



नॉर्थ ईस्टर्न ईलेक्ट्रिक पावर कॉर्पोरेशन लि.
(भारत सरकार का उपक्रम)

NORTH EASTERN ELECTRIC POWER CORPORATION LIMITED

(A GOVT. OF INDIA ENTERPRISE)

**OFFICE OF THE HEAD OF PROJECT, KPC, KAMENG H.E.PROJECT
KIMI (ARUNACHAL PRADESH)**

ISO: 9001, 14001
OSHAS: 18001

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No. NEEPCO/HoP/KaHEP/T-3 (B)/2019-20/ 1212

Date: 07/11/19

To,

The Regional Chief Conservator of Forest (C),
Ministry of Environment & Forests,
North Eastern Regional Office,
Law-U-Sib, Lumbatngen,
P.O. Madanriting, Shillong-793021

Fax-0364-2536041

Sub: -Submission of Monitoring Report on Implementation of Environmental Safeguards of KaHEP, Arunachal Pradesh.

Ref: - MOEF, GOI, Letter No.: J-12011/17/2000-IA I Dtd. 29.03.2001.

Sir,

In inviting a reference to the above, enclosed please find herewith the Report on implementation of Environmental Safeguards for monitoring of Environmental Compliance up to September 2019 in respect of Kameng H.E. Project for your further needful please.,

Further, the soft copy is also forwarded to the email address moefnermeg@nic.in & moefenv13shil@gmail.com

Enco: - As stated above.

Yours faithfully,

(S.R. Biswas)
Head of Project
KaHEP, NEEPCO Ltd.
Kimi (Arunachal Pradesh)

Memo No. NEEPCO/HoP/KPC/KaHEP/T—3(B)/2019-20/

Dated:

Copy along with enclosure to:-

- The Additional Director, MOEF, Govt of India, Paryavaran Bhawan, CGO Complex, New Delhi, Pin-1100003 for favour of kind information.
- The PCCF, Govt. of Arunachal Pradesh, Itanagar, PCCF Office Complex, P- Sector, Itanagar, Pim-791111 for favour of kind information please.
- The Member Secretary, Arunachal Pradesh State Pollution Control Board, Department of Environment & Forest, PCCF Office Complex, P- Sector, Itanagar, Pin-791111 for favour of kind information please.

Head of Project
KaHEP, NEEPCO Ltd.
Kimi (Arunachal Pradesh)

**REPORT ON MONITORING THE IMPLEMENTATION OF ENVIRONMENTAL
SAFEGUARD OF KAMENG H.E. PROJECT.
PERIOD- 01.04.2019 to 30.09.2019**

**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 H.E. Project**
- 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 90° 37' 39" E &
27° 17' 54" N
- 5. Address for Correspondence**
(a) Address concerned Project : Head of Project
Chief Engineer (with PIN Code &
,KaHEP, ,
Telephone/Telex/Fax No.)
Kimi, West Kameng Dist.,
A.P.
Ph-03787-273504, Fax -03787-
273550
Email – 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.
Ph.-(03782) 207193
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 84 Families
Yayung Village 13 Families
Others 01 Family

Total 98 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 correct. 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)
(iii) Revised cost Rs.6179.96 Cr.at March'15 PL Recommended by CEA.
- (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 Environmental management as Shown in (b) above. : Yes
- (e) Actual expenditure incurred on the project so far : Rs.7553.44 Cr as on 30-09-2019
- (f) Actual expenditure incurred on the Environmental Management Plans so far : Rs. 169.91 Cr up to 30.9.2019 (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 03.08.00
- (b) The status of compensatory Afforestation(C A), 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 Deptt.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 of compensatory afforestation programme in the light of actual field experience so far : Deptt. of Env. & Forest, Govt. of A.P. is entrusted for execution of the scheme. 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 Deptt 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) :
Unit-I December, 2019
Unit-II December, 2019
Unit-III April, 2020
Unit-IV April, 2020

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 : Not yet confirmed.

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

Part – II
KAMENG H.E. PROJECT (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-Or 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 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), Barrack pore. 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. Further correspondences has been made with CIFRI by the ED (D&E) for site selection for the hatchery at Bichom Dam requesting them to visit site on 24.08.17. communication from CIFRI is awaited.

