ToR was asked. Reply of the same has been submitted on 23.07.2024 with proper justification for change in the project area. Thereafter, proposal was considered by Expert Appraisal Committee (EAC) in the 14" meeting conducted on dated 30.08.2024. In meeting, it was recommended that the Sub-committee of EAC shall conduct a site visit prior to reconsideration for EC.

The Sub-committee comprising of Ajay Kumar Lal, Member EAC (Hydro & River Valley project) and Dr. P. R. Sakhare, Scientist E Representative from MoEF&CC undertook site visit to the proposed Bhavali Pumped Storage Project" on 02.01.2025 and 03.01.2025. The sub-committee visited the upper dam, upper reservoir, lower dam, lower reservoir, muck disposal areas of Bhavali PSP.

The Sub-committee after detailed deliberation observations and recommendations are as follows:

i. The selected location is topologically stable and non prone to landslides as such. It is not therefore so fragile or sensitive The proposed project is not likely to cause considerable negative impacts on the geological conditions; rights and interests of people related to water resources of downstream locations if the conditions and safeguards imposed vide the TOR granted are complied with fully and comprehensibly. Further, the Project Proponent is also to ensure strict compliance of the assurances given during public hearing.

ii. The relocation of muck disposal site may not be insisted on while considering the proposal for clearance since the muck disposal site was found to have been selected properly. Further, ecologically better sites were not appeared available in nearby areas. Any relocation at this stage might lead to much changes and may lead to more adverse consequences. However, safety measures as contained in EMP and in other documents should be adhered to in toto.

iii. Water for operation of project will be sourced from self-yield from catchment area. There will be no dependency on the nearby streams and already established dams/reservoirs as confirmed and assured by the proponent. As stated above, since there are not much agricultural or drinking requirements in or nearby areas, the dam intervention should not be a matter of concern. Nevertheless, project proponent, as assured, will ensure maintenance of e-flow and minimum threshold water availability all year around.

iv. Nalla passing through the lower reservoir is a non-perennial and was containing very thin layer of water at the time of visit. However, as per the discussion held with the PP, natural flow of nallas/streams will not be restricted/diverted. Provision of ungated slipways has been considered to maintain natural flow of non-perineal nallas/streams.

v. Out of total forest area of 243.74ha, 160.21ha is reserved forest,73.85 ha is deemed forest and 9.68 ha is protected forest. The forest density in the proposed forest land involved in the project site is approx. 150 trees/la. A total of around 35000 trees and saplings are likely to be sacrificed. Therefore, it is important to insist on submitting the case under FCA and receive stage-I clearance at the earliest by the Project Proponent.

vi. PP has started the CER/CSR activities in the affected villages which includes the construction of public toilets, classrooms in the Govt. School, Mid-day Meal kitchens, and distribution of study materials, Shoes etc. to the students, blankets to the villagers.

vii. Wildlife conservation and biodiversity management plan has been approved by CWLW on 29.11 .2024 with a cost of Rs. 326.50 Lakhs.

The EAC after detailed deliberation accepted the site visit report and suggested to forward the recommendations to the PP for appropriate response.

The detailed site visit report is annexed at **Annexure-I**.

*****

Annexure I

Site visit Report on Proposed Bhavali Pumped Storage Project" (1500MW) at Village Jamunde, Tehsil Igatpuri, District Nashik and villages Kalbhonde and Kothale, Tehsil Shahpur Thane (Maharashtra)

In compliance to the MoEF&CC office order no. J-12011/08/2022-IA.I(R) (E-183170) dated 30.12.2024 the Sub-committee comprising of Ajay Kumar Lal, Member EAC (Hydro & River Valley project) and Dr. P. R. Sakhare, Scientist E Representative from MoEF&CC undertook site visit to the proposed Bhavali Pumped Storage Project" on 02.01.2025 and 03.01.2025. The sub-committee visited the upper dam, upper reservoir, lower dam, lower reservoir, muck disposal areas of Bhavali PSP. The attendees of the site visit included project proponent authorised representatives, their consultants, local staff and a few locals.

