

**Excerpt of filing before the Hon'ble National Green Tribunal, Eastern Bench at Kolkata MA No. 5 of 2014 in OA No. 346/2013 concerning Subansiri Lower Hydro Electric Project filed by Aabhijeet Sharma of Assam Public Works(APW) .**

3. That the Applicant craves indulgence of this Hon'ble Tribunal and begs to submit the following for further clarity in the matter.

**3.1 4 Hour Generation Hydro Electric Project**

Subansiri Lower Hydro Electric Project (SLHEP) is a 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. **In this model, an arbitrary level of high and ecologically unsustainable power generation is fixed 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. In case of SLHEP, MoEF/NHPC Ltd. plans to release **only 6 cumec of water, i.e., no water for this 20 hour period** from the dam – practically killing the river downstream of the dam. **This shows the true character of the project.**

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. The present Subansiri model 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.**

**3.2 Not a Run of the River (ROR) Project**

That one of the most important and relevant observation of the Thatte Committee Report is on the very nature of the LSHEP dam which has all throughout been staged as a run-of-the-river kind but according to the Thatte Committee Report it **"...is not a conventional run-of-the-river HEP"**.

As per NHPC's own contention (Para 31 of its reply), SLP dam comes under 'Large Dam' category as the head is greater than 30m and storage capacity is greater than 60 MCN. **By calling the SLP, as a Run of the River Project a deception is being perpetrated amongst people, in order to lull them into believing that the project as benign.**

**Irrespective of the definition of RoR dam, we are concerned about the ground realities of a large dam in SLHEP, – a big reservoir, only 6 cumec release of water from the dam, insufficient downstream release of water by a turbine at part load killing the river for ½ km from the dam upto the powerhouse, and high diurnal water release fluctuations etc.** Panic release of the 1365 mcm reservoir in monsoon floods, weak sandrock foundations of the dam are two major seeds of safety considerations.

### **3.3 Peakload Shortage**

One justification given for the 4 hr. generation model is that the country needs power at peakload period. But the peak load shortage of the country has come down to less than 3% in 2013-14 as per records as available. But lack of optimum transmission connectivity between various parts of the country is the problem now. Western region has power surplus of 14½% while South has 22% shortage in peak load period. Also, according to Central Electrical Authority (CEA), the plant load factor of India's thermal plants is a dismal 66.5% for 2013-14 and needs urgent upgradation to meet shortfalls. (*Economic Times Magazine, June 2014*)

**In this scenario, any justification that Hydro Power Projects, are generating power in the 4-5 hours of peak load period only in the lean months ostensibly to augment peak load power shortage, AT TOTAL DESTRUCTION OF ECOLOGY downstream and upstream of the dam, is not justifiable. Even if there is shortage in the peak load period, the same must be augmented from thermal and other sources and not by destroying ecology as per the present RoR scheme of the Govt.**

### **3.4 Water release for downstream**

NHPC Ltd., the Developer, proposes to release 6 cubic meter of water only *i.e.* no water, for 20 hours, when the project will be 'off grid' through the Dam. Now after 8 years of start of the work in 2005, under pressure, NHPC has started trumpeting that it will keep one turbine running and release 225 – 250 cumec of water **but retaining the same dam height and big reservoir**. Also what is not said is that the water will be released from the dam 500 km downstream from the Power House, thus killing the river for 500m. Also, who can guarantee a turbine running continuously for say 100 years? Any shutdown, for multitude of reasons, will annihilate 'the ganjectic dolphins, India's National Aquatic Animal' alongwith over 200 varieties of fishes, rare turtles and other biota. Subansiri is home to these dolphins from 20km downstream of the dam upto the confluence with Brahmaputra. **In fact, release of only 225 – 250 cumec of water which is fixed arbitrarily, will annihilate the ganjectic dolphins anyway because of insufficiency of the sustainable water.**

The Technical Expert Committee (TEC) recommended release of 110 cumec of water directly through the dam or through a turbine continuously at part load, stating either way, it may, **adversely affect the planned peaking operation of SLP (Para 113)**. It is clear the TEC has based its recommendation keeping in mind **technical parameter of the dam during peaking operation of SLP. This recommendation has nothing to do with the downstream ecological requirement.** The TEC has in fact regretted this fact – **“unfortunately there had been no attempt earlier to scientifically ascertain needs of present eco-system”**

Brahmaputra Board planned a conventional 257m high rock full dam with flood control provisions, – **with release of adequate downstream flow as in a conventional dam,** - but this high dam is broken up to 3 back to back cascading dams to cater to the power requirement component only, **but the adequate water release component of the Brahmaputra Board dam at the present site was totally ignored while planning the release from the SLHEP.**

The issue here is clear, – **release of adequate water as arrived at scientifically for survival of the gangetic dolphins, India’s National Aquatic Animal in the 1<sup>st</sup> schedule of the Wildlife (Protection) Act 1972 and in the red list of IUCN.**

The only scientific study about the requirement of water for health of the river and survival of the dolphins was **undertaken by Reeves and Brownell (1989) who have recommended a minimum flow of 450cumec.** It is pertinent to note that their work is referred by Govt. of India in the Conservation Action Plan for gangetic Dolphins 2010 - 20.

