REPORT ON MONITORING THE IMPLEMENTATION OF ENVIRONMENTAL SAFEGUARD OF TATO-II H.E. PROJECT (4x175 MW).

PERIOD- 01.10.2024 to 31.03.2025

Monitoring Report Part-I (Data Sheet)

1.	Project Type	:	River Valley
	River Valley/Mining/Industry/Thermal/		
	Nuclear/Others (Specify)		
2.	Name of the Project	:	Tato-II H.E. Project
3.	Clearance Letter No. & Date	:	(i) Environment Clearance No J-
			12011/55/2006-IA.I dated 27.06.2011
			(ii) Transfer of Environmental Clearance in favour of NEEPCO File No: J-
			12011/55/2006-IA.Idated 01.01.2024
4.	Location		Shi-Yomi District
	(a) District (b) State(s)	:	Arunachal Pradesh
	(c) Latitude/Longitude	:	Dam Site
			Latitude 28°32'4.5"N
			Longitude 94°23'57.2"E Power House site
			Latitude 28°31'28.18''N
			Longitude 94°25'35.22"E
5.	Address for Correspondence		
	(a) Address concerned Project Chief Engineer (with PIN Code &		Mr. Timmy Lyngdoh, Chief General Manager (Technical) &
	Telephone/Telex/Fax No.)		Head of Project, Heo Hydro Electric
			Project,
			NEEPCO, Tato, Shi Yomi District, Arunachal Pradesh.
			Mobile No. 8837342916
			Email: hop.tatohep@gmail.com
	(b) Address of Executive Project		Mr Pranab Jyoti Borah, Dy. Manager
	Engineer/Project Engineer/Manager		(Civil)/ Environment Nodal Officer
	(with PIN Code & Telephone/ Telex/Fax		O/o HOP, Heo H.E Project,
	No.)		NEEPCO, Tato, Shi Yomi District,
			Arunachal Pradesh. Mobile No. 9365059596/9435577676
			Email: hop.tatohep@gmail.com
6.	Salient Features		
0.	(a) Of the Project	:	As enclosed in Annexure-I
	,		
	(b) Of the Environmental Management	:	As enclosed in Annexure-II
	Plan		
7.	Break up of the Project Area		



	(a) Submergence Area (Forest & Non-	:	Reservoir area -	99.30 Ha	
	Forest) (b) Others	:	Other project land -:		
8.	Break up of Project Affected Population	:	Total:	313.88 Ha	
0.	with enumeration of those losing	•	Villages	Households	
	houses/dwelling units only, agri. Land		Hirong	1	
	only, both dwelling units and agri. Land		Pabuying	3	
	and landless labourers/Artisans		Tato village	33	
			Tato HQ	15	
			Tagur	5	
			Tatogitu	4	
			Yapu	1	
			BB Camp	15	
			Quying	2	
		:	Heyo Community	13	
			Diru Community	22	
			Jida Coummunity	28	
		:	Rida Community	7	
			Rinya Community	2	
			Ruchi Community	2	
			Total	153.00	
			Affected Dwelling Unit		
			Affected Agri./Horti. La	and: 230.97 Ha.	
	(a) SC/ST/Adivasis		All affected population Category.	on belong to ST	
	(b) Others		Nil		
	(Please indicate whether these figures are based on any scientific and systematic survey carried out or only provisional figures. If a survey is carried out, give details and year of survey)		The figures are correct. One door to door survey was conducted during the year 2009-2010.		
9.	Financial Details		Do 0420 72 On includi	a IDC Da 4000 FF	
	(a) Project as originally planned and subsequent revised estimates and the year of prime reference		Rs 8130.73 Cr includion Cr at Completion cost Apr'24)	•	
	(b) Allocation made for Environmental Management Plans with Item wise & year wise break up		Enclosed at Annexure	9-II	
	(c) Benefit cost ratio/internal rate of return and the year of assessment		8.2397		
	(d) Whether (c) includes the cost of Environmental management as Shown in (b) above		Yes		