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 Jhum cultivation has to be implemented by the State Govt. 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. The formation of the Committees awaited.
iv)	A study on biodiversity and the habitat conservation with reference to the submerged area should be undertaken to obtain information on my micro flora and micro fauna. Efforts should be made to identify the migratory routes of the wildlife in the report of flora and 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 additional mitigation measures required.	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
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 constituted by the state Govt for implementation. Sri Amit Paul, DGM (C) has been nominated as representative of the Project for the District level monitoring committee and Sri N.S.Baidya, GM (C) has been nominated as representative from project site for the State Level Monitoring Committee vide L No NEEPCO/KaHEP/HoP/T-3(B)/2018-19/2141 dtd 22.02.2019.

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.	It is being implemented through Contractor.
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 staffs is 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 plan is being implemented commensurate with progress of construction work during & after the main construction works.
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 shall be implemented in due course and shall be continued during 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 ED –Projects (Hydro), NEEPCO Ltd. Guwahati, for onward transmission to the RCCF MoEF, NERO Shillong.

Stipulations by MOE&F, New Delhi vide letter No.J.12011/17/2000-IA.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 being implemented by establishing nursery in consultation/assistance by Range Officer, Range & Horticulture Deptt. 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 Deptt. of A.P.
iii)	For proper protection of wildlife along the project site, strict vigilance has to be made by the local Forest Deptt. 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.

SALIENT FEATURES OF THE PROJECT
KAMENG HYDRO ELECTRIC PROJECT (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.
	Tenga Dam	:	Across river Tenga 1.05 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/Earlier9434cumecs.
	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 12.0 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 – overground. 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	:	169 MW
	Energy Generation	:	3353 MU

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.23.2.2016.The CCF&Nodal Officer,Govt of Ar Pradesh vide letter no FOR.39/CONS/1985/Voil-II/1428-35 dtd.26.9.16 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 Ar. 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. Sri Amit Paul,DGM (C)has been nominated as representative of the Project for the District level monitoring committee and Sri N.S.Baidya,GM (C) has been nominated as representative from project site for the State Level Monitoring Committee vide L No NEEPCO/KaHEP/HoP/T-3(B)/2018-19/2141 dtd22.02.2019.

A. Forestry and Silvi-Pasture Management (Biological treatment of degraded catchment area):

Implementation of forestry/ silvi-pasture program is suggested in the following manner

i)	Intensive afforestation/ reforestation	10, 000 ha
ii)	Enrichment planting	2,000 ha
iii)	Fuel wood, fodder and bamboo plantation	1,000 ha
iv)	Social forestry	<u>1,000 ha</u>
	Total:	14,000 ha

Thus a total 14,000 ha would be covered under the scheme for biological treatment of degraded catchment area which involves a total cost of Rs. 2659.87 Lakh to be executed in 7 years. No amount have been spent against this sub head so far.

Year wise break up of physical targets of plantation programme:

SI No	Item of work	1st	2nd	3rd	4th	5th	6th	7th	Total
1.	Intensive afforestation/ reforestation	Adv.	1,000	1,000	2,000	2,000	2,000	2,000	10,000
2.	Enrichment Planting	250	250	300	300	300	300	300	2,000
3.	Fuel & Fodder Plantation	100	100	160	160	160	160	160	1,000
4.	Social Forestry	100	100	160	160	160	160	160	1,000
5.	Total Plantation	450	1,450	1,620	2,620	2,620	2,620	2,620	14,000

B. Alternative Land use programme to control shifting cultivation

A total area of 36830 ha will be managed by integrated strip farming system to protect the land from further degradation, besides introduction of settled cultivation on hill slope areas. The break up of the area is as follows:

i)	Abandoned jhum	7980 ha
ii)	Current jhum	27750 ha
iii)	Scrub land	<u>1100 ha</u>
	Total	36830 ha

The programme is to be achieved in a period 5 years and total cost has been estimated at Rs. 1891.97 Lakh. No amount has been spent against this sub head so far.

C. Soil and Water Conservation by Engineering Measures:

An area of 5,618 ha, which is excessively eroded as well as vulnerable, is suggested for treatment by Engineering/ Mechanical measures. To achieve this, the following methods are recommended:

i)	Gully control structures	2,461 ha
ii)	Contour and staggered trenches with pasture and fodder grasses	<u>3,157 ha</u>
	Total:	5,618 ha

The total work under these measures is proposed to be carried out over a period of 5 years at an estimated cost Rs. 112.51 Lakh. No amount has been spent against this sub head so far.