### **3.5 Hoax of flood control**

NHPC Ltd. has suddenly in its rejoinder, has come up with a “flood control component” of the dam which is quite amusing as the big reservoir of 1365m cum is for holding maximum water for maximum power generation only. The name of the project coined by NHPC Ltd., says it all, – **Subansiri Lower Hydro Electric Project!** As if to buttress their contention, NHPC Ltd. has suddenly in its reply affidavit has started referring SLHEP as SLP !

In this connection, it may be said that;

The SLHEP has spillway designed to release PMF value of **37500 cumec** of flood water. It is a huge discharge capacity when we consider that 50 years data indicate a maximum flood of **18,789 cumec** only which was observed in 1972(Para 125 of TEC report). So the claim of NHPC Ltd. that it will maintain the reservoir level at 190m, leaving 15m of the reservoir as flood moderation **does not make sense because of the adequate flood**

release capacity of the sluice gates. The real fact is that the reservoir will be filled upto the brim i.e. upto FRL of 205m for storage for maximum power generation during the lean months as it has the sluice capacity to tackle any large flood. **TEC in Para 123 has remarked “There is no good reason for maintaining the reservoir elevation at El 190m during monsoon, leave** alone FRL, when MDDL is El 181m. **The only reason appears to be maximization of power generation.”**

**This candid comment by the TEC says it all and pricks the bogey of flood control component in the NHPC’s profit only model of dam.** [Even if we consider a flood moderation made between El 190m to El 205m which has a storage capacity of 442m cum (Sl.2 of observation / recommendation of Joint Steering Committee under Para (2) as annexed by NHPC Ltd. as annexure). This storage capacity can barely hold a design flood of 37,500 cumec for just about 3 hours. **So there is no flood control component in the SLHEP scheme of things as claimed by NHPC Ltd. now. It is clear that NHPC Ltd. merely wants to counteract in some way the petitioner’s plea for a true 24×7 run of the river]**

In the report of TEC in Para 9, “it is stated that CCEA sanction was accorded to SLP on 9-9-2003. **SLP became a Hydro Power Project (HPP) with only incidental benefits of flood protection as informed by NHPC to TEC on 19-7-2011.”**

### **3.6 Grave safety concerns of the 4 hr SLHEP**

In SLHEP dam, there is serious safety concerns because of a huge reservoir and a 116 m 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 project of Uttarakhand were cleared nicely by many committees – but the result of the 2013 June catastrophies is for all to see.

Every hydro electric project in the Mahakali basin was severely damaged. NHPC Ltd’s 280mw Dhauliganga Hydro Electric Projects Power House was completely damaged. The 400 mw Vishnugardh Pipalkoti hydro power project dam of Jay Pee Hydro Power Corporation was entirely buried and over run with boulders and cobbles on the 17<sup>th</sup> June 2013. (*Source : River Pulse of Himal Prakriti – A Trust of Nature*)

A Supreme Court appointed panel has blamed hydro projects in Uttarakhand (same as SLHEP) 4 Hr. generation model as being responsible for intensifying the magnitude of the catastrophic flood that hit the state in June 2013. The panel has recommended scrapping of 23 of the 24 projects valued at about 20,000 crores. The committee submitted its report on April 16. (*Economic Times of 24 April’14*)

- (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 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 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 16<sup>th</sup> 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 128 mw 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**”. This comment by the TEC, we can presume, is after they have gone through all the expert comments on the matter !

When the 1365 million Cubic Meter reservoir is full in monsoon, and a earthquake of 9 or more in the Reichter Scale occurs as it happened in Chile, in

this highly seismic zone(zone V), what will happen to the “weak foundation”, **no ‘expert’ can possibly comment with any certainty**.

**NHPC has harped on many committees having examined and cleared the safety aspects of the dam. We all know the Govt. runs on committees. All RoR dams of Uttarakhand were also cleared by many committees, but the results of June 2013 is for all of us to see.**

**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.**

**For this reason alone 4 hour generation SLHEP Dam with its 116m high dam and 1360 million cubic meter reservoir cannot be allowed to be constructed in the present format. Panic release of reservoir and weak foundation are two seeds of possible major catastrophies.**

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 any where, anytime, - but to ignore the warming by no other than the Apex, Technical Expert Committee (TEC), may certainly smack of gross negligence, to put it very mildly.**

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 22<sup>nd</sup> 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.