Background

The proposed Bhavali Pumped Storage Project (5X250MW+2X125MW) is a self-identified, green field project by the JSW Energy PSP Two Ltd, a subsidiary of JSW Energy Limited. The need for Bhavali PSP in Nashik and Thane district, Maharashtra, has been considered in context of the focus of State Government to stabilize the grid by installation of Pumped Storage project which leads to increase the share of renewable energy which is available in plenty within the state in general and in the country as whole. The project is an off-stream project, where water will be recycled between the proposed upper and lower reservoir in one daily cycle of peaking (7.78 hour) and one daily pumping cycle (8.79 hour). The total land requirement for the project has been assessed as 278.92 ha of which private land is 35.18 ha and forest land is 243.74 ha. Forest land diversion case has been submitted vide FP/MH/HYD/153240/2022, dated 06.03.2022 on Parivesh Portal.

In this background, Terms of Reference (TOR) was granted by the MoEF&CC, vide letter no. J-12011/08/2022-IA.I(R), 27.06.2022 and accordingly, Public hearing were conducted on 10.01.2024 for Nashik District and on 13.02.2024 for Thane District (Maharashtra). Final EIA report was submitted to MoEF&CC on18.06.2024 and an EDS was generated on 03.07.2024, in which clarification w.r.t. change in project area from ToR was asked. Reply of the same has been submitted on 23.07.2024 with proper justification for change in the project area. Thereafter, proposal was considered by Expert Appraisal Committee (EAC) in the 14th meeting conducted on dated 30.08.2024. In meeting, it was recommended that the Sub-committee of EAC shall conduct a site visit prior to reconsideration for EC. The sub-committee undertook site visit on 2nd and 3rd January, 2025 to assess ground conditions and likely environmental impacts due to project intervention.

General Observations

Topography : Located in the north western edge of the Deccan Plateau along Sahyadri Range of the Western Ghat, the proposed project area is hilly terrain-with undulating rocky (mainly volcanic basalt) subsurface and having thin layer of dominant reddish brown top soil. Slope of the land varies unevenly from comparatively flattened near proposed upper reservoir (5-15 %) to steeper (30-45 %) at the proposed lower reservoir area.

Vegetative cover : Hard strata with sparse bushy covering of ground has resulted in devoid natural thick greening. The area was found to have a few barren patches too. Some patches contain good forest cover while majority covered with mixed species bushes and scrub as undergrowth. Proposed lower reservoir and dam axis site support moderately dense (40%) forest having adequate number of trees mainly *Terminalia bellirica, Anogeissus latifolia, Madhuca longifolia, Adina cordifolia* etc. Upper Resrvoir site cover is mixed moist subtropical sub type with less canopy density and open forest (10-20 %). NTFPs such as herbal and commercial leaves, *amla mahua, ber*, etc are found but not in abundance. Soil being shallow with rocky base, the vegetative growth and productivity is sluggish resulting in not much variability in floral diversity. First hand assessment of faunal diversity could not be possible in a day visit. At a glance, no evidence of big mammals or cats could be traced or found. Available documents and certificates relating to their presence, movements or corridors will lead to drawing conclusions on this aspect.

Water availability and impact on flow of water : The area records an average annual rainfall of 3000 mm which is much above normal and therefore it can be termed as wet region. Notwithstanding, due to impervious rocky land surface water infiltration or holding capacity is not befitting. However since water requirement is not being high (no cropping or habitation as such around) water scarcity is not an issue in spite of non poundage or storage. The rivulet on which the dam is proposed is in gorge shape cross sections and appears to be seasonal massive carrier of water during monsoon. During lean season, as at present, it has thin volume of water flowing.

Human Settlement and Habitation : The area mostly being a reserve and protected forest land and in interior of the Tehsil, only scattered few houses in a couple of villages were noticed in the fringe connecting areas. In addition, agricultural or cultivated lands were found to be nominal. Rehabilitation and Resettlement issues therefore are not of much concern

