

**WHY SUBANSIRI DAM CANNOT BE BUILT IN PRESENT FORMAT :  
WAY FORWARD, SUSTAINABLE DAMS FOR ARUNACHAL**

I. The Subansiri Hydro Electric Project (SLHEP) dam **in the present format of a 4 Hour Generation Dam with a high dam of 116m and a huge reservoir of 1365m cum** for a RoR scheme to generate an **arbitrarily fixed generation capacity of 2000mw** cannot be allowed to be built at **ANY COST** for the following reasons :

(a) The Environmental Clearance of the project stipulates to release only 6 cumec of water i.e. no water **from the dam for 20 hours** when the project will be off grid. This shows the **mindset** of the project towards ecology and riparian people.

Now after 8 years, due to public protest and under duress, NHPC Ltd. has announced that they will release 225–250 cumec of water by running one turbine continuously. What is not said is that the water will be released ½ km downstream from the dam from the Power House, which will kill the river for this ½ km in the lean period.

(b) **The Gangetic Dolphins, India's National Aquatic Animal** in the 1st schedule of the Wildlife (Protection) Act 1972, which is sighted from 20 km downstream of the dam upto the confluence of Brahmaputra will face an uncertain future because of the arbitrary level of release of water without any study. Also, it will face a flood-like situation every evening / night when 8 turbines will operate for 4 hours! This huge fluctuation of flow in 24 hours, will completely jeopardize the survival of the dolphins. Also, who can guarantee a turbine running continuously for, say 100 years? This plan to release of some water through a turbine which will kill the river of its longitudinal connectivity for ½ km, is also a sure prescription for annihilation of the dolphins of Subansiri.

(c) **Grave risks to the riparians**

The Technical Expert Committee (TEC) of Thatte and Reddy constituted by the Planning Commission to study various aspects of the SLHEP, submitted its report in July'12 to GoI and the report reveal the following **seeds of major catastrophies** from the SLHEP:

(i) In Para 135 it states

“An **operator** with dam safety first concern **can open all gates in panic** when the reservoir is at FRL (Full Reservoir Level) during monsoon season, apprehending a PMF (Probable Maximum Flood). May be a very remote probability but a possibility. **“Risk exists”**.”

**No Expert can give any expert advice on this.**

(ii) In chapter under ‘Conclusion Para 168, it states

“The sandstone, which really looks and behaves like a ‘sand rock’ on which the dam is founded, has all through SLP planning been considered **very weak**. Its **adequacy and competence** to support the concrete gravity dam is not established satisfactorily.”

(iii) In Para 35 TEC states

“TEC is aware that there is no denying that **seismology is not an exact science**. Most of the documentation is from academic investigations indicating, an “evolving” process. **There is, therefore, an element of subjectivity, value judgement and personal perception based on researcher’s own knowledge and experience**. Conclusions from these studies can only be relative and subjective and are more often extended arguments as demonstrated by responses from some experts, whose summary is presented below.”

When the 1365 Mcum reservoir is full, and if an earthquake of 8 or more in the Richter Scale strikes, no expert can possibly **vouch** what will happen to the soft '**sand-rock**' **foundation of the dam**.

For the above **seeds of possible catastrophies only** as pointed out by the TEC itself, which will affect the lives of thousands of villagers downstream, the **SLHEP cannot be allowed to be built as per the present 4 Hr. Generation Dam Format**.

**The 4 Hr Generation dams will destroy Arunachal and the region :**

Most importantly SLHEP is just one of the 150+ dams planned in Lohit, Dibang, Siang, and Subansiri which are all 4 Hr Generation Pattern Dams. If all these dams are built as planned as per the 4 Hr format, **one will be able to walk across Lohit, Dibang, Siang and even Brahmaputra near Dibru Saikhowa National Park in the daytime but a frightening transformation will occur in the evening / night when thousand turbines will start and release a tidal wave that will sweep away anything in its path – animal and humans alike. Arunachal, one of God's own country, will be devastated environmentally as ecology of the rivers will be totally destroyed. Dibru Saikhowa National Park, a Biosphere Reserve will be annihilated as ecology of Brahmaputra will be destroyed. Consequence on Majuli and Kaziranga are not comprehensible. THIS IS NOT A HORROR STORY. This is the reality, may be after 20 years, if these dams are allowed to be built as per the present 4 Hour generation format. By stopping SLHEP we may be able to stop all the other 4 Hr Generation dams. Subansiri is the key.**

## **II. Ministry of Environment does a volte face about Uttarakhand HEPs.**

The NDA Govt plans to link hydro-electro projects (HER) with its ambitious Ganga rejuvenations plan, for which MoEF has proposed **a new set of norms** that all projects proponents will have to comply with, before procuring environmental clearances.

