

## Agenda No. 9

F. No. 8-102/2013-FC

**Sub: Diversion of 52.8 ha of forest land (Surface forests land = 47.1 ha, Riverbed = 2.3 ha & underground area = 2.8 ha) for construction of Tato-I H.E. Project (186 MW) in West Siang District of Arunachal Pradesh by M/s Siyota Hydro Power Pvt. Ltd. - reg.**

The proposal was last considered by the FAC in its meeting held on **17<sup>th</sup> to 18<sup>th</sup> July, 2014** and after detailed discussion and examination of the proposal vis-a-vis final reports on Cumulative Impact Assessment & Carrying Capacity Study of Siang - the Sub basin including Down Stream Impacts prepared by the Central Water Commission, the Committee recommended that the **final decision on FC for the project will be taken only after the acceptance of the Cumulative Impact Assessment & Carrying Capacity Study by the MoEF &CC**. The proposal will be placed before the FAC as soon as the FRA compliance is submitted by the State Govt. In the meantime the State Govt has been asked to comply with the provisions of FRA. Reply from the State Government is awaited.

Earlier, the proposal was also considered in FAC meeting held on 17<sup>th</sup> to 18<sup>th</sup> July, 2014.

**The detailed recommendation of the FAC meeting held on 17<sup>th</sup> to 18<sup>th</sup> July, 2014 is as follows:-**

1. The Forest Advisory Committee, in its meeting held on 17<sup>th</sup> to 18<sup>th</sup> July, 2014 considered the above mentioned proposal and after detailed discussion and interaction with the user agency, the Committee noted as under:
  - (i) The status of land proposed for diversion is Un- classed State Forest
  - (ii) The proposal was discussed in the meeting of Forest Advisory Committee held on 13<sup>th</sup> - 14<sup>th</sup> February, 2014 and the Committee, after detailed discussion on the proposal, recommended the furnishing of the following information:
    - a) The Committee recommended that the State Government should be advised to re-examine the proposal in the light of the recommendations contained in the Cumulative Impact Assessment /Carrying capacity study for Siang/Siyom basin made by the Central Water Commission and, if required, submit the revised proposal after incorporating the modification suggested by the study, if any.
    - b) DGPS maps of the area proposed for diversion and for CA and the Forest cover map and 10 Km radius map showing the distance from the Protected Areas.
    - c) CAT plan or Environmental Management Plan prepared for obtaining Environment Clearance.
    - d) The compliance of provisions of the Scheduled Tribe and Other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006 as per the Ministry's advisory dated 3.08.2009.

iii. The above recommendation of the FAC were communicated to the State Government vide this Ministry's letter of even number dated 11.03.2014. The State Government vide their letter no. FOR. 322/Cons/2010/890-91 dated 06.06.2014 submitted the information as desired by the FAC. A brief summary of the information submitted by the State Government is given as under:

<b>Para of MoEF's Letter</b>	<b>Additional information /documents/ clarification sought</b>	<b>Reply/Response</b>
Para- (i)	After detailed deliberations, the Committee recommended the State Government should be advised to re-examine the proposal in the light of the recommendation contained in the Cumulative Impact Assessment/Carrying capacity study for Siang/Siyom basin made by Central Water Commission and if required submit the revise proposal after incorporation the modification suggested by the study, if any.	As regards, Cumulative Impact assessment/Carrying Capacity Study, this is to be informed that a meeting was held recently at Itanagar between the Sub-group of EAC, the state Govt. as well as Project Developers. The State Govt and Project Developers perspective on the draft report of the CIA Study was placed before the Sub-group of EAC. However, there have been issues with regard to free flowing river stretches between the FRL of the downstream and TWL of the HEPs and the Environmental Flow immediately downstream of the diversion structures to sustain the aquatic ecology and environment. In para-11.3.3 (iii) of Chapter-11 of the Cumulative Impact assessment report, free flowing river stretch has not been prescribed for Heo HEP. However, it is mentioned that adequate Environmental Flow release as worked out for the project in Chapter -9 would help in mitigating the impacts. In the Table 12.2, the Environmental Flow of 20% 15% & 15% has been recommended for Tato-I HEP in Lean season, pre & Post monsoon season and monsoon season respectively. The User Agency has informed that they have taken note of the report but the project components and the land requirement for