Part – II TATO-II H.E. PROJECT (700 MW), ARUNACHAL PRADESH ENVIRONMENTAL CLEARANCE

SI. No.	Stipulations							Status of Compliance	
	Part – A – Specific Condition								
i)	The following C proposed in EIA 6 years-			in catchment area treatment plan has been updated to present price level for Rs 47.73 Cr to be					
	Treatment Measures	I yr	II yr	III yr	IV yr	V yr	VI yr	Total	spent over a period of seven years. However, the maintenance of plantations would
	Biological Measures			ı	ı		1	I	continue from IInd year to Xth
	Afforestation (ha)	498	373	293	213	152.60	88	1617.60	year.
	Assisted Natural Regeneration (ha)	72	53	50	50	50	40	315	
	Regeneration (na)	265.13	150	90	85	80	84.21	754.34	The CAT Plan shall be
	NTPF Regeneration (ha)	145.71	102	100	80	80	65	572.71	implemented in consultation with the Arunachal Pradesh State
	Engineering Measures				ļ				Forest Department.
	Brushwood Check-dams (Nos.)	61	47	34	22	13	12	197	
	DRSM Check-dams (Nos.)	61	56	66	41	16	8	248	
	Wire Crates (ha)	147	98	65	58	47	24.28	439.28	
	Contour Bunding (ha)	223	175	120	112	100	95	025	
	Bench Terracing (ha)	240	190	150	135	115	111	941	
ii)			plan for the Project is based on the Resettlement and Rehabilitation policy of Arunachal Pradesh Government (2008) which has been supplemented by National Policy on the RP Resettlement and Rehabilitation (2007).						

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iii)	A Monitoring Committee for R&R should be constituted which must include representatives of project affected persons from SC/ST category and a woman beneficiary.	As per R&R Plan, a Committee under the chairmanship of the Deputy Commissioner of Shiyomi district shall be constituted to monitor the progress of Rehabilitation and Resettlement.
		Representatives of project affected persons from SC/ST category and a woman beneficiary shall be included in the R&R Monitoring committee.
iv)	The commitment made during the public hearing shall be fulfilled completely.	All assurance / commitments given in the Public Hearing shall be honored by NEEPCO in progressive manner during project construction. Local affected contractors have been given preference in award of work not requiring specialized job.
v)	Consolidation and compilation of the muck shall be carried-out only in the designated six (6) muck dumping sites and the dump sites, approved by the State Pollution Control Board. The expected muck generated due to excavation shall be of the tune of 58.52 lakh m3 and will be dumped in 32.78 ha specified for this purpose. The dump sites shall be at least 30 m horizontally away from the high flood level of the river. Restoration of much dumping sites shall be undertaken as soon as the sites are full.	Approved Muck Disposal Plan shall be implemented commensurating with progress of construction work during & after the main construction works.
vi)	The fish management plan and habitat improvement of fishery as submitted vide letter dated 14.1.2011 shall be undertaken in totality in consultation with State Fishery Department, Government of Arunachal Pradesh. The allocated budget of Rs. 247.38 lakhs for the plan shall not be diverted for any other purpose.	Noted for compliance
vii)	An Environmental flow 10 m3/sec shall be maintained for sustenance of aquatic life in the downstream. Continuous Monitoring system for environmental flow measurement shall be installed and data be displaced at appropriate site for information of civil society and stake holders. Six monthly results shall be submitted to the concern Regional Office of the Ministry and SPCB.	Noted for compliance.
viii)	A small Dam toe power house shall be installed to utilize environmental flow. Necessary clearance shall be obtained from the concern Authority.	Noted.