D. Erosion Control through Vegetative Barrier:

An area of 24,626 ha in isolated patches and prone to heavy soil erosion is proposed to be treated by creating vegetative barriers. This area is to be completed within 5 years with a total cost of Rs. 159.58 Lakh. No amount has been spent against this sub head so far.

E. Pilot Area Treatment:

A pilot area of 282 ha area is to be treated in 9 sector with treatment measures likes intensive afforestation, enrichment planting, bench terracing etc. to be completed in three years with a total financial involvement of Rs. 12.70 Lakh. No amount has been spent against this sub head so far.

F. Training Programme:

A number of training programme have been suggested for the inhabitants of the catchment villages to ensure sufficient implementation of various schemes. It is proposed to cover 2,550 trainees over a period of 3 years, the estimated cost for which is Rs. 9.00 Lakh. No amount has been spent against this sub head so far.

G. Project Implementation & Management:

It is suggested to constitute two bodies, namely (I) Kameng Catchment Area Development Co-ordination Committee and (ii) Project Implementation Authority for effective implementation of various action plans. For the purpose, a provision of Rs. 14.00 Lakh has been made in the estimate. No amount has been spent against this sub head so far.

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 at Botanical garden covering an area of 1 sq. km to rehabilitate these species in addition to rare and endangered orchids. Estimates cost for creating the Botanical garden is Rs. 50.00 Lakh.

ii) Protection of fauna: No rare endangered species of Fauna will be affected due to submergence or other construction activities. However, provision of Fish ladder is suggested to facilitate the movement and to complete the breeding biology of the hill stream fish.

B. Geo- Environmental Management Plan

As a part of Geo- Environmental Management Plan, monitoring for seismic risk hazard has been suggested in the project sites as well as in the reservoir area. A provision of Rs. 25.00 Lakh has been kept for this purpose to be incurred over a period of 3 years.

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. Provision for an amount of Rs. 40.00 Lakh has been kept for the scheme.

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

The labour force will be provided with alternative energy sources, like Kerosene/ LPG/Electric Power at a subsidized rate. The entire subsidy will be carried in the Project Estimate for which a provision of Rs. 35.00 Lakh has been kept for a period of 7 years.

E. Plan for Disaster Management

Dam break analysis for the two proposed dams were carried out and accordingly a disaster management plan has been drawn which proposed creation of a flood frequency network connecting 13 station with wireless & telecommunication facilities. This involves a cost of Rs. 67.70 Lakh.

F. Plan for Dumping of Construction Materials

Suitable plan for dumping of 4.742 Mcum of excavated rock (both hard & soft) and soil is prepared to prevent environmental hazard. This will be done by construction of gabion wall and filling the excavated materials and then leveling, filling and landscaping etc. the total financial involvement in the scheme is Rs. 274.69 Lakh including restoration of construction area. The plan is being implemented commensurate with progress of construction work.

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 Deptt. 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.

ENVIRONMENT AND ECOLOGY UNDER KAMENG HYDRO PROJECT (600 MW)::A.P.

Financial Outlay & Phasing

Sl No	Item	Unit	Qty	Rate in Rs.	Amount (Rs. In Lakh) (as per approved cost estimate as on Mar'04)
					809.92
1	Compensatory Afforestation				809.92
	Sub total of (1)				
2	Catchment Area Treatment Plan				112.51
(a)	Soil and Water Conservation by Engineering Measures				2659.87
(b)	Forestry and Silvy pasture Management (Biological treatment of degraded catchment Area)				620.88
(c)	Jhum control by integrated strip plan				
(d)	Measures for Rehabilitation of shifting cultivators				263.03
(i)	Agricultural crop				1315.10
(ii)	Horticultural Crop				31.68
(iii)	Live stock				3.31
(iv)	Pisciculture				3.54
(e)	Data Collection (Purchase of Scientific Instruments)				9.00
(f)	Training Programme				14.00
(g)	Project Implementation & Planning				10.00
(h)	Publicity & Community Participation				5042.92
	Sub total of (2)				
3	Environment Management Plan				35.00
(a)	Subsidy for Kerosine/LPG				40.00
(b)	Reservoir Fishery development				50.00
(c)	Aesthetic Environment Development (Development of Garden & Recreation facilities like water sports etc				75.00
(d)	Surveys & Studies for Fishery Development & Landscaping				200.00
	Sub total of (3)				
4	Consultancy fees for Environment Studies				5.00
(i)	Dam Break analysis				10.00
(ii)	Remote Sensing Survey				15.00
(iii)	Preparation of Environment impact assessment and Environment Management Plan Report				30.00
	Sub total of (4)				420.65
5	Restoration of Construction area				0.00
6	Development of Dumping Area				25.00
7	Seismological Observation				25.00
8	Fire Wood & Fuel				0.00
9	Preservation of bio-diversity surrounding KaHEP				470.65
	Sub total of item No(5) to item No (9)				6553.49
	Grand total of sub total				

