

**Six Monthly Progress Report on Environmental Aspects of
Teesta Stage-V Power Station, Sikkim**

Progress for the period ending Sept. 2022

1.	Name of the Project	Teesta-V Power Station (510 MW)
2.	Type of the Project	Hydroelectric project (run-of-the-river scheme)
3.	Clearance Letter(s) OM No. & Date a) Environment clearance b) Forest clearance	a) No. I-12011/1/98-IA-I dated: 19.05.1999 b) F. No. 8-26/98-FC dated: 14.05.1999
4.	Locations a) District(s) b) State(s) c) Latitude d) Longitude	North, South and East Sikkim Sikkim 27° 15' 00" N 88° 30' 20" E
5.	Address for Correspondence a) Address of concerned Project Head(with pin code, telephone/fax nos.) b) Address of concerned HOD in Corporate Office (with pin code & telephone/fax no.)	Group General Manager Teesta-V Power Station Balutar, Sikkim- 737134 Phone: 03592-247226 (O) Fax: 03592-247227 Executive Director Environment & Diversity Management NHPC Limited, NHPC Office Complex, Sector-33, Faridabad, Haryana - 121 003 Phone: 0129-2278014
6	Details of environmental management plans	As per Annex-I.
7.	Break-up of the Project area (land details) a) Submergence area i. Forest ii. Non-forest b) Others	Forest land: 147.333 ha Non-forest Land (Private): 171.672 ha* Total land: 319.005 ha i. 48.884 ha forest land ii. 18.866 ha non-forest land (private) 98.449 ha forest land (including 25.16 ha of underground forest land) and 152.806 ha* non-forest land (private). <i>(*Previously, 197.710 ha private land was acquired, out of which 26.038 ha land was transferred back to Govt. of Sikkim)</i>
8.	Break-up of the Project affected population with enumeration of those losing houses / dwelling units only, agricultural land only, both dwelling units and agricultural land and landless labourers / artisans.	Total nos. of affected families were 261 out of which 62 nos. of families losing house & land and 199 nos. of families losing land only (as per land acquisition data).

	(a) SC/ST/Adivasis (b) Others	a) 26 b) 36
9.	Financial details a) Project cost as originally planned and subsequent revised estimates and the years of price reference. b) Actual expenditure incurred on the Project so far. c) Allocations made for the Environmental Management Plan (Rs. Lakhs) d) Actual expenditure incurred on the Environmental Management so far.	Rs. 2,198.05 crore (April 1999 PL) Completion Cost: Rs. 2656.95 crore (April 2008 PL) i. Rs.4,079.49 lakh (EMP-DPR) ii. Rs.5,479.23 lakh (EMP-Revised) Rs. 5812.75 lakh (Annex-I for details) (The funds allocated against EMP have been fully utilized and Project stands commissioned and is under operation since March, 2008. As such, there is no change in the expenditure from the previous six-monthly report.)
10.	Forest Land requirements a) Status of approval for diversion of forest land for non-forestry use. b) The status of clear felling of trees in forest land.	MoEF&CC vide letter dated 14.05.1999 accorded diversion of 147.423ha of forest land including 25.25ha underground land (actual forest land diverted was 147.333ha including 25.16ha underground land). 2323 Nos.
11.	Status of construction a) Date of commencement (Actual and / or planned) b) Date of completion (actual and / or planned)	a) Date of start: 11.02.2000 (Date of CCEA clearance) b) Actual: March 2008
12.	Reasons for the delay, if the project is yet to be started	N.A.
13.	Details of site visit By Monitoring Committee By Regional Office	In Central Level Monitoring Committee Meeting held at Power Station on 15th July 2010, it was decided that no further regular Central Level Monitoring Committee meeting is required as the conditions of clearance have already been complied with by NHPC. Last Central Level Monitoring Committee Meeting was held at Teesta-V Power Station on 15.11.2017.
14.	Brief Note on the Status of compliance of the conditions stipulated by MOEF&CC	Enclosed as Annex-II