		the project will not change and will remain 55.70 ha only.
Para: (ii)	The state government should also submit following information along with proposal:	
(a)	DGPS maps of the area proposed for diversion and for CA and the cover map and 10 Km radius map showing the distance from protected area.	The, DGPS map of the area proposed for diversion and the proposed CA area and the Forest Cover Map of the Along Forest Division and the 10Km radius map showing the distance from protected area duly authenticated by the DFO, Along FD are enclosed as Annexure-I, II, III & IV
(b)	CAT plan of Environmental Management plan prepared for obtaining Environmental clearance.	The copy of CAT plan submitted to the MoEF for approval as part of the Environmental Clearance process is enclosed as Annexure-V
(c)	The compliance of Provision of Scheduled Tribe and Other Traditional Forest Dwellers (Recognition of Forest Right) Act, 2006 as per the Ministry's advisory dated 03.08.2009.	The User Agency has informed that an application has been submitted to the Deputy Commissioner, West Siang District, Aalo requesting for recognition & settlement of right over the forest land measuring 55.70 ha required for the project under the provisions of the Scheduled Tribe and Other Dwellers (Recognition of Forest Right) Act, 2006. The process has been initiated by the Deputy Commissioner and "District Level Committee and Sub-Division Level Committee" has been constituted. The Deputy Commissioner has forwarded the case to the Additional Deputy Commissioner, Mechuka for further necessary action in accordance with the provisions of FRA. Further, the User Agency has requested that their case may be processed for according in-principal (Stage-I) approval for diversion of forest

		<p>land and compliance report about recognition of rights under FRA will be submitted by them before seeking Stage-II approval as was the practice followed in all other forest clearance cases in the past. Therefore the request of UA may be considered. Copy of the application of the UA addressed to DC, Also, notification issued by the DC constituted committee and the letter of the DC addressed to the Addl. DC Mechuka to take action for recognition of rights under FRA is enclosed as Annexure- VI, VII &amp; VIII.</p>
--	--	---

iv. The proposal has been recommended by State Government for Stage-I approval for diversion of forest land.

i. It was also brought to the notice of the committee by the project proponent that the Expert Appraisal Committee during its 75<sup>th</sup> meeting held on 3<sup>rd</sup> & 4<sup>th</sup> July 2014, has recommended the (240 MW) Tato-I HEP for Environment Clearance, with the minimum E-Flow as recommended by the Siang Basin Study and other observations & conditions as provided in the minutes of the above said meeting.. The EAC has recommended for approval of the Cumulative Impact assessment/Carrying Capacity Study of the Siang basin, but the final approval from the competent authority is still awaited.

ii. After detailed discussion on the proposal the FAC recommended the following.

- a) The Impact Assessment Division in the Ministry be requested to communicate the approval of the competent authority for Cumulative Impact assessment/Carrying Capacity Study of the Siang basin.
- b) State Government may submit complete Compliance of Scheduled Tribe and Other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006 in accordance with the MoEF's advisory dated 5.02.2013 read with Guidelines dated 5.07.2013.

**2. In the meantime, The CIAS has been completed and the Ministry has accepted the study. The main features are as follows:-**

- (i) The recommendations of the above study report have been approved by MoEF&CC. The recommendations as accepted are required to be considered as roadmap for development of hydropower projects in Siang river basin. The report outlines capacity, size, location of HEPs commensurate with the basins environmental carrying capacity conforming to the accepted cumulative impacts. However, EIA/EMP shall have to be carried out for individual projects as per provision of EIA-Notification 2006 and its subsequent amendments. Modification in designs such as lowering of FRL wherever recommended need to be incorporated.
- (ii) For the remaining 29 projects, environmental flow release has been recommended are annexed as **Annexure-II**. These must be conditioned in the final approval of the projects.
- (iii) On main Siyom River, four projects in cascade taking about 55 km of the river stretch is impacting the river ecosystem. Therefore, there should be at least 1 km of free flowing river stretch between adjacent projects wherein river can flow in natural conditions in all the seasons to ensure habitat connectivity, rejuvenation and preventing landscape fragmentation. Accordingly, FRL of three projects viz. Tato II, Naying and Siyom Middle should be lowered so that free flowing river stretches of 1 km can be maintained between FRL and TWL of these four projects in cascade.
- (iv) Three large projects have been proposed on main Siang river viz. Siang Upper Stage-I (6000 MW), Siang Upper Stage-II (3750 MW) and Siang Lower (2700 MW). So far only Siang Upper Stage-II (3750 MW) has valid scoping clearance from MoEF&CC. (Study Report has discussed in detail cumulative impacts of these three large storage projects on Siang river covering biodiversity aspects, impacts on river ecology especially movement of Mahseer, downstream impacts of diurnal flooding at D'Ering Memorial WLS in lean season, converting over 70% of Siang river reach in India to reservoir with no free flowing stretch, etc. MoEF&CC has accepted the recommendations for freezing the total capacity in Upper Siang project at 9750 MW. The configurations of the projects within the approved capacity are to be decided by State Government/MoP. However, there would be a mandatory requirement of cumulative impact analysis of the projects in main Siang River to be carried out before environment clearance is accorded. There is also a need for an additional study to assess the impacts of various configuration of these projects on the main Siang River.
- (v) Among four planned HEPS on Siyom river Naying and Hirong are yet to get the EC from MoEF&CC. However, the HEPs should be asked to implement recommendation of design modification by lowering FRL.
- (vi) Projects to be appraised henceforth shall explore the provision of longitudinal connectivity for smooth biota movement and silt transportation.