ix)	Real time telemetry and data acquisition system including all weather hydro metrological stations shall be installed for in-flow monitoring and advance flood warning. Advance flood warning and advance communication system shall be installed in consultation with the downstream District Authorities.	Noted for compliance
ix)	The proposed greenbelt development in 34.63 ha around the periphery of reservoir shall be strictly adhered to.	Noted for compliance
x)	The proposed Wildlife Management & Development and Conservation of Biodiversity Plans at a cost of Rs. 600.00 lakhs shall be taken-up strictly as outlined in the ELIA/EMP Report and implemented in consultation with the State Forest Department without any diversion of funds. A report of implementation shall be included in the sixth monthly compliance report to be submitted to the Ministry.	Biodiversity and Wildlife Conservation & Management Plan shall be implemented through Forest Department, Govt. of Arunachal Pradesh.
xi)	The equipment likely to generate high noise levels shall 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.	Noted for compliance
xii)	Any other clearance from any other organization/department, if required shall be obtained before commencing the project.	Noted for compliance
xiii)	About 1.5% of the total project cost shall be spent for the Local Area Development. Cost estimates for all other aspects as provided in ELA/EMP shall be adhered to.	Noted for compliance
xiv)	Disaster Management Plan shall be prepared using the data suggested by the EAC and submitted to the Ministry within three months from the date of issue.	Noted for compliance
	Part – A: General Conditions	
i)	Adequate free fuel arrangement should be made for the labour force engaged in the construction work at project cost so that indiscriminate felling of trees is prevented. Fuel depot/s may be opened at the site to provide the fuel (kerosene/LPG)	Shall be implemented through main contractor by inserting appropriate clause in the Contract Agreement.
ii)	Medical facilities as well as drinking water and recreational facilities shall also be provided to the labourers.	A plan for full-fledged hospital with all facilities as well as recreational facilities is being plan to be constructed at NEEPCO Colony, Tato.



iii)	All the labourers to be engaged for construction works shall be thoroughly examined by health personnel and adequately treated before issuing them work permit.	Periodical health cheek-up camps shall be organized at project site through experienced Medica practitioner /Doctor posted in the Project.	
iv)	No fugitive dust emissions should be observed at the construction sites. Water sprinkling arrangements shall be made to suppress the fugitive emissions.	Shall be implemented through main contractor by inserting appropriate clause in the Contract Agreement.	
v)	Potable drinking water and proper Sanitary facilities shall be provided for the labour force and the local area people.	Shall be implemented through main contractor by inserting appropriate clause in the Contract Agreement.	
vi)	Restoration of construction area including dumping sites of excavated materials shall be ensured by levelling, filing up of borrow pits, landscaping etc. The area should be properly treated with suitable plantation.	Shall be complied commensurating with progress of work during & after the main construction works.	
vii)	The total budget of Rs. 10195.80 lakhs for implementation of environmental management plans shall be strictly adhered to and should not be diverted to any other purpose.	Noted for compliance	
viii).	A Multi-Disciplinary Committee (MDC) to monitor environmental safeguards during the construction shall be constituted by the Ministry on the suggestions of the Proponent. Six monthly monitoring report of this Committee shall be displayed on the web-site of the Proponent.	·	
ix)	Videography of the project area shall be carried out to ascertain that no damage occurs to the houses of the villagers/local people and in case any damage occurs, the PP shall pay compensation for the damages.		
x)	Environmental parameters shall be monitored and six-monthly monitoring reports shall be submitted to the concerned Regional Office of the Ministry and the State Pollution Control Board for their review.		
xi)	Disaster Management Plan shall be prepared in consultation with the District Authorities and early warning telemetric system shall be installed.		





SALIENT FEATURES TATO-II HEP (4 x175=700 MW), ARUNACHAL PRADESH

1. Location	On Siyom river, Shi Yomi District, Arunachal Pradesh Nearest Airport: Passighat
2. Latitude (Dam) Longitude	28° 32' 4.5" 94° 23' 57.2"
3. Catchment Area	2560 Sq. KM
4. Design Flood (PMF)	7985 Cumecs
5. Diversion Tunnel	4 Nos, 10.85 M dia,
6. Dam	155 M (above deepest foundation level) high Concrete Gravity Dam, 268 M long
7. River Bed Level at Dam site	EL 902 M
8. FRL/MDDL	EL 1020 M/1012 M
9. Live Storage	6.55 MCM
10. Spillway Crest	EL 963 M
11.HRT	1 No. 10.4 M dia 3.876 KM long
12.Design Discharge	384 Cumec
13. Surge Shaft	1 No. 31.5 M dia, 47 M high (excluding vault of 14.7m height)
14. Pressure Shaft	4 Nos Underground and Steel lined, 4.5 M dia, length varying from 294.40 M to 311.40 M and Vertical shaft of 184.85M each.
15. Valve House	Underground
16.Power House (u/ground) TWL at outlet	Vertical Francis Turbine, 4 x 175 MW EL 810 M 207 M
Rated Net Head	2738.06 MU
Design Energy	
17. Tail Race Tunnel	1 No, D-shaped, 11 M wide, 562 M long

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SALIENT FEATURES OF ENVIRONMENTAL MANAGEMENT PLAN

The EIA/EMP studies for Tato-II Hydro Electric Project was carried out by M/s Centre for Inter-Disciplinary Studies of Mountain & Hill Environment, University of Delhi, Delhi.

