

**REPORT ON MONITORING THE IMPLEMENTATION OF ENVIRONMENTAL
SAFEGUARD OF KAMENG HYDRO POWER STATION.
PERIOD- 01.04.2025 to 30.09.2025**

**Monitoring Report Part-I
(Data Sheet)**

- 1. Project Type** : River Valley
River Valley/Mining/Industry/Thermal/
Nuclear/Others (Specify)
- 2. Name of the Project** : **Kameng Hydro Power Station.**
- 3. Clearance Letter No. & Date** :
(i) Forest Clearance No.:F.8-30/90-
FC dated 03.08.2000
(ii) Environment Clearance No. J-
12011/17/2000-IA-I dated
29.03.2001
(iii) Environment Clearance No.:
J12011/17/2000-IA-I dated
31.12.2002
(iv) CCEA Clearance No.:7/22/99-
Hydel-I, Govt. of India, Ministry of
Power, New Delhi dated 02.12.2004
- 4. Location**
(a) District : West Kameng
(b) State(s) : Arunachal Pradesh
(c) Latitude/Longitude : Bichom Dam 92⁰ 37' 21" E &
27⁰ 18'03" N
- 5. Address for Correspondence**
(a) Address concerned Project : Head of Project,
Chief Engineer (with PIN Code &
Telephone/Telex/Fax No.) Kameng HPS.
Kimi, West Kameng Dist., A.P.
Ph-03787-273504,
Email – hop.kahps@neepco.co.in ;
kpc_kahep@rediffmail.com
- (b) Address of Executive Project : DGM(C)/
Engineer/Project Engineer/Manager
(with PIN Code & Telephone/
Telex/Fax No.) Environment Nodal Officer
Bichom Dam Complex,
KaHEP, NEEPCO Ltd.,
Post Box No. 7,
Mukhya Dakghar, Bomdila,
West Kameng Dist., A.P.
Email: bdckameng@rediffmail.com

6. Salient Features

- (a) Of the Project : As enclosed in Annexure-I
(b) Of the Environmental Management Plan : As enclosed in Annexure-II

7. Break up of the Project Area

- (a) Submergence Area (Forest & Non-Forest) : Bichom Reservoir- 184.180 Ha. (USF)
Tenga Reservoir- 53.300 Ha (USF)
(b) Others : Project & Colony
- | | |
|-------|---|
| Area | 472.520 Ha |
| Total | 710.000 Ha out of which 650.000 Ha (USF) & 60.000 Ha (RF) |

8. Break up of Project Affected Population with enumeration of those losing houses/dwelling units only, agri. land only, both dwelling units and agri. land and landless labourers/Artisans

- | | |
|----------------|-------------|
| Bichom Village | 85 Families |
| Yayung Village | 13 Families |
| Others | 01 Family |
| ----- | |
| Total | 99 Families |

Affected Dwelling Units 74 Units
Affected Agri.Land 42.82 Ha.
Affected Vill. Land 29.00 Ha.
Affected Horti.Land 3.05 Ha.
(Sl.Nos. 7 & 8 are combined figures of BDC and KPC, KaHEP)

- (a) SC/ST/Adivasis : All affected population belong to ST Category.
(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 based on one door to door survey was conducted during the year 1999-2000.

9. Financial Details

- (a) Project as originally planned and subsequent revised estimates and the year of prime reference : (i) Original cost Rs. 1160.60 Cr. i/c IDC based on April, 1991
(ii) Revised Cost Rs. 2496.90 Cr. Including IDC based on March 2004 PL.
- (b) Allocation made for Environmental Management Plans with Item wise & year wise break up : Enclosed in Annexure-III
- (c) Benefit cost ratio/internal rate of return and the year of assessment :
- (d) Whether (c) includes the cost of : Yes

Environmental management as
Shown in (b) above.