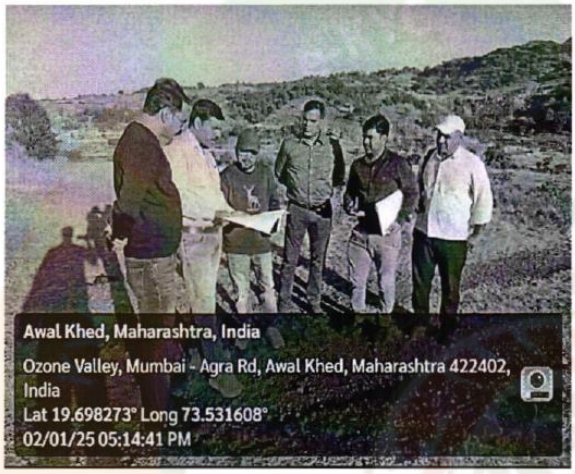
Specific Observations and Recommendations

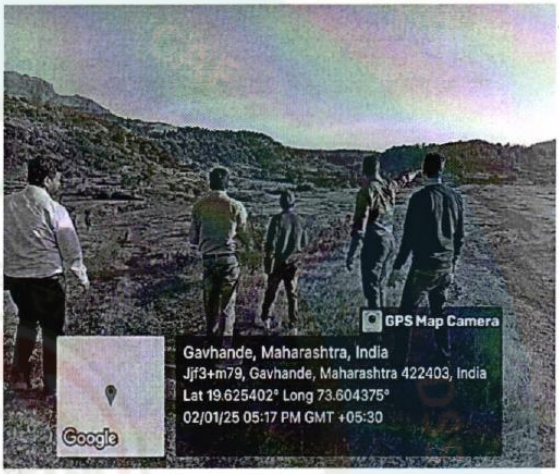
1. The selected location is topologically stable and non prone to landslides as such. It is not therefore so fragile or sensitive The proposed project is not likely to cause considerable negative impacts on the geological conditions; rights and interests of people related to water resources of downstream locations if the conditions and safeguards imposed vide the TOR granted are complied with fully and comprehensibly. Further, the Project Proponent is also to ensure strict compliance of the assurances given during public hearing.
2. The relocation of muck disposal site may not be insisted on while considering the proposal for clearance since the muck disposal site was found to have been selected properly. Further, ecologically better sites were not appeared available in nearby areas. Any relocation at this stage might lead to much changes and may lead to more adverse consequences. However, safety measures as contained in EMP and in other documents should be adhered to in toto.
3. Water for operation of project will be sourced from self-yield from catchment area. There will be no dependency on the nearby streams and already established dams/reservoirs as confirmed and assured by the proponent. As stated above, since there are not much agricultural or drinking requirements in or nearby areas, the dam intervention should not be a matter of concern. Nevertheless, project proponent, as assured, will ensure maintenance of e-flow and minimum threshold water availability all year around.
4. Nalla passing through the lower reservoir is a non-perinnial and was containing very thin layer of water at the time of visit. However, as per the discussion held with the PP, natural flow of nallas/streams will not be restricted/diverted. Provision of ungated slipways has been considered to maintain natural flow of non-perineal nallas/streams.
5. Out of total forest area of 243.74 ha, 160.21 ha is reserved forest, 73.85 ha is deemed forest and 9.68 ha is protected forest. The forest density in the proposed forest land involved in the project site is approx. 150 trees/ha. A total of around 35000 trees and saplings are likely to be sacrificed. Therefore, it is important to insist on submitting the case under FCA and receive stage-I clearance at the earliest by the Project Proponent
6. PP has started the CER/CSR activities in the affected villages which includes the construction of public toilets, classrooms in the Govt. School, Mid-day Meal kitchens, and distribution of study materials, Shoes etc. to the students, blankets to the villagers.

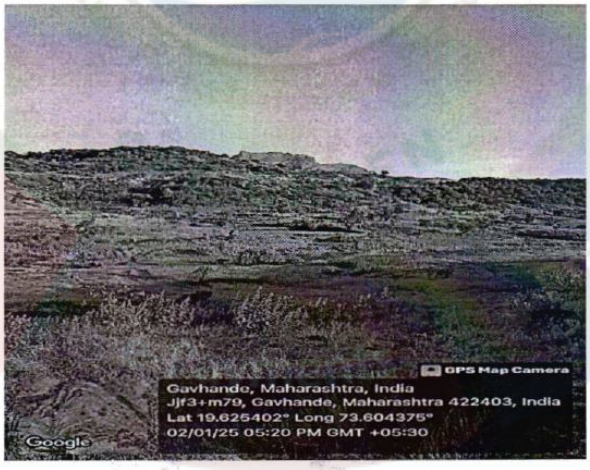
7. Wildlife conservation and biodiversity management plan has been approved by CWLW on 29.11.2024 with a cost of Rs. 326.50 Lakhs.