An amount of Rs 114.47 Cr has been provisioned for Environment, Ecology & Afforestation in the approved project cost.

1. Catchment Area Treatment Plan (CATP)

Tato-II HE Project catchment receives lesser precipitation in the form of snowfall in the upper catchment, but a higher rainfall, mainly received in the middle and lower parts. The terrain comprises very steep slopes to steep slopes. These two factors are responsible for soil erosion by way of sheet erosion, rill erosion, gully erosion, bank erosion by streams and glacier erosion. Therefore, the catchment area treatment (CAT) plan for the free-draining catchment area has been formulated with the main objective of arresting soil erosion in the catchment area up to the dam site.

An area of 5464.72 Ha is considered for treatment through various biological and engineering measures to meet the following objectives.

- Checking soil erosion and land degradation by proposing adequate and effective soil conservation measures in erosion prone areas (very severe and severe) in the catchment.
- Rehabilitation of degraded forest areas through afforestation and facilitating natural regeneration.
- Rehabilitation of degraded slopes and landslide prone areas, wherever, necessary and possible.

A. Soil Conservation measures.

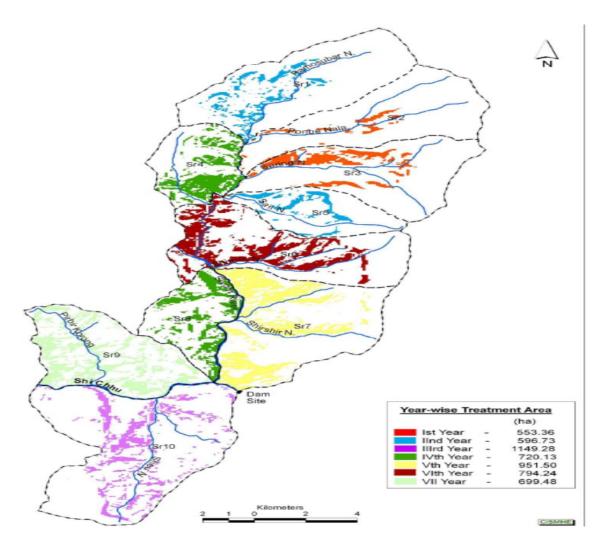
For soil conservation programme, 10 (ten) watershed have been identified/chosen as the basic unit for implementation in the different sub-watersheds of the free-draining catchment of the project. Out of 5464.72 ha, 5393.73 ha are classified under severe erosion intensity category and 70.99 ha under very severe erosion intensity category. The total area earmarked for the treatment comprises more than 18.63% of the free-draining catchment area, and about 38.43% of the total area under very severe and severe erosion intensity categories requiring treatment measures.

Year	Sub-watersheds	Area to be treated	%age	Silt Yield Index
1st Yr	Sr2	159.81	2.92	1498.06
	Sr3	393.55	7.2	1403.10
2 nd Yr	Sr1	342.55	6.27	1366.03
	Sr5	254.18	4.65	1345.51
3 rd Yr	Sr10	1149.28	21.03	1342.47
4 th Yr	Sr4	307.01	5.62	1294.41



	Sr8	413.12	7.56	1186.46
5 th Yr	Sr7	951.50	17.41	1122.66
6 th Yr	Sr6	794.24	14.53	1135.83
7 th Yr	Sr9	699.48	12.80	1175.60
Total		5464.72		

Figure below represent the year wise treatment map of free draining catchment of Tato-II HEP



(i) Afforestation program:

Afforestation programme would be taken up in such forest areas that contain large patches of barren grassy slopes and are generally devoid of trees and are honeycombed by cultivation. In critically degraded areas, plantation of locally useful, diverse and indigenous plant species such as Alnus nepalensis, Alangium chinense, Altingia excelsa, Pterospermum acerifolium spp., etc. would be undertaken.