- (e) Actual expenditure incurred on the project so far. : Completed cost of the project is Rs.- 8408.41Cr.
- (f) Actual expenditure incurred on the Environmental Management Plans so far : Rs. 169.91 Cr up to 31.03.2024 (Including CAT Plan)

10. Forest Land Requirement

- (a) The status of approval for a diversion of forest land for non-forestry use : Approval accorded for diversion of 710 Ha. of forest land for construction of Project vide MOEF's F.No.8-30/90-FC dated 03.08.2000
- (b) The status of compensatory Afforestation (CA), if any : Total cost of compensatory afforestation is Rs. 640.88 Lakhs, which is to be executed by Deptt. Of Env. & Forest, Govt. of A.P. Amount of Rs. 640.88 Lakhs has already been released to the State Forest Dept. The scheme will be implemented in 4 Phases by covering 355 Ha per Phase.
- (c) Status of Clear felling : Nil
- (d) Comments on viability & sustainability : Dept. of Env. & Forest, Govt. of A.P. is entrusted for execution of the of compensatory afforestation programme in the light of actual field scheme experience so far.
NEEPCO is responsible for
(i) Development of Green Belt around Reservoir Area.
(ii) Plantation around Colony Area
(iii) Proper dumping of excavated materials/selection of quarry site and restoration as per approved plan.
(iv) Dam Break Analysis & Disaster Management Plan – Establishment of Network System.
(v) Seismic Surveillance at Dam Site

The compensatory afforestation Programme is viable and sustainable.

11. The status of clear felling in non-forest area (such as submergence areas of Reservoir, approach roads) : As required during development of colony and construction of approach roads, clear felling were done in presence of Forest Dept. Officials with proper enumeration.

12. Status of Construction

(a) Date of commencement (actual and/or planned) : Zero date of 3rd Stage : 03.12.2004 (actual)

(b) Date of completion (actual and/or planned) : **COD-**
Unit-I - 17-06-2020
Unit-II - 01-07-2020
Unit-III - 22-01-2021
Unit-IV - 12-02-2021

13. Reasons for delay (if the project is yet to start) : N/A

14. Date of site visit

(a) The dates on which the project was monitored by the Regional Office on previous occasion, if any : 12/12/2016 to 13/12/2016 by Dr. H. Tynsong, Sc. D NERO, MOEF, Shillong.

(b) Date of site visit for this monitoring Report : Dr. Hemen Hazarika, Sc.'E',Addl.Dir IRO, Guwahati, MoEFCC, has visited project site on 10.07.2024 & 11.07.2024

15. Public appreciation and public Complaint on the Project : Not received.

Part – II
KAMENG HYDRO POWER STATION (4 x 150 MW), ARUNACHAL PRADESH
ENVIRONMENTAL CLEARANCE Part – A – Specific Condition

Sl. No.	Stipulations	Action Plan	Status of Compliance
i)	Sector wise and year wise physical targets for implementation of environment plan as proposed vide letter No.DGM(C)/Planning/Kam eng/3E-Part-III/699 dated 22.01.2001 should be implemented in toto.	The detailed action plan is Enclosed in Annexure-II	GoAP has been requested for constitution of (i) Project Co-ordinating Committee & (ii) Project Imp. Authority for effective implementation of environmental safeguards measures. However, R & R Committee has been formed in consultation with State Govt. Site Development work of Bichom Model Village has been executing by the State Deptt. of Hydro Power and almost completed. The revised estimated cost of Rs. 3839.20 Lakh against R&R works has already been released to Govt of Arunachal Pradesh.
ii)	Suitability of specific fish pass applicable to this project is being studied by Central Inland Fisheries Research Institute (CIFRI), Barrackpore. The report should be submitted to the Ministry along with plan for implementation of recommendations, which should include physical milestone and financial out lays.	Study on the subject is undertaken by CIFRI and they have suggested to provide fish pass in Bichom Dam. The above study was undertaken before the change in design parameters, i. e lowering of spillway crest level.	Due to the lowering of spillway crest level of Tenga dam from 758.00 m to 756.00 m (the river bed level), the spillway becomes a submerged spillway. In view of this CIFRI reviewed their design & recommended provision of hatcheries/farms at suitable locations. Further, the operational requirement recommended in the report of CIFRI, consultant for fish pass facilities contradicts some techno-economic parameters of the project. As per the design consultant of the KaHEP fish ladder will not be effective in meeting the desired objective. Considering, techno-economic issues including design energy, provision of hatcheries/farms is viewed as an alternative as recommended by CIFRI for Tenga Dam. The matter has been taken up by the ED (D&E) with the MOEF, Govt of India. (L. no NEEPCO/GHY/D&E/T-25/14-15/1772 dtd.30.9.14. Work

