

HOPE FOR SUBANSIRI & ARUNACHAL DAMS : A SUSTAINABLE MODEL

Volte Face by MoEF in Uttarakhand

It is now clear that the policy of Hydro Electric Projects by GOI through the MoEF was one of 'exploitation' of the resources of sub Himalayan region of the country inhabited mostly by our rural and simple tribals – through its 4 Hr Generation Dams of arbitrary levels of power generations for maximization of profit for the Developer at the total destruction of ecology, safety and livelihood of the riparian people – be it in Himachal, Uttarakhand, Sikkim and Arunachal.

In this model, an arbitrary level of high and ecologically unsustainable power generation is fixed for maximization of profit specially in the lean months. The height of the dam and the reservoir capacity is fixed accordingly. The flow of the river is held up for 20 hours or so and maximum electricity is generated in 4 hours period or so in the evening / night by running all the turbines **to maximize 'operational profit'**. In case of SLHEP, 8 turbines are envisaged to run for 4 hours to **generate 2000mw of power.**

In this model, there is no consideration for downstream ecology of the river or the livelihood of the riparian people, as practically no water will be released for 20 hours when the project is 'off grid' for 20 hours: This model completely flouts the National Water Policy 2005 and the Brahmaputra Board Act where some benefits like irrigation, navigation, ecology, hydropower etc. and flood control is envisaged to accrue from any hydel project. It does **not give** any benefits to the riparian people **but it plans to snatch away what they have, a flowing river, in the winter that gives them sustenance and a life style.**

Subansiri Hydro Electric Project (SLHEP) is a **such 4 Hour Generation Hydro Electric Project** – it is not a Run of the River (RoR) project as claimed by NHPC / MoEF. We may term it as a Maximum Benefit for the Developer Project through an arbitrary level of generation of 2000 MW.

4 Hour Generation Dams :

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 Bhagitelhi 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.

Grave safety concerns of the 4 hr SLHEP

In this SLHEP dam, there is serious safety concerns because of a huge reservoir and a 116m high dam created by the Developer in **order to maximize power generation.**

Regarding safety aspects of the dam, NHPC Ltd. has harped only on ‘clearances’ by **many many committees**. It is well known fact that govt. runs on ‘committees’. All the hydro electric projects of Uttarakhand were cleared nicely by many committees – but the result of the 2013 June catastrophies is for all to see.

- (a) The Technical Expert Committee(TEC) of Thatte & Reddy, **the Apex Technical Committee as appointed by the Planning Commission** for study of the Subansiri Lower Hydro Electro Project(SLHEP) has commented in Para 135 that

An **“operator”** with dam safely 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 of a very remote probability but a possibility Risk exists**".

No 'EXPERT' can give any expert advice on this.

We are aware that NHPC Ltd. opened the sluices of the 280 mw. Dhauliganga Hydro Electric Project on the night of 16th June 2013 creating great devastation on the Mahakali basin of Uttarakhand.

The death of 24 students in excursion due to sudden release of water from the 128mw Largi Hydro Electric Project in Beas is very fresh in everyone's memory. It may not have been a panic release, but wherever water is released through sluices it has an element of risk always. These tragedies will keep on occurring because the large reservoir of the so-called Run of the River (RoR) dams get released often due to panic "dam safety first mode" or due to gross negligence, or incompetence.

For this reason alone i.e. comment by Technical Expert Committee (TEC) that "risk exists" of panic opening of the sluice gates, and examples that galore, one cannot allow the SLHEP to be constructed in its present format of 116m high dam with its huge reservoir of 1365 M cubic meters for downstream safety of thousands of riparian villagers. Even if the management of the reservoir is entrusted to any Authority, the problem of 'operator' opening the sluices in panic cannot be wished away.

- (b) In the TEC report in the Chapter under 'Conclusion' Para 168, 'x', states, "The sandstone, which really looks and behaves like a "sand rock" on which the dam is founded, has all through the SLP planning been considered very weak. Its adequacy and competence to support the concrete gravity dam is not established".