Afforestation measures would be taken up under catchment area treatment plan on 1617.60 ha. An outlay of Rs.1636.44 lakhs has been provided to cover various areas under afforestation in different sub-watersheds.



(ii) Assisted Natural regeneration in existing forest:

In some of the forest areas, conditions are conducive to natural regeneration provided some sort of assistance is provided. Such areas shall be taken up under this component. The areas shall be closed to exclude biotic interference. Forest floor will be cleared of slash; debris and felling refuse to afford a clean seedbed to the falling seed. At certain places some soil raking may also have to be done to facilitate germination of seeds. Where natural regeneration is found deficient, it will be supplemented by artificial planting. Patch sowing in suitable areas may also be done. Bush cutting & cleaning operations are done depending on necessity. Up to 800 plant or patches per hectare will be planted /sown to hasten the process of regeneration in the area uniformly. An outlay of Rs.86.98 lakhs has been made to cover 315 ha.

(iii) Regeneration of Non-Timber Forest Produce (NTFP):

To augment natural stock of NTFP in the forests, it is proposed to take up planting of NTFP and establishing nurseries. An outlay of Rs.572.23 lakhs has been suggested to cover about 572.71 ha for establishing (Rs.481.45 lakhs) and its maintenance (Rs.39.49 lakhs).

(iv) Grazing Land/Pasture Improvement:

The livestock owned by the local communities exert significant pressure on the natural habitats. In order to improve the grazing areas/pastures and to make these sustainable, the degraded areas, particularly among community lands will be taken up for treatment under silvi-pastoral model. An outlay of Rs.357.31 lakhs has been earmarked for this purpose and it will cover about 754.13 ha of land for development at a cost of Rs.346.78 lakhs and its maintenance will cost Rs.10.53 lakhs.

B. Engineering Treatment Measures

Gully erosion is one of the concerned soil erosions in the slope and hilly areas. The gullies would be treated with the help of engineering/ mechanical as well as vegetative methods. Check dams would be constructed in some of the areas to promote growth of vegetation that will consequently lead to the stabilization of the slopes/area and prevention of further deepening of gullies and erosion. For controlling the gullies, the erosive velocities are reduced by flattening out the steep gradient of the gully. This is achieved by constructing a series of checks which transform the longitudinal gradient into a series of steps with low risers and long flat treads. Different types of check dams would be required for different conditions comprising different materials depending upon the site conditions and the easy availability of material at local level.

In addition to the vegetative measures used for stabilization of gullies, temporary or permanent mechanical measures will be used as supplementary measures to prevent the washing away of young plantations by large volume of runoff. The gullies get stabilized over a period of time with the establishment and growth of vegetation cover. With the passage of time mechanical structures weaken and vegetative measures get strengthened.

- 1. Gully Control
 - a) Brushwood check dams 197 Nos
 - b) DRSM check dams -248 Nos.
- 2. Bench terracing -941.00 Ha



2. ENVIRONMENTAL MANAGEMENT PLAN

Environmental Management Plan (EMP) enumerating, sort of measures to be adopted to minimize the adverse impacts are as follows:

Facilities in Labour Camps

Solid Waste Management

Adequate facilities for collection conveyance and disposal of municipal waste generated from labour camps were developed. This work was executed in project construction stage by package contractor under guidance of NEEPCO.

Provision of water supply

The water for drinking purpose is being collected from the rivers or streams flowing upstream of the labour camps. The water shall be stored in tanks and supplied for use. The septic tanks shall be placed far away from water resources. The settlements of the population in the area shall also be placed far away from the drinking water sources.

Sanitation facilities

Adequate toilets and septic tanks shall be constructed so that there is no adverse impact due to sewage generation from labour camps.

Provision for Free Fuel Distribution

It has been made mandatory for the contractor to provide community kitchen facilities to its labour. The fuel used for cooking in these kitchens shall be LPG or Kerosene. Necessary provisions have been incorporated in the tender documents.