### **3.7 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.**
- (b) **The change from the present 4 Hr. Format to 24x7 true RoR is eminently feasible.**

The present level of the SLHEP Dam is at 138m Elevation (RTI information). The proposed dam height is 210 m Elevation i.e. **72 metre of the 116m dam is yet to be constructed.**

The intake level to the power house is at EL 160m. So, a pondage can be created which will allow water to flow to the Power House **as constructed now.**

There is no sluice gate. There may be a few scour gates. So 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

- (i) Reduce the height of the dam by 45-50m or so to a Dam-cum-weir where water will flow over the dam.
- (ii) Reduction in height will reduce the pressure on the dam foundation which was commented as 'susceptible' by the TEC of Thatte & Reddy.
- (iii) Reduce the size of the reservoir of 1365 million cubic meter to a 'pondage'.
- (iv) 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.
- (v) Ecology of the downstream river will be totally maintained. There will be no diurnal fluctuation of a flood like situation every evening.
- (vi) Ecological integrity of the basin will be maintained and livelihood the riparian people will not be affected in any way.
- (vii) **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).

The Mising tribal riparian people know **how to live with natural flood** but not flood created by sudden release by opening of sluice creating catastrophic floods.

If the model of the dam is changed as proposed, there will be no need to release 450cumec of sustenance water as prayed in the OA from the dam. This appeal will become redundant.

All hydro electric projects in Kashmir including the ones under construction now are true 24x7 RoR projects, some commissioned and some under construction by NHPC Ltd. themselves because **possibly** of the Indus Water Treaty 1960 with



Pakistan over Kashmir rivers that preclude holding up of water. We are shouting ourselves hoarse over the Chinese Dams on Brahmaputra (Sangpu). But, the Chinese have built a true 24x7 RoR dam project in Tibet over Brahmaputra (Sangpu) – Zangmu Dam.



*510 MW Zangmu Dam Water is flowing over the dam. Source: Wikipedia*

Three (3) other similar dams under construction are Dagu (640MW), Jiexu (560MW) and Jiacha 320MW.

America has decommissioned over 1000 dams in the past because of adverse effect on ecology, latest being 2 dams on Elwha River, - 108 high Elwha and 210 high Glines Canyon Dam in Washington State. Razing down the dams will allow once again the Elwha's water to flow freely and experts predict salmon population will swell from 3000 to 400,000. (*National Geographic Aug 31, 2011*). Breaking dams so that the salmons survive. Annexure RoR dams of America.

**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 release the present stalemate of construction 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.

4. It may be pertinent to point out here that according to a news article dated 09.10.2014 published in the Indian Express, Respondent No.1, Ministry of Environment and Forest vide its affidavit on 08.10.2014 stated before the Hon'ble Supreme Court that a new set of norms are proposed for hydro-electro projects which all projects proponents will have to comply with before procuring environmental clearances. Further, the said affidavit states that proposed a new set

of norms lay 3 imperatives conditions with respect to hydro power projects i.e. (i) maintenance of a minimum quantity of environmental flow, (ii) longitudinal river connectivity, and (iii) Aviral dhara ( continuous flow).

It is respectfully submitted that the Hon'ble Supreme Court observed that the hydro power projects were significantly impacting biodiversity in two sub basin of Alakananda and Bhagitelhi rivers and the aspects of environmental flow was not adequately addressed. Further Respondent No. 1, MoEF stated before the Hon'ble Supreme Court that the issue of 'aviral dhara' and longitudinal connectivity shall also apply for all hydro-electro projects, regardless of the capacity and size, since they are essential for rejuvenation of Ganga.

It may be noted that in line with the proposed set of new norms for the State of Uttarakhand the present application seek this Hon'ble Tribunal to determine (i) maintenance of environmental flow ( of 450 cumec), (ii) longitudinal connectivity ( ½ km death of longitudinal connectivity), and (iii) Aviral dhara (continuous flow) (24x7 generation dam cum weir ensuring natural flow of the river)

**Editorial Comment : -**

The maintenance of environmental flow, longitudinal connectivity and aviral dhara (continuous flow), this three are the birthright of the riparian people of the regions affected by the 4 Hour Generations Dams – be it SLHEP or other dams of Arunachal as planned

MoEF cannot have one set of norms for Uttarakhand HEPs, because of Ganga Rejuvenation plan and another for Arunachal and other sub Himalayan area.