			<p>order vide no NEEPCO/GHY/D&E/T-25/2021-22/314 dtd.23.8.21 has been placed by the ED(D&E) to CIFRI for planning and design of fish hatchery. An amount of Rs.78,91,800/- released to CIFRI on 03.02.2022 as advance payment. A team from CIFRI visited site during May 2022, September 2022 and January 2023 for sample collection and objective based activities.</p> <p>CIFRI has submitted its preliminary report on 10.10.2022 and Pre-monsoon & monsoon season sampling report on 03.01.2023. Subsequently site visit was also carried out in the month of Jan'2024 and Post Monsoon sampling report was submitted on 05-04-2024. CIFRI has submitted the final report on 20-08-2024.</p>
iii)	NEEPCO in their communication has agreed to introduce settled cultivation by replacing Jhoom Cultivation on an area of 36830 Ha. in a phase manner. This may be done in consultation with State Govt.	NEEPCO has prepared the action plan for settled cultivation replacing the Jhoom cultivation on an area of 36830 Ha. in a phased manner in 5 years period for cost of Rs. 1891.97 lakhs	Matter has been taken up with the concerned Deptt. of State Govt. The said replacement of Jhoom cultivation has to be implemented by the State Govt. of A.P As per approved Action Plan for CAT and Environment Management, Vol-2(i) at Section VI, page-77-83, two Apex committees to be constituted by the state Govt for implementation. A committee has been formed by Govt. of AP vide memo no.-FOR-39/Cons/85/Vol-II/1949-54 Dated-Itanagar, 25 th May-2022 for review of implementation of CAT plan of Kameng Hydro Power Station (600MW).
iv)	A study on biodiversity and the habitat conservation with reference to the submerged area should be undertaken to obtain information on micro flora and micro fauna. Efforts should be made to identify the migratory routes of the wildlife in the report of flora & fauna which requires updating. The updated reports should be submitted within a year. The completed report should be submitted to the Ministry and the Ministry would stipulate any	The study on biodiversity and the habitat conservation for the submergence area was done through M/s Agriculture Finance Corporation Ltd.	The final survey report has been submitted to the MOEF, New Delhi and was approved vide letter No.-J12011/70/2000-IA.I dated 31.12.2002. Further advice is awaited.

	additional mitigation measures required.		
v)	Proposed biological treatment for 14000 Ha. Degraded catchment area and engineering measures for (a) Gully Control Structures on 2461 Ha. and (b) Contour & Staggered trenches along with development of pasture and fodder grasses on 3157 Ha. should be completed within 7 years as proposed.	Ref. detail in SI No.1 CAT Plan.	As per approved Action Plan for CAT and Environment Management, Vol-2(i) at Section VI, page-77-83, two Apex committees to be constituted by the state Govt for implementation. A committee has been formed by Govt. of AP vide memo no.-FOR-39/Cons/85/Vol-II/1949-54 Dated-Itanagar,25 th May-2022 for review of implementation of CAT plan of Kameng Hydro Power Station (600MW).

Part-B- General Conditions:

i)	Adequate free fuel arrangement should be made to the labour force engaged in the construction works at project site so that indiscriminate felling of trees is prevented. Fuel Depot should be opened at the site to provide the fuel (Kerosene etc.)	Arrangement for free fuel supply to labour force has been incorporated on the Contract agreement.	The project has been commissioned and all the labours are demobilized.
ii)	Medical facilities as well as recreational facilities should also be provided to the labourers. All the labourers to be engaged for the construction works should be thoroughly examined by health personnel and adequately treated before issuing them work permit.	A plan for full fledged hospital with all facilities as well as recreational facilities at project site has been prepared and finalized in KPC. However, in BDC a Medical Unit has been started since 2005.	At present one Doctor, one Sr. Pharmacist along with medical staff are operating from a temporary dispensary. A recreation club has been formed within the project site and different sports as well as cultural activities are being carried out.
iii)	Restoration of construction area including dumping site of excavated materials at Dam site should be ensured by leveling, filling up of burrow pits, landscaping etc. The area should be properly afforested with suitable plantation.	A plan for restoration of construction area and dumping area development has been finalized for a cost of Rs.274.69 Lakhs	The project is completed and presently under Operation & Maintenance. All construction area and dumping site have been properly developed.
iv)	Down stream of the dam, flood zoning approach should be done. No settlement should be allowed within flood zone.	Dam break analysis including Zoning of flood in the down stream has been prepared by engaging consultant M/S AFC Ltd.	Disaster Management Plan is implemented and followed during the O&M period.
v)	Six monthly monitoring reports should be submitted to the Ministry and its Regional Office at Shillong for review.	Six monthly monitoring reports will be submitted to Regional Office, MOEF, Shillong regularly.	Six monthly Report is submitted regularly to the IGF, NTCA & Regional Officer, MOEFCC, Integrated Regional Office, GS Road, Guwahati-781 022

**Stipulations by MOE&F, New Delhi vide letter No.J.12011/17/2000-I A.I
Dtd. 31.12.2002.**

i)	Develop Green Belt Corridor along the submergence area	A plan is being prepared to develop green belt corridor along the entire submergence area. Level marking is under progress.	The plan is implemented by establishing nursery in consultation/assistance by Range Officer, Range & Horticulture Dept. Nafra.
ii)	Choice of the species should be made on the basis of the local adaptability	Study for biodiversity in the reservoir area has been completed by M/s AFC Ltd. and already submitted to MOEF, GOI, where species based on the local adaptability was suggested.	Plantation is undertaken in consultation with Forest/ Horticulture Dept. of Arunachal Pradesh.
iii)	For proper protection of wildlife along the project site, strict vigilance has to be made by the local Forest Dept. and Project Authorities.	A plan is being prepared in consultation with State Forest Deptt as well as Project Security Personnel.	Matter has been taken up and the scheme has already been prepared for an amount of Rs 347.57 Lakhs which has been released. Security personnel have been posted at Project Site.

Annexure-I

**SALIENT FEATURES OF THE PROJECT
KAMENG HYDRO POWER STATION (4x150 MW)**

SALIENT FEATURES

I.	Location	:	Located in the West Kameng District of Arunachal Pradesh.
	Bichom Dam	:	Across river Bichom 3.65 Km downstream of the confluence of Bichom & Digien river.
	Tenga Dam	:	Across river Tenga 10.50 Km upstream of confluence of Bichom and Tenga river.
	Power House	:	On the right bank of Kameng river near Kimi village in the West Kameng District.
II.	Bichom Dam		
	Catchment Area	:	2277 Sq. Km.
	Design Flood Discharge	:	10477cumecs/Earlier 9434cumecs.
	Dam height	:	69 m (above deepest foundation)
	Length	:	264.15 m
	Type	:	Concrete gravity
	Average river Bed Level	:	706 m
	Top of Dam	:	773 m
	Pond Level (FRL)	:	770 m
	Deepest foundation level	:	704 m
	MDDL	:	764.50 m

	Maximum water level	:	771.81 m
	Live Storage	:	5.718 m cum.
	Spillway	:	Ogee shaped concrete spillway having 6 radial gates, of size 9 m x 11.80 m and crest level at an elevation 735.00 m.
III.	Tenga Dam		
	Catchment Area	:	1019 Sq. Km.
	Design Flood Discharge	:	2438 cumecs.
	Dam height	:	24.5 m (above deepest foundation)
	Length	:	103.0 m
	Type	:	Concrete gravity
	Average River Bed Level	:	756.00 m
	Top of Dam	:	773.00 m
	Full Reservoir level (FRL)	:	770.00 m
	MDDL	:	763.00 m
	Deepest foundation level	:	748.50 m (assumed at present)
	Crest level	:	756.00 m
	MWL	:	771.00 m
	Live Storage	:	0.50 m cum.
	Spillway	:	Flat apron concrete spillway having 2 nos. radial gates, of size 14 m x 14 m and crest level at El.756.00 m
IV.	Head Race Tunnel		
	Shape	:	Modified Horse Shoe concrete lined.
	Length & Diameter	:	14.527 km, 6.7 m dia.