In view of above, the Tato-I Hydro Electric Project has been allowed. However, environmental flow release has been recommended as follows:-

Sl. No.	Name of Project	Capacity (MW)	Lean Season	Pre and Post Monsoon	Monsoon

1.	Tato-I	186	20%	15%	15%
----	--------	-----	-----	-----	-----

In the meantime the State Government has been asked to comply with the provisions of FRA. Reply from the State Government is awaited.

**A background note on the proposal along with the fact sheet is as under:-**

1. The State Government of Arunachal Pradesh vide their letter No. FOR. 313/CONS/2010/94 dated 20.01.2014 submitted the above mentioned proposal seeking prior approval of the Central Government under Section-2 of the Forest (Conservation) Act, 1980.
2. The project envisages utilization of water of Yarjep River, a major tributary of Siyom River. The project is a run-of-river Scheme with a surface power house. The dam site is proposed near Gapo and Meing villages and power house near Heyo village.
3. Details of the requirement of the forest area for the project is give as under:
  - i. Surface forest land - 47.7 ha
  - ii. Riverbed - 2.3 ha
  - iii. Underground land - 2.8 ha

**Total 52.8 ha**

**4. Justification for locating the project in the forest area**

- (i) *Being a run-of-the-river hydroelectric project, TATO-I HE project has minimal impact on the environment, notably because there is no reservoir, so that the submergence area would be only around 3 Ha (out of which around 1.8 Ha of river bed). The entire oreject has been planned to be as eco-friendly as possible, through the lowest possible impact on the environment.*
- (ii) *However, as most of the Hydroelectric Projects located in Arunachal Pradesh, TA TO-I HE Project is planned on hilly and relatively remote area covered with forest or degraded forest. Therefore the project requires unavoidable minimum Forestland, mainly for the construction of the Intake structure, the open air channel, the power house and the roads. Each of the project components have been designed in order to 'vault in the minimum possible land requirement. The detail requirement is shown under para. ns2.*
- (iii) *In addition, since river bed is under falls under forest land, it is not possible to envisage a run of the river HE Project without impacting forest land*
- (iv) *The size and the locations of all the components have been fixed after proper survey and investigations and after proper examination of available alternatives.*

**Alternatives considered**

- i. Various locations for intake site have been worked out in the preliminary stages.
- ii. *Regarding the water intake site, the option without dam has been kept for technical-economical and environmental reasons. It has been envisaged to build a dam downstream Heo Pro, the cost-benefit analysis showed that it was not optimal.*
- iii. *On the other hand, the option submitted without dam presents no submergence and no*

impact on local activities, and minor impacts on environment.

iv. Regarding the power house, there was only one option for location of a surface power house due to topographical reason. The power house is located near Heyo village area with no impact on houses and habitation.

5. Fact related to the proposal as contained in the State Government letter dated 20.01.2014 are given below in the form of fact sheet:

**FACT SHEET**

1.	Name of the Proposal	Diversion of 52.8 ha of forest land (Surface forests land = 47.1 ha, Riverbed = 2.3 ha & underground area = 2.8 ha) in favor of M/s Siyota Hydro Power Pct. Ltd., for construction of Tato-I H.E. Project (186 MW) in West Siang District of Arunachal Pradesh.
2.	Location i. State ii. District	Arunachal Pradesh West Siang
3.	Particulars of Forests: i. Name of Forest Division and Forest area involved. ii. Legal status/Sy.No. iii. Map	Along Forest Division, Aalo 52.8 ha  Unclassified State Forest (USF)  SOI toposheet - Pg-15-17/c DGPS Map – Not enclosed. Forest Cover Map – Not enclosed. 10 Km radius map showing PAs – Not enclosed.
4.	Topography of the area	-
5.	(i) Geology (ii) Vulnerability to erosion	-  The proposed area for diversion is mostly rocky, has vegetation cover & is not prone to erosion. The topography seems to be fairly stable. Some areas may become vulnerable to erosion if devoid of vegetation.
6.	(i) Vegetation  (ii) Density	Walnut, Poma, Siris, Hingori, Jutuli, Mekahi, Moj, Mossing etc.  Dense Forest (Density 0.4 to 0.5)