When the 1365 million Cubic Meter reservoir is full in monsoon, and an earthquake of 8 or more in the Richter Scale occurs in this highly seismic zone (zone V), which has already suffered an earthquake of 8.5 in the Richter Scale in 1950, what will happen to the “weak foundation”, **no ‘expert’ can possibly comment with any certainty.**

Nature is not predictable, we have seen fury of nature in June 2013 in Uttarakhand and now in Kashmir. Global Warming process will increase rainfall and increasingly unpredictable weather behaviour will occur creating disaster scenarios.

“Dam failure is not a very rare phenomenon, either in India or anywhere else in the world. As recently as **1975**, the failure of the Banqiao Reservoir Dam and subsequently other dams downstream in Henan Province in China, **killed an estimated 171,000 people and 11 million people lost their homes.** This is thought to be caused by a 2,000 year flood cycle. What if a 2,000 year flood were to take place along any of the Himalayan Rivers where very large numbers of dams are being built? It would be a mistake to imagine that this is a remote possibility. River floods are both cyclical as caused by random and frequent events like formation and breaching, of landslide-dams, caused by either rainstorms or seismic shocks and so on.” (*A River Pulse – Himal Prakriti- A Trust of Nature*)

No one can change the weak ‘sand-rock’ under the foundation of the high dam now. Panic release of reservoir and weak foundation are two seeds of possible major catastrophies of the 4 Hr Generation SLHEP. Also, the high dam and the big reservoir of the NHPC Ltd. for SLHEP is the product of ‘greed’ for maximum profit for the Developer only at the cost of ecology and livelihood of the riparian people. Why should such situation be allowed in the name of Development? **Disasters can take place anywhere, anytime, - but to ignore the warming by no other than the Apex, Technical Expert Committee (TEC), will certainly be an act of criminal negligence.**

Honourable Supreme Court in the Alakananda Srinagar Hydro Electric Project case noted that the safety and security of the people is of paramount importance while planning construction of hydro electric projects, observed

“Safety and security of the people are of paramount importance when a hydro electric project is being set up and it is vital to have in place all safety standards in which public can have full confidence to safeguard them against risk which they fear and to avoid serious long term or irreversible environmental of consequences”

Our Prime Minister’s Vision

Our Prime Minister – Narendra Modi on 22nd Feb 2014 at Pasighat, Arunachal Pradesh where he, in his 37 minute long speech, mentioned towards the end of the speech “I know citizens of Arunachal Pradesh are against large power projects. I respect your sentiment in this respect protecting the environmental, using technology, the hydropower can be harnessed using small projects” (*essence of translation from Hindi*).

It is also his vision to give electricity 24x7 to all villages of India.

To CONVERT SLHEP TO A 24x7 CONTINUOUS GENERATION TRUE RoR PROJECT – to obviate the above serious lacunas of a 4 Hr. dam.

- (a) By converting the “4 HOUR PSEUDO RoR GENERATION DAM” to a true Run of the River Dam-cum-weir,- generating power continuously, **the ecology of the rivers and the livelihood of the riparian people will not be destroyed. The height of the dam-cum-weir will reduce greatly. Reservoirs will be smaller. Cost of the projects will come down drastically.** One turbine running 24 hours a day is equivalent to 6 turbines running for 4 hours in the peak load periods in lean months. After the lean months, number of turbines can run continuously as per river flow. **So the generation of power will be sustainable, but it will be a continuous 24x7 generation.** By converting the SLHEP dam to 24x7 dam-cum-weir, there will be **no scope for** panic release of the reservoir water, as the dam will get converted to a dam-cum-weir and

water will flow over the dam-cum-weir **naturally downstream. Ecology of the river will not be affected in the lean period and the riparian people will have a flowing river, year round.**

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)

The present level of construction is at EI138m. The intake elevation to the Power House is at EI 160m and dam height is at EI 210M. As such the conversion of SLHEP to a dam-cum-weir can be easily achieved, - 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.** The changeover will

- (a) Reduce the height of the dam by 45-50m or so to a 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) Reduce the size of the reservoir of 1365 million cubic meter to a 'pondage'.
- (d) As there will be no sluice gate, and water will flow over the dam, there is no question of any risk of 'panic release' as apprehended by the apex TEC.
- (e) Ecology of the downstream river will be totally maintained. There will be no diurnal fluctuation of a flood like situation every evening.
- (f) Ecological integrity of the basin will be maintained and livelihood the riparian people will not be affected in any way.