Landscaping and Restoration of Construction Areas

Landscaping and Restoration of Construction Areas shall be done.

Compensatory Afforestation

Compensatory afforestation is proposed in lieu of acquisition of forest land as per Forest Conservation Act (1980). It is proposed to afforest the degraded forest patches of double the amount of forest land i.e. 628 ha. An amount of Rs 396.30 lakh has been provisioned for compensatory afforestation schemes.

Green belt around dam site

Creation of green belt has been proposed around the reservoir of Tato-II H.E. project to reduce the silt flow in the reservoir and thus increase its life. Various biological and engineering measures shall be taken up to stabilize the reservoir rim. Green belt would provide the stability to immediate vicinity of reservoir and will contribute to the aesthetic and beautification of the project area. The total area that would be undertaken for this plan is estimated to be 159.52 ha. This area has been divided into three layers for the plantation of plant species. The plan would be started during the operational phase and the project proponent would be the implementing agency of this plan. A budget of Rs 7.37 lakhs is allocated under this plan.

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3. DISASTER MANAGEMENT PLAN

Disaster management Plan is for the worst case scenario under the dam break condition. One of the outcomes from Dam break model assessment is the inundation model depicting the downstream areas and settlement vulnerable to inundation by the dam break flood. The model computes the maximum flood elevation at each cross-section. Therefore, this model would predict the villages which are prone to submergence.

In order to prevent the loss of lives and property and to mitigate the negative impacts as a result of dam break a detailed Disaster Management Plan is proposed. This approach includes preventive measure, mitigation and preparedness, response, recovery and rehabilitation. An effective dam safety surveillance, monitoring and observation along with periodic inspection, safety reviews and evaluation must be put in place. A centralized siren system would be installed at all effected flood prone villages Panchayats.

In order to prevent the loss of lives and property and to mitigate the negative impacts as a result of dam break a detailed Disaster Management Plan is proposed. The total budget layout plan for disaster management is estimated to be Rs 891.00 lakhs

4. RESETTLEMENT & REHABILITATION PLAN (R&R Plan)

The R & R plan is broadly prepared based on the Resettlement & Rehabilitation Policy of Arunachal Pradesh Government (2008) and National Policy on Rehabilitation and Resettlement (2007). The plan includes relief package to project affected families, compensation against rights and privileges, and a comprehensive social development plan. The Project land requirement will displace a total of 51 families belonging to 18 households. A family, which does not opt for house but construct his house at his own cost, shall be paid cost of house as per approved plan. If, the majority of the families does not opt to reside in resettlement colony, total amount, suggested for Resettlement Plan will be distributed among the families. The Rehabilitation measures aim at compensating the concerned families whenever their land holdings have been adversely affected by the Project, whether the rights of the said families over such land are community rights, customary rights over forest or agricultural lands or individual rights. The proposed rehabilitation measures also aim at directly improving the socio-economic situation of the affected families.

A total budget of Rs 3601.04 lakhs has been allocated for R&R measures, Infrastructural Development, Peripheral Development Plan and Monitoring etc., as under.

SI. No	Plan	Rs in Lakhs
1.	Rehabilitation & Resettlement Package	1136.50
2.	Infrastructural Development in Resettlement Colony	279.50
3.	Peripheral Development Plan	1920.04
4.	Monitoring and Evaluation	40.00
5.	Renovation of Micro Hydel Plan (20 KW) Tato	125.00
6.	Water Supply Scheme for Tato village	100.00
	Total3	3601.04

The R&R Plan shall be implemented in phases before commissioning of the projects and the progress of R&R Plan shall be monitored by a standing Rehabilitation and Resettlement Committee under the Chairmanship of the Deputy Commissioner, Shi-yomi District involving all stakeholders.

उप महाप्रबंधक (तकनीकि)

Dy. General Manager (Tech)

यो ।, ॥ एव हियो एव ई.पी/Tato I, ॥ & HEO HEP
नीपको लिमिटेड, योये/NEEPCO Ltd., Tato
जि. योमी अरुणाचल प्रदेश/Shi Yomi (Ar.P.)

Dy. Manager (C)
Tato I, II & Heo HEP
NEEPCO, Tato, Shi-yomi District, AP