	(iii) No. of trees to be felled	Eco Class-1 Tropical semi evergreen. Number of trees (i) At FRL - 186 trees (ii) At FRL 2m - 82 trees (iii)At FRL 4m - 55 trees (iv)Area other than submergence – 7152 trees <b>Total – 7448 trees including all girth classes</b>
7.	Whether area is significant from wildlife point of view	No
8.	Whether forms part of National park, Wildlife Sanctuary, Biosphere Reserve, Tiger Reserve, Elephant Corridor, etc. (if so, details of the area and comments of the Chief Wildlife Warden	The proposed area does not form part of National Park, Wildlife Sanctuary, Biosphere Reserve, Tiger Reserve, etc. <b>Flora</b> <i>Cedrella toona, Castonopsis, PHoeba cooperiana, Altingia excels, Juglans regia, Albizzia lebbek, Kydia calcycinia, Albizia lucida</i> <b>Fauna</b> <i>Capricors sumartruensis, Muscicapidge, Nectarinidae, Picidae, Strigidae, Cuculidae, Ratufa macrouru, Prosbytis phayrie, Varanus flavescenes, Felies virersina, etc.</i>
9.	Whether any RET species of flora and fauna are found in the area. If so details thereof	No rare/endangered/unique species of flora and fauna have been found/recorded in the area.
10.	Approximate distance of the proposed site for diversion from boundary of forest.	The proposed project site is approx. 41 km away from Mechuka St. R.F.; approx. 32 km away from Dibang Dihang Biosphere Reserve; approx.79 km from Yordi Rabe Supse Wildlife Sanctuary and approx. 12 km from Mouling National Park.
11.	Whether any protected archaeological/ heritage site/defence establishment or	There is no protected archaeological/heritage site/defense establishment in the proposed area.



	any other important monuments is located in the area.	
12.	Whether any work in violation of the Forest (Conservation) Act, 1980 has been carried out (Yes/No). If yes details of the same including period of work done, action taken on erring officials. Whether work in violation is still in progress.	No
13.	Whether the requirement of forest land as proposed by the user agency in col. 2 of Part-I is unavoidable and barest minimum for the project, if no recommended area item-wise with details of alternatives examined.	Yes, the requirement of land is unavoidable and barest minimum.
14.	Whether clearance under the Environment (protection) Act, 1986 is required?	Yes,
15.	Employment Opportunities	Highly skilled - 30 Skilled - 100 Semi-Skilled- 150 Unskilled - 120 Nos
16.	Compensatory Afforestation	Compensatory Afforestation (CA) has been proposed over double degraded forest land. It is reported by the State Government that CA will be carried in Along Forest Division of West Siang District in USF area. The land earmarked for CA is part of 217 ha of degraded USF identified as land bank for CA. The State Government has also submitted a copy of mutation certificate dated 29.07.2014 regarding mutation of 217 ha of degraded USF as Village Reserve Forest in favor of State Forest Department.
	(i) Details of non-forest	1. USF area of 52.8 ha x 2=105.60 ha under

	area/degraded forest area identified for CA, its distance from adjoining forest, number of patches, size of each patches.	Basar Forest Range near Chisi village is proposed for raising of CA 2. Distance from adjoining forest: 12 km appx. 3. Number of patch: 1 4. Size of patch: 105.60 ha
	(ii) Map showing non-forest/degraded forest area identified for CA and adjoining forest boundaries.	Enclosed at Pg-47/c
	(iii) Detailed CA scheme including species to be planted, implementing agency, time schedule, cost structure, etc.	CA scheme of 10 years with financial out lay of Rs. 1,83,22,000/- has been submitted Pg-55-57/c
	(iv) Total financial outlay for CA	Rs. 1,99,84,444/-
	(v) Certificate from the competent authority regarding suitability of the area identified for CA and from management point of view.	Pg-58/c
17.	Catchment Area Treatment	Not enclosed.
18.	Rehabilitation of Oustees a) No of families involved b) Category of families c) Details of rehabilitation plan	NA NA NA
19.	Cost Benefit Ratio	Enclosed Pg-18-20/c
20.	Total Cost of the Project	Rs. 1161 Crores (At completion cost)
21.	Recommendation i. DFO ii. CCF iii. Nodal Officer iv. SG	Yes (pg-21) Yes (pg-63) Yes (pg-65) Yes (pg-66)