Photographs of the site visit:

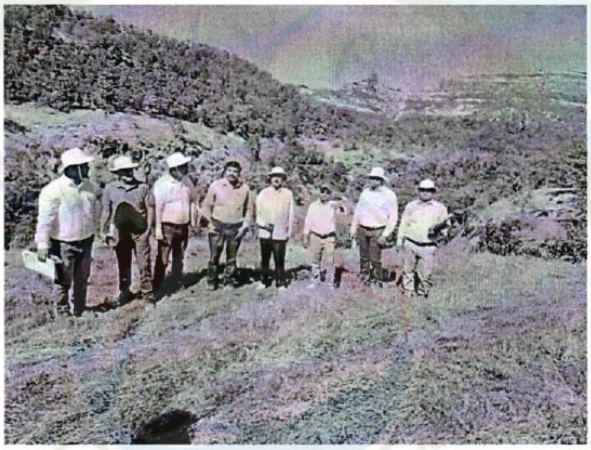
Upper Reservoir (2nd Jan 2024)







Lower Reservoir (3rd Jan 2024)



09.01.25 (A K Lal)

Signature of member

09/01/2025

Signature of MoEFCC Representative

ANNEXURE

ATTENDANCE

ATTENDANCE SHEET

22nd MEETING OF EXPERT APPRAISAL COMMITTEE (EAC)

(RiverValley & Hydroelectric Sector)

DATE & TIME : **10th January 2025 from 10:30 AM to 2:30 PM**

VENUE : **Narmada Conference Hall Ground Floor Jal Wing**
Indira Paryavaran Bhawan New Delhi

Sl. No.	Name of Member	Role	Signature [10.01.2025]
1.	Prof. G.J. Chakrapani	Chairman	G. J. Chakrapani
2.	Shri Ajay Kumar Lal	Member	Online
3.	Dr. Udaykumar R.Y.	Member	Online
4.	Dr. Mukesh Sharma	Member	
5.	Dr. J.V. Tyagi	Member	Online
6.	Shri Kartik Sapre	Member	
7.	Dr. A.K. Sahoo	Member	online
8.	Dr. B.K. Das	Member	Online.
8.	Dr. J. A. Johnson	Member	
9.	Shri Rajeev Varshney	Member	
10.	Representative of CWC	Member	
11.	Shri Yogendra Pal Singh	Member Secretary	

Approval of the Chairman

Re: [WARNING: ATTACHMENT(S) MAY CONTAIN MALWARE]Fwd: Draft MOM of the 22nd EAC meeting held on 10.1.2025-reg.

CG Chakrapani GovindaJoseph <govind.chakrapani@es.iitr.ac.in>
Wed, 22 Jan 2025 10:20:19 AM +0530

To "Yogendra Pal Singh" <yogendra78@nic.in>

Cc "chakrapani govind" <chakrapani.govind@gmail.com>

Approved.
Chakrapani

From: "Yogendra Pal Singh" <yogendra78@nic.in>
To: "Chakrapani GovindaJoseph" <govind.chakrapani@es.iitr.ac.in>, "chakrapani govind" <chakrapani.govind@gmail.com>
Sent: Wednesday, January 22, 2025 10:07:13 AM
Subject: [WARNING: ATTACHMENT(S) MAY CONTAIN MALWARE]Fwd: Draft MOM of the 22nd EAC meeting held on 10.1.2025-reg.

Dear Sir,

The draft MOM of the 22nd EAC meeting was circulated to all members of the EAC. No comments received so far. Accordingly, the draft MOM of 22nd EAC meeting held on 10.01.2025 is attached herewith for approval please.

With Regards,

Yogendra Pal Singh
Scientist 'F'
Government of India
M/o Environment, Forest and Climate Change
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Indira Paryavaran Bhawan
Jor Bagh, New Delhi-110003
Tele-fax: 011-20819364