Details of Environmental Management Plan For Teesta-V Power Station				
(Rs. in lakhs)				
S. No.	Name of Environmental Management Plans	Allocated fund in DPR Aug.'97 price level	Fund after reappropriation/ revision	Expenditure as on 31.03.2021
X- Environment & Ecology				
1	Compensatory Afforestation in 250 Ha (degraded forest)	111.10	111.10	111.10
2	Green Belt*	50.00	80.00	62.88
3	Catchment Area Treatment**	2350.00	3680.66	3680.43
4	Restoration of quarry site***	25.00	25.00	
5	Landscaping & Beautification*	20.00	70.00	84.80
6	Restoration of Spoil Tip Area	200.00	200.00	200.00
7	Reservoir Rim Treatment	200.00	200.00	212.51
8	Subsidized fuel distribution#	110.00	14.66	
9	Wildlife Conservation Plan**	55.00	124.42	124.42
10	Prevention & control of water borne disease	10.00	10.00	11.19
11	Environmental Study	30.00	30.00	19.25
12	Adoption of local village*	35.00	50.00	50.79
Additional stipulations by MoEF&CC				
13	Scheme to stabilize landslides between Dam site and Singtam	63.71	63.71	63.71
14	Afforestation scheme for protection of forest surrounding the project area	44.32	44.32	44.32
Under B-Land				
15	Resettlement and Rehabilitation	545.51	545.51	766.35
Under K-Building, O- Miscellaneous & Q-Special Tools and Plants				
16	Health Delivery System	229.85	229.85	381.00
	Total	4079.49	5479.23	5812.75
* Work cost has been revised by re-appropriation of funds from subsidized free fuel provision				
** revision due to labour wage revision by Govt. of Sikkim				
***Only one sand quarry was used which was subsequently handed over to State Govt. for muck dumping by another developer in the downstream.				
#As per the Contract Clause, the responsibility of making free fuel arrangement for their work force lies with the Project's major contractors. Accordingly, the expenditure on the item no. 8 was done by respective contractors.				