22.	District Profile	
	(i) Total Geographical area of the district	5049 Sq. Km.
	(ii) Total Forest area/Divisional Forest area	6719 Sq. Km (As per state of Forest report FSI, 2009). West siang District includes Along & Likabali Forest Division.
	(iii) Total area diverted since 1980	431.54 ha (14 cases)
	(iv) Total CA stipulated since 1980 (Forest land)	
	a) Forest land including penal CA	1137.88 ha
	b) Non Forest Land	
	(v) Progress of Compensatory Afforestation	
	a) Forest land	657.28
	b) Non Forest land	

6. The State Government has recommended the project without any specific conditions. The Chief Conservator of Forest has recommended the proposal with the following observation and conditions:

- a) The project will be carried out in high altitude cold areas where there is great to forest due to collection due to firewood for heating purpose , also for construction of houses as most of the houses in high altitude area use substantial volume of timber in construction. With improvement in the standard of living and with influx of more people into the area, there will be much more stress o forest around for firewood for heating purpose and also for timber , resulting in more degradation of forest areas around, leading to higher soil erosion in this kind of high, rainfall areas. So, there should be more stress on preservation and improvement of forest for the long sustenance of the project. There might not be sufficient fund in future, tor a long term, to ensure proper protection and improvement of forests a, forestry sector projects are carried for a particular period; and after the completion of the forestry projects there is hardly any money left to account for the future degradation or to take up unforeseen improvement works. To ensure regular fund flow, for protection and improvement of forest and environment, it should be ensured that, a particular portion of income generating out of the project is ploughed back to the forest sector ; may be around 10% of royalty that is coming to the state from the sale of power be invested back into the forestry sector for maintenance, improvement and protection of forests , wildlife and environment. Out of the royalty that will flow back to

the forestry sector, at least 10% of that amount should be invested in the areas just around the project.

- b) The power developer should provide all assistance to the forest department in protection in improvement of forest.
  - c) The power developer should green all the available areas in the project area, as per the guidance of the forest department, after commissioning of the project.
7. The project proponent has submitted undertaking to bear the cost of CA and NPV.
  8. The Government of Arunachal Pradesh has allotted the TATO-I HE Project to VELCAN Energy Holdings (Dubai) Ltd for the development of project on BOOT basis VPLCAN Energy Holdings (Dubai) has incorporated a dedicated Special Purpose Vehicle, namely Siyota Hydro Power Pvt. Ltd. (SHPPL) for the development of the Project within the allotted reach.
  9. SHPPL obtained the TOR approval from MOEF and the clearance for pre construction activities and Survey 8, Investigations first in September 2008. A second approval has been obtained on 22<sup>nd</sup> of March 2010 in order to record the revision of the capacity of the project (from 80 to 170 MIM, Then a second revision of the TORs has been granted on 20th October 2011, following the increase of capacity directed by the Central Electricity Authority on 27th April 2011. As per such directions, the Installed Capacity has been approved for 186 MW. Such increase has been arrived at based on the hydrology approved by CWC in July 2010, without any change in project layout.
  10. *The Intake of TATO-I H. P. Project is located in the West Siang District of Arunachal Pradesh at latitude 28°32'32 N and longitude 94°1843"E on Yarjep River. The entire project components are located in West Siang District, Mechuka Sub-division. The Project site is located 144 Km from Along, and 344 Km from Dibrugarh, which is nearest airport*
  11. *The project envisages utilization of water of Yarjep River, a major tributary of Siyom River. The project is a Run-of-River scheme with a surface powerhouse. The water intake is proposed near Gapo and Meing villages and power house near Heyo village.*
  12. *The Project will utilize a net design head of 153.4 m and design discharge of 133 cumec for generation of 186 MW (3 x 62 MW). The flow is diverted partly from the river toward a transverse water intake and partly from the flow outlet out of the Heo power house, the middle project of the three projects of Velcan Energy Group.*
  13. *After a 1100m race through an open air channel and 3912 m through a 6.4 m diameter tunnel, the flow a driven to the power house located on a platform on the left bank of the river near Heyo village. There will be no reservoir. A scour sluice is proposed on the left side of the transverse intake in order to clean the entrance of the water intake during operation.*
  14. *The energy generation shaft be about 838 million units (MU) in a 90% dependable year at 95% machine availability. The generated energy would be pooled to Siang PP-2 pooling point through proposed 220 kV transmission line. The power from Siang PP-2 pooling point would be ultimately pooled directly through HVDC Link to the National Grid However transmission plans and construction schedule are still tentative as of the date of this*

*application.*

Hence, proposal may be submitted for the consideration of the FAC, if agreed to.

(B.K. Singh)  
Director (FC)

**IGF(FC)**