Most importantly all the 8 turbines of 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 to 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 accept progress and is agitating only against the 4 Hr. format of dam** that destroys ecology, livelihood of the riparian people, and creates grave safety risks to thousands of riparian people.

CONVERT SLHEP 4hr DAM TO 24X7 DAM CUM WEIR
(Indicative Diagram)

PRESENT FEATURES OF LOWER SUBANSIRI DAM

SUGGESTED MODIFIED TRUE RUN OF THE RIVER LOWER SUBANSIRI DAM

বাইজব হৈ জনাও যে আমাক Fig. 1 ত থকা ডেমটো নেলাগে। তাৰ ঠাইত Fig.2
অঁকা ধৰণৰ ডেমটোহে লাগে। কাৰণ সমূহ তলত দিয়া হ'ল

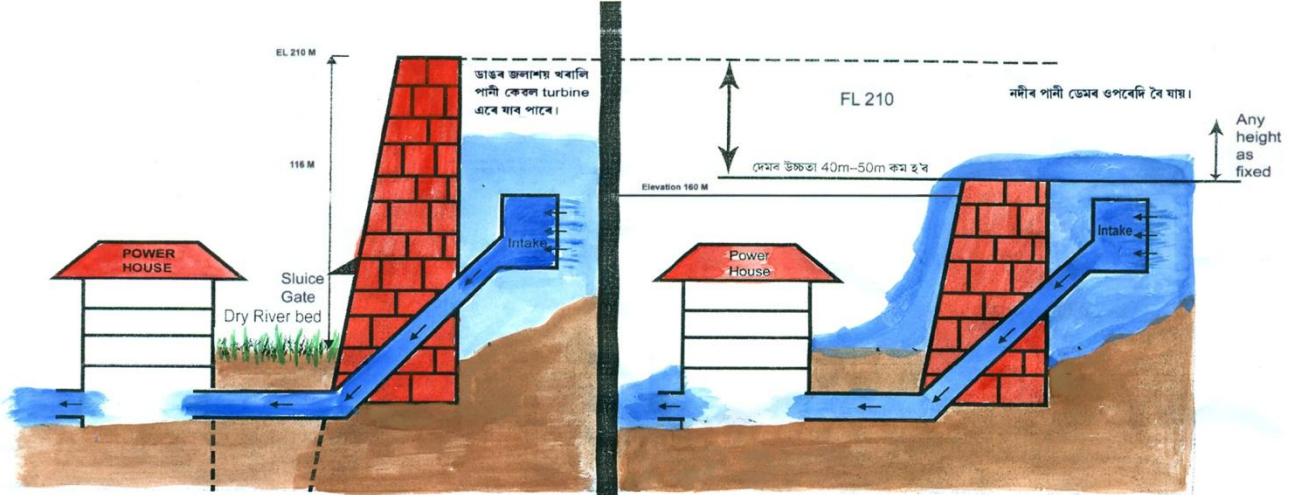


Fig. 1

Fig. 2

1. High dam of 116m Big reservoir of 1360mcum.
2. Risk exists of sudden 'panic opening' of 'sluice gates' in monsoon floods creating catastrophies.
3. In day time insufficient water will be released through a turbine. At night a flood will be created. Ecology will be damaged.
4. ½ km of the river from the dam upto Power House will be totally dry and killed during winter months.
5. A big dam will generate big pressure on the soft 'sand rock' foundation of the dam. Technical Expert Committee says that the foundation is 'susceptible'

1. Height of the dam is reduced. The river flows over the dam. No big reservoir, only a pondage.
2. No part of the river will be dry. Ecology of the river will not be affected.
3. Load on the soft 'sandrock' foundation of the dam will be reduced.
4. There will be no fear of panic release of reservoir sluice gates as there will be no sluice gates.
5. It will generate sustainable electricity 24x7. Fish ladder can be provided.
6. The Power House and Intake to Power at EL 160m as constructed will be utilized. Present level of construction is only EL 138m

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