Brief Note on the Status of compliance of the conditions stipulated by MoEF&CC

S.No.	PART - A: Specific Conditions	Compliance Status																																																																
i)	<p>At present, there is no breeding of mosquito in and around the Teesta River as the flow of river is very fast. But, once the project starts, a major portion of water will be drawn through HRT (18 km long) and therefore the flow of the river at this point will slow down substantially, which may give rise to breeding of mosquitoes. There are some malaria vectors, which can breed in slow moving streams. Two approaches can be adopted to rectify this situation.</p> <p>(a) The rate of flow of water should be more than 60 cm/sec.</p> <p>(b) This part of the river should be properly channelised so that no small pools and poodles are allowed to be formed.</p> <p>Even after taking precaution, due to unforeseen situations, breeding of mosquito and resultant malaria or mosquito borne diseases can increase. If such a situation arises, it will be the responsibility of project authorities to take all corrective steps i.e. residual insecticidal spray in all the project impact area and surrounding 3 km. area, keeping the night range of mosquitoes in consideration.</p>	<p>In compliance of the Hon’ble NGT orders on E-Flow and the Sikkim State Pollution Control Board (SPCB) order’s No. F.No.3007/SPCB 925 dated 01.10.2022, Teesta-V PS is releasing 15% minimum flow of 10.20 cumec downstream of dam. The downstream flows avoid any mosquito breeding in the downstream.</p>																																																																
ii)	<p>In addition, project authorities should organize a training workshop for all engineers who will be posted in this project, once it is started, Deptt. of National Malaria Eradication Programme can lend a helping hand by providing the faculty for this training course.</p>	<p>Medical Division of the project has been organizing training workshop for control of malaria and awareness programme for officers, staff and labours from time to time in coordination with Dept. of National Malaria Eradication Programme, Sikkim during the construction period. Periodic fogging is also carried out in the project area for mosquito eradication.</p>																																																																
iii)	<p>Year wise action plan for treatment of degraded Catchment Area should be strictly implemented as proposed:</p> <table><tr><th rowspan="2">Year</th><th colspan="2">Forest Land (ha)</th><th colspan="2">Agriculture Land (ha)</th><th rowspan="2">Total</th></tr><tr><th>Bio.</th><th>Eng.</th><th>Bio.</th><th>Eng.</th></tr><tr><td>1st</td><td>550</td><td>300</td><td>-</td><td>100</td><td>950</td></tr><tr><td>2nd</td><td>450</td><td>250</td><td>-</td><td>100</td><td>800</td></tr><tr><td>3rd</td><td>1970</td><td>250</td><td>300</td><td>100</td><td>2620</td></tr><tr><td>4th</td><td>1770</td><td>250</td><td>300</td><td>100</td><td>2420</td></tr><tr><td>5th</td><td>1960</td><td>100</td><td>300</td><td>100</td><td>2460</td></tr><tr><td>6th</td><td>1760</td><td>-</td><td>300</td><td>-</td><td>2060</td></tr><tr><td>7th</td><td>1770</td><td>-</td><td>300</td><td>-</td><td>2070</td></tr><tr><td>8th</td><td>30</td><td>-</td><td>-</td><td>-</td><td>30</td></tr><tr><td>9th</td><td>70</td><td>-</td><td>-</td><td>-</td><td>70</td></tr></table>	Year	Forest Land (ha)		Agriculture Land (ha)		Total	Bio.	Eng.	Bio.	Eng.	1 st	550	300	-	100	950	2 nd	450	250	-	100	800	3 rd	1970	250	300	100	2620	4 th	1770	250	300	100	2420	5 th	1960	100	300	100	2460	6 th	1760	-	300	-	2060	7 th	1770	-	300	-	2070	8 th	30	-	-	-	30	9 th	70	-	-	-	70	<p>Catchment Area Treatment (CAT) Plan completed as per approved plan. The total free draining catchment area of Teesta-V is 43015 ha, out of which the total treatable area was spread over 11900 ha in 14 subwatersheds. Later on, due to planning of new hydro project on Dikchu Khola within the free drainage Catchment of Teesta-V. The total treatable area for Teesta-V was reduced to 10710 ha in the revised CAT plan prepared by the Forest, Environment & Wildlife Management Deptt., Govt. of Sikkim. The cost of CAT works revised from originally approved amount of Rs.2420.44 lakhs to Rs.3680.66 lakhs due to labour wage revision by Govt. of Sikkim. As per the demand of the Forest, Environment & Wildlife Management Dcptt., Govt.</p>
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	10th	70		-	-	70	of Sikkim a total amount of Rs.3680.43 lakhs was released, and it was fully utilized.
iv)	The faunal Survey as reported in the EIA report was done for a shorter period. Merely listing of the species is inadequate. The impact of the proposed development on biodiversity and bio-habitat must be thoroughly examined and remediation is to be proposed. The P.A. should submit the report within six months to the Ministry for approval. The complete plan giving details of the year wise actions and year wise fund allocation and agencies that will be involved in implementing the management plans must be spelt out.						In view of recommendations in Ecological Assessment study carried by Wildlife Institute of India, Dehradun, revised Wildlife Management Plan was prepared by Department of Forest and the same was approved by MoEF&CC on 05.11.2003 with cost of Rs.76.35 lakhs. The cost further revised to Rs.124.42 lakhs due to labour wage revision by Govt. of Sikkim which was released to Forest, Env. & Wildlife Management Department, Govt. of Sikkim. As per the Forest Deptt. letter dated 24.04.2012, amount of Rs.124.42 lakhs was fully utilized for the construction of a butterfly park at Rangrang in North Sikkim District.
v)	Butterfly species existing in the project area play an important role in maintenance of the ecosystem. A separate chapter should be kept in the bio-habitat and biodiversity study report solely for butterflies indicating the impact due to the proposed project on the butterfly species and management plans proposed for the conservation of the species and their habitat.						Detailed studies on butterflies in the project area were done by Wildlife Institute of India (WII), Dehradun as a part of Ecological Assessment of Teesta-V and measures were suggested for their conservation. Accordingly, while formulating the Wildlife Management Plan, due importance was given to in-situ and ex-situ butterfly conservation in the project area. In the first phase of butterfly park construction plan, work of habitat improvement, nursery creation and some infrastructural development works viz. footpath construction, view point, etc. have been completed at Rangrang, North Sikkim, which is approximately 10 km upstream of Dam site, Dikchu. These works were executed with the expenditure of Rs.124.42 lakh.
vi)	The Ethnographic study report should be submitted within three months i.e. by 30th June, 1999.						Ethnographic study was completed and the report submitted to MoEF&CC on 5th July 1999.
vii)	From the dam site to powerhouse site the river travels a distance of 23 km. Due to diverting water for power generation, the flow of river at this stretch will be reduced. A study related to aquatic ecology should be taken up to know the impact of reduced water flow on aquatic ecology. The report should be submitted within six months i.e. by 31.07.1999.						<ul style="list-style-type: none"> Rs.84.27 lakh released to the Department of Animal Husbandry, Livestock, Fisheries & Vet. Services, Govt. of Sikkim and the Fish Farm inaugurated on 03.09.2012. The matter of functionality of hatcheries in the fish farm discussed during 10th meeting of Central Level Monitoring Committee held on 15/11/2017 wherein Joint Director (Fisheries), Govt. of Sikkim informed that fund for the work of water supply sanctioned and it is expected the work would be finished by April 2018. He also informed that they are trying to make the hatcheries of the farm functional by next rainy season. It has been gathered that the work for tapping the water from nearest water source (Rangrang Khola) completed in April, 2019 but the water connection to the portable hatcheries to make the hatcheries functional is yet to be done by State Fisheries Department.