The Salient features of the R&R Plan are as stated as under:

1. Provision of site for house construction
2. Financial Assistance for house construction
3. Provision of land for agriculture and horticultural purpose.
4. Construction of cattle and poultry shed.
5. Provision of transportation/displacement grant.
6. Provision of monthly subsistence allowance.
7. Construction of village infrastructure such as-Road, Power, Water Supply, Sanitation, School, Religious Worship house, Community Hall, Post Office, Panchayat Ghar, Fair Price Shop, Market, Park, Playground, Medical and Veterinary Services.
8. Economic rehabilitation through agriculture, horticulture, dairying, poultry rearing, piggery, goatery and other non farm activities.
9. Training on farmers on agricultural activities.

The status of R& R activity of the KaHEP is stated below:-

- Total amount as per the Revised Estimate submitted by the DHPD : Rs. 3839.219 lakh
- Total amount approved is Rs. 3839.219 lakh which is included in the RCE at March 2015 PL .
- Total amount released by NEEPCO is Rs. 3839.2 lakh.
- The CMD, NEEPCO inaugurated the Bichom Village under R&R Scheme on 01.06.2016.
- Proposal for additional Ten nos. of Type III building at Bichom Dam is under process.

STATEMENT SHOWING THE EXPENDITURE ALREADY DONE AND TO BE DONE AGAINST R&R WORK OF Kamneg HE Project

(Rs. In Lakh)

Sl No	Name of work	Estimated Value/Sanctioned amount	Revised Estimated Value AS SUBMITTED BY Govt of Arunachal (Rs. In Lakh)	Amount finalised based on Revised Estimate and final payment made	Amount already released	Ref no	Amount to be released considering corrected amount	Remarks
1	R&R scheme Site Development of Bichom Village,Phase I	387.04 Lakhs	387.04	387.04	(300.00+87.04) Lakhs	1. KaHEP/HoP/E-32/2011-12/847-53 date 22.09.2011 2.NEEPCP/HoP/KaHEP/T-113/12-13/3141 dtd.30.12.12	NIL	
2	Const. of HT Line,3 phase 5 wire L.T.O.H line i/c 25 KVA,11/0.415 KV sub station at Rehabilitation location at Bichom & Yayung village	110.54 Lakhs	0	110.54	110.54	--	NIL	
3	Water supply for Yayung village	71.309 Lakhs		290.579	290.579	1.NEEPCP/HoP/KaHEP/T-113/14-15/358 dtd.29.05.14	NIL	
4	Water supply for Bichom village	219.27 Lakhs						
5	R&R scheme for Bichom Village ,Phase II	1561.78 Lakhs	2156.89	(2156.89+78.97)	2235.819625	1.NEEPCP/HoP/KaHEP/T-113/12-13/2149 dtd.10.10.13 2. NEEPCO/HoP/T-113/15-16/406 dtd.26.6.15	NIL	
6	R&R scheme for Ste development of Yayung Village ,Phase I	187.64 Lakhs	218.82	218.82	218.82	1.NEEPCP/HoP/KaHEP/T-113/12-13/2061 dtd.3.10.13 2.NEEPCP/HoP/KaHEP/T-113/14-15/1637 dtd.10.01.15	NIL	
7	R&R scheme of Yayung Village ,Phase II	—	596.38	596.38	596.38	1.NEEPCP/HoP/KaHEP/T-113/15-16/406 dtd.26.6.15	NIL	
TOTAL				3839.219	3839.17863		NIL	