In its affidavit to the Supreme Court on 8/10/14, the MoEF stated that it wanted to make sure the clearances to HEPs donot obstruct or hamper the Ganga clean up in any manner since **“they (new set of norms) hold the key to the successful rejuvenation and restoration of the wholesomeness of the river”**

The Govt. proposed a new set of 3 imperatives conditions :

- **Maintenance of a minimum quantity of environmental flow**
- **Longitudinal river connectivity**
- **Aviral dhara ( continuous flow)**

The 3 conditions are required, **to maintain ecological integrity and biodiversity of the river and for non disruptive biota movement and sediment transportation.** 24 of the 39 projects of the state are now stalled. Supreme Court held they were significantly impacting biodiversity in two sub basin of Alakananda and Bhagirathi rivers. **These aspects of environmental flow was not adequately addressed.**

The MoEF said it proposed to conduct a full fledged carrying capacity and **cumulative impact assessment study of all sub basin of Ganga in Uttarakhand to get a holistic and integrated view on impact of the project.**

Admitting that the aspect of environmental flow was **“unfortunately not adequately addressed” while granting environmental clearances for the HEPs** in Uttarakhand the MoEF said it would make such clearances mandatory for the projects below 25mw capacity also.

MoEF said, the issue of ‘aviral dhara’ and longitudinal connectivity shall also apply **for all HEPs, regardless of the capacity and size, since they are essential for rejuvenation of Ganga.”** (*Compiled from Indian Express 9 Oct’14*)

### **Arunchal Dams in context of MoEF Volte face in Uttarakhand 4 Hr HEP**

One should feel happy at what's happening in Uttarakhand, but, MoEF cannot **have one set of guidelines for Uttarakhand** because it is linked now to Ganga rejuvenation plan and **another for Arunachal and other regions**. Maintenance of **Environmental flow, Longitudinal connectivity and Aviral dhara** (continuous flow), – these 3 are **birthrights** of the riparian people and all the people of regions affected by these 4 Hr Generation Dams.

Unless the people's movement can force the changes from 4 Hr. Model dams to sustainable projects, the ground reality of the Arunachal dams including SLHEP is fraught with immense dangers and environmental catastrophies in the making.

- III. **We need sustainable development. India needs power 24x7 and not just for 4 hours. We must convert all these dams to true Run of the River (RoR) projects where water flows over the dam/turbines naturally and generates sustainable power.**

#### **Convert 4 Hour Generation Dams to 24x7 Dam-cum-Weirs**

By converting the “4 HOUR PSEUDO RoR GENERATION DAM of SLHEP” to a true Run of the River **Dam-cum-weir**,- generating sustainable power continuously, **the ecology of the rivers and the livelihood of the riparian people will be saved. The height of the dam-cum-weir will reduce greatly. The reservoirs will be smaller. Cost of the projects will also come down.**

By converting the SLHEP from a 4 Hour Generation Model to a true RUN OF THE RIVER Dam-cum-Weir, generating power continuously will address all the issues of destruction of ecology, livelihood of the riparian people and safety aspects of the present format of the dam most satisfactorily. The changeover will ensure

- (a) reduction of the height of the dam by 40m or so in the spillway portion of the Dam-cum-weir where water will flow over the dam.
- (b) reduction in height will reduce the pressure on the dam foundation which was commented as 'susceptible' by the TEC of Thatte & Reddy.
- (c) reduction of the size of the reservoir of 1365 million cubic meter to a 'pondage'.

Also, it will ensure :

- (i) As there will be no sluice gates, and water will flow over the dam naturally, there will be no question of any risk of 'panic release' as apprehended by the TEC.
- (ii) The natural flow of the river will be maintained all through and the ecology of the downstream river will be totally maintained. There will be no diurnal fluctuation of a flood like situation every evening.
- (iii) Ecological integrity of the basin will be maintained and livelihood the riparian people will not be affected in any way.

**Most importantly the powerhouse will generate sustainable power from the river** (as against arbitrarily fixed level of power generation destroying the ecology and creating grave safety risks).

**Changeover is easily feasible.**

The present level of construction of SLHEP is at EL 138M. The intake elevation to the power house is at EL 160M and dam height is EL 210M. As such the conversion of SLHEP to a dam-cum-weir can be easily achieved **by using the present intake and Power House as constructed** and creating a pondage accordingly, – nothing is required except a change in mind set! **Also, the tariff structure of Hydro Power is yet on fixed basis of cost +% of profit, and as such the changeover to 24x7 continuous generation dam will not, in anyway, affect the Developer's profit.**

### **A sustainable 24x7 RoR model will break the present stalemate**

Change over from the present 4 Hr. dam model to true 24x7 Run of the River Model of SLHEP **will remove the present stalemate of construction of SLHEP since Dec, 2011.** Balance work can be completed quickly as height of the dam will be reduced greatly. **People shall accept sustainable development and are agitating only against the 4 Hr. format of dam** like Ranganadi that destroys ecology, livelihood of the riparian people, and creates grave safety risks to thousands of riparian people.

### **The Chinese Dams**

The Chinese are completing the 510 MW Zangmu Dam over Brahmaputra 9 km northwest of Gyaca in Tibet. 2 more dams up stream of Zangmu Dam – 640 MW Dagu and 560 MW Jiexu are planned to be constructed within 18km of Zangmu. Another dam is planned downstream of Zangmu, - 320 MW Jiacha Dam. **These 4 dams together will generate 2030 MW of electricity.** These are true Run of the River dams with water flowing naturally over the dams generating **sustainable power, unlike the 4 Hr Subansiri Lower Hydro Electric Project which will generate an arbitrary level of 2000MW at total destruction of the ecology and the livelihood of the riparian people.** The same is the story of Siang, Dibang and Lohit Dams.



*510 MW Zangmu Dam (Wikipedia)*

***By Pradip Kumar Bhuyan***

*Published in The Sentinel 10th november 2014*