		<ul style="list-style-type: none"> • Director (Fisheries), Govt. of Sikkim along with other officials of Directorate of Fisheries has undertaken a joint inspection of Makha Fish Farm on 20.07.2021. • A meeting was held by the Directorate of Fisheries on 16/03/2022 at project in which the repair works of various components of Makha Fish Farm discussed by officials of Directorate of Fisheries and NHPC. Further, re-joint inspection of Makha fish farm was done by the officials of Directorate of Fisheries and NHPC on 05/04/2022, and it was decided that, the revised proposal by the Directorate of Fisheries will be submitted to NHPC for re-approval. Project is regularly pursuing the matter with the Fisheries Deptt. 																								
viii)	The labour camps should not be located in protected/ prescribed areas.	Complied.																								
ix)	On completion of the project, the workers brought from outside by the construction agencies should be sent out and not allowed to settle anywhere in Sikkim.	Complied.																								
x)	Full efforts must be made to employ maximum number of local people in not only unskilled category but also in semi-skilled and skilled categories by making provision for imparting skills through training to selected locals. The objective is to integrate locals in the developmental activity. Detailed plans regarding the above are to be furnished.	<p>Sincere efforts were made to generate direct and indirect employment by providing to the locals during construction phase and as a result, many local people were employed with major as well as small contractors in unskilled, semi-skilled and skilled category during construction phase. Even after commissioning of the project, many locals are getting employment with various running & maintenance service providers. The details of locals employed/engaged through contractor are as under:</p> <table border="1"> <thead> <tr> <th>S.no</th><th>Description</th><th>No. of Employees</th></tr> </thead> <tbody> <tr> <td>1</td><td>Regular employee under R&R Plan</td><td>59</td></tr> <tr> <td>2</td><td>Regular employee in other cadres</td><td>11</td></tr> <tr> <td>3</td><td>Engaged in IRB</td><td>96</td></tr> <tr> <td>4</td><td>Engaged in home guards</td><td>30</td></tr> <tr> <td>5</td><td>Contractual engagement in misc. works</td><td>437</td></tr> <tr> <td>6</td><td>Contractual engagement driver</td><td>40</td></tr> <tr> <td></td><td>Total</td><td>673</td></tr> </tbody> </table>	S.no	Description	No. of Employees	1	Regular employee under R&R Plan	59	2	Regular employee in other cadres	11	3	Engaged in IRB	96	4	Engaged in home guards	30	5	Contractual engagement in misc. works	437	6	Contractual engagement driver	40		Total	673
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xi)	204 families will be affected due to this project. Out of this 72 families will be affected fully (land and house both) and 132 families partially (only land). The affected families would be resettled at lower Samdong and Dhudhyadhara of Khamdong block. An amount of Rs. 545.51 lakhs (Rs.99.51 lakhs cost of resettlement land) has been kept in the budget for R&R package. The package as proposed should be	<ul style="list-style-type: none"> • Total 62 nos. of fully affected families were offered jobs by Project, however only 59 persons accepted and joined the job. • Project allotted plots to displaced families in Resettlement and Rehabilitation colony in Khamdong. • Remaining 199 nos. of families who lost part of their land were compensated for their land and property through Land Acquisition officer of the District. 																								