	Design discharge	:	140 cumecs
	Velocity	:	4m/sec
	Invert Level at Bichom intake	:	750 m
	Slope of tunnel	:	1 in 1000
A.	Adit-I		
	Shape	:	D-Shape
	Length	:	84.30 m
	Invert at Portal	:	El. 749.00 m a.s.l.
	Outward gradient	:	1 in 216.32
	Invert at Junction	:	El. 749.31 m a.s.l.
	Length of HRT under Adit-I	:	5100.0 m (785.0 m+4315.0 m)
B.	Adit-II		
	Shape	:	D-Shape
	Length	:	384.600 m
	Invert at Portal	:	El. 764.30 m a.s.l.
	Inward gradient	:	1 in 16.67
	Invert at Junction	:	El. 741.00 m a.s.l.
	Length of HRT under Adit-II	:	4266.0 m (4123 m+143.0 m)
C.	Adit-III		
	Shape	:	D-Shape
	Length	:	277.350 m
	Invert at Portal	:	El. 760.00 m a.s.l.
	Inward gradient	:	1 in 14.42
	Invert at Junction	:	El. 740.50 m a.s.l.
	Length of HRT under Adit-III	:	2684.0 m (280.0 m+2404

			m)
D.	Adit-IV		
	Shape	:	D-Shape
	Length	:	348.97 m
	Invert at Portal	:	El. 725.522 m a.s.l.
	Gradient	:	Upward 1 in 129 (100 m) Inward 1 in 27.50 (248.97 m)
	Invert at Junction	:	El. 717.233 m a.s.l.
	Length of HRT under Adit-IV	:	2427.50 m (2295.0 m+132.5 m)
V.	Surge Shaft		
	Type	:	Restricted orifice type surge shaft located at the end of Low-pressure Tunnel.
	Diameter	:	25.00 m. (Expansion Chamber).
	Diameter of orifice	:	3.75 m
	Top Level of surge tank	:	794.00 m.
VI.	HPT		
	Type	:	Combination of underground – over ground. Underground steel lined pressure tunnel.
	Number	:	1 no. of 5.30 m dia of length 601.16 m taking off from surge tank bifurcating into 2 nos. of 3.75 m dia of length 1415.813 m & 1415.497 m respectively and then each bifurcating into 2 nos. 2.65 m dia of length 52.15 m to feed 4 units of 150 MW.
VII.	Power House		
	Type	:	Surface

	Size of Power House	:	120.00 m x 37.3 m (between A & E line)
	Type of Turbine	:	Vertical Francis Turbine.
	No. & capacity of generating unit	:	4 units of 150 MW.
	Unit spacing	:	20 m centre to centre
	High Flood Level	:	256.60 M
	Tail Water (Min.)	:	233.59 M
	Gross Head	:	533.53 m
	Firm Power	:	168.86 MW
	Energy Generation	:	3353 MU

Annexure-II

SALIENT FEATURES OF ENVIRONMENTAL MANAGEMENT PLAN

1. Catchment Area Treatment (CAT) Plan:

An area of 827 sq. Km require treatment through various measures in order to check soil erosion and land degradation, rehabilitation of degraded forest, control of shifting cultivation and to augment the availability of fuel wood, fodder etc. The area to be so treated include forest, abandoned jhum land and scrub land including alpine scrub, in addition to areas under very severe, severe and high categories of soil erosion status. The above-mentioned area also includes the entire area of 277. 50 sq. km under current jhum.

Measures proposed for integrated treatment of the above areas are as follows.