	implemented in toto.	<ul style="list-style-type: none"> Total expenditure of Rs. 766.35 lakh was incurred on this head.
xii)	No other project in Sikkim will be considered for environmental clearance till the carrying capacity study is completed.	The Carrying Capacity study of river Teesta in Sikkim carried by CISMHE, Delhi University and the final report was accepted by MoEF&CC in December 2007.
xiii)	Over and above the stipulated compensatory afforestation, additional 10 ha. area should also be afforested. Area should be identified in consultation with State Forest department. Funds required for this purpose should be reflected in the project budget. 1 % of the cost of the project to be spent on ecological conservation of the area for which the plans may be submitted to the Ministry within three months.	The condition was withdrawn by MoEF&CC vide letter No. J- 12011/1/98-IA-1 dated 07.12.1999.
	Part-B: General conditions	
i)	Adequate free fuel arrangement should be made to the labour force engaged in the construction work at project cost so that indiscriminate felling of trees is prevented.	Complied.
ii)	Fuel depot may be opened at the site to provide the fuel (kerosene/wood). Medical facilities as well as recreational facilities should also be provided to the labourers.	<p>Complied.</p> <p>NHPC has a 25-bed hospital at Powerhouse site and a dispensary at dam site. Besides, there is an operational Primary Health Centre at Samdong colony. Various medical facilities have been extended by Project Hospital at Balutar are OPD facilities, medicine distribution as per Project Hospital prescription, vaccination plan, Pulse polio etc. The project hospital has been recognized as center under Reproductive and Child Health Programme of Govt. of India. It is also designated tuberculosis microscopy Centre under Revised National TB Control Programme (RNTCP) programme Govt. of India. Laboratory for routine pathological examination of blood, urine & stool. Physiotherapy centre. X-ray and ECG facilities.</p> <p>Since inception of the project in 2000-01 to March 2022, a total of 4,04,358 nos. of local patients have taken benefit from NHPC health services. The project has been organizing small and big medical-cum-awareness camps on regular basis throughout the year in the surrounding villages of the project. Free consultancy is provided during these camps and medicines are also distributed free of cost to the villagers</p> <p>Recreational facilities: Recreational facilities have been developed in the colony area, which is open to everyone including labourers. A children-cum-herbal park has been developed on right bank and another children park on left bank of powerhouse site. These facilities are available to all.</p>

iii)	All the labourers to be engaged for construction works should be thoroughly examined by health personnel and adequately treated before issuing them work permit	Complied.
iv)	Restoration of construction area including dumping site of excavated materials at dam site & intake tunnel, Adit site and powerhouse site should be ensured by levelling, filling up of burrow pits, landscaping etc. The area should be properly afforested with suitable plantation.	Complied. Further, Restoration and Reclamation work of construction areas including dumping sites was completed through appropriate biological & engineering measures and by development of green belt, playground and park as per condition and demand of locals.
v)	Downstream of the dam, flood-zoning approach should be done. No settlement should be allowed within flood zone.	Concerned District Authorities were informed about this stipulation as the matter pertains to State Govt.
vi)	A multi-disciplinary committee should be constituted with representatives from various disciplines to oversee effective implementation of the suggested safeguard measures.	In compliance of conditions, a committee was constituted by PCCF-cum-Secretary, vide Notification dated 16.11.2000. A total of nine meetings were held during 2001-2010. However, in Central Level Monitoring Committee meeting held on 15.07.2010, it was decided that no further regular Monitoring Committee meetings are required as the conditions of clearance have already been complied with.
vii)	Six monthly monitoring reports should be submitted to the Ministry and its Regional Office for review.	As per requirement of MoEF&CC, the Six-monthly progress reports are being submitted in a time bound manner.

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