(i) Forestry and Silvi- Pasture	141.9654 sq. km
(ii) Alternative land use model (strip/ allay farming)	368.3000 sq. km
(iii) Engineering measures	56.2746 sq. km
(iv) By vegetative Hedge	<u>246.2600 sq. km</u>
Total:	827.0000 sq.km

Dept. of Env. & Forest, GoAP advised NEEPCO to revise the CAT Plan as per current cost norms and get it approved from MoEF& CC, GOI, New Delhi for further necessary action by Dept. of Env. & Forest, GoAP. Rev. proposal for an amount of Rs.130.27Cr. has been forwarded to CCF(CONS) and Nodal Officer (FCA), Itanagar for acceptance /approved by the Govt. of Arunachal Pradesh vide no NEEPCO/HoP/T-3(B)/2015-16/4305 dtd.23.02.2016. The CCF &Nodal Officer, Govt. of Arunachal Pradesh vide letter no FOR.39/CONS/1985/Vol-II/1428-35 dtd.26.09.16 requested to deposit Rs. 222.51 Cr. against CAT Plan of KaHEP i.e as per earlier concurrence However, the CMD, NEEPCO vide no NEEPCO/CMD/Camp-Itanagar dtd.21.11.16 requested to Chief Secy., Govt. of Arunachal Pradesh to accept Rs.129.30 Cr against CAT plan. In response to the letter finally the PCCF vide letter no FOR39/CONS/Vol-II/7917-27 dtd.21.12.16 intimated to deposit Rs.129.30 Cr. to CAMPA account against CAT PLAN of KaHEP. Accordingly, the amount has been deposited on 09/01/2017.A state level monitoring committee vide Memo No FOR.10-39/CONS/85/Vol-III Itanagar dtd 22/05/2018 has been constituted with PCCF & Principal Secretary(E&F) as chairman of the committee.

2. Environment Management Plan

A. Protection of Biological Environment

i) Protection of flora: There are 24 species of rare, endangered and economically/ medicinally important floras, which will be affected by submergence and construction activities. It is proposed to create a Botanical garden covering an area of 1 sq. km to rehabilitate these species in addition to rare and endangered orchids.

ii) Protection of fauna: No rare endangered species of Fauna will be affected due to submergence or other construction activities.

B. Geo- Environmental Management Plan

As a part of Geo- Environmental Management Plan, monitoring for seismic risk hazard is carried out in the project sites as well as in the reservoir area.

C. Reservoir Fishery Development

It is envisaged to utilize the proposed reservoir for the purpose of propagation and production of fish varieties suitable for the region, thereby making proper utilization of the resource created.

D. Human Environment (Subsidy for Kerosene/LPG/ELECT.)

The project has been commissioned and all the labours are demobilized.

E. Plan for Disaster Management

Dam break analysis for the two proposed dams were carried out and accordingly a disaster management plan is in place with creation of a flood frequency network connecting 20 stations with wireless & telecommunication facilities.

F. Plan for Dumping of Construction Materials

Dumping of excavated rock (both hard & soft) and soil was done by construction of gabion wall and filling the excavated materials and then leveling, filling and landscaping etc. The project has been commissioned and all the construction activities have been completed.

3. Compensatory Afforestation

Compensatory afforestation has been planned in an area of 1,420 ha i.e., twice the area of forest land to be diverted for non-forest purposes, with suitable species. The cost for compensatory afforestation works out of Rs. 988.45 Lakh as per estimate provided by DoEF, Govt. of Arunachal Pradesh and full amount has already been released by NEEPCO to the State Forest Dept. The scheme will be implemented in 4 phases by covering 355 ha per phase. A monitoring Committee shall be established with a nominee of the Central Govt. as per provision of para 3.4(iii) of the Forest (Conservation) Act 1980 Rules & Guidelines to oversee that the stipulations including those pertaining to CA are carried out.

4. Relief & Rehabilitation Plan:

A suitable plan has been drawn for physical & socio- economic rehabilitation of the inhabitants of two villages likely to be submerged/ affected due to construction of the dams. The total amount for implementation of R&R Plan already released is Rs.3839.20 Lakh. A brief note for the R&R Scheme is attached as Annexure-IV.

----- *end of the report*-----