BEFORE THE HON'BLE NATIONAL GREEN TRIBUNAL

EASTERN BENCH

AT KOLKATA

ORIGINAL APPLICATION NO. 29/2015/EZ

IN THE MATTER OF:

Pradip Kumar Bhuyan APPLICANT

Joydeep Bhuyan APPLICANT

VERSUS

Union of India & Ors. RESPONDENTS

REJOINDER TO THE REPLY ON BEHALF OF RESPONDENT NO.2, MINISTRY OF ENVIRONMENT, FORESTS AND CLIMATE CHANGE IN O.A. No. 29/2015/EZ

Preliminary Submissions:

1. That theanswering respondent, Ministry of Environment, Forest and Climate Change (MoEFCC) which is the nodal agency in the administrative structure of the Central Government for the planning, promotion, co-ordination and overseeing the implementation of India's environmental and forestry policies and programmes has not made any substantial submissions with regard to the issues and prayers raised in the original application.These issues were related to scrapping all the four hour peaking proposed 150 plus mega dams of Arunachal Pradesh and replacing them with 24*7 naturally flowing run of the river dams to avoid destruction of environmentand one of the global biodiversity hotspots to carry out basin wise assessment of

the HEPs which should be comprehensive CIA and strategic impact assessment by an interdisciplinary expert group so that the sites for the sustainable dams and other parameters can be fixed scientifically, to demarcate no go zones in the Himalayas, protection of the Dehing-Dibang biosphere reserve among others. The prayer of the applicant also included carrying out biodiversity assessment studies and impact of all the HEPs as the same is mandated under Section 36(4) of the Biological Diversity Act, 2002 on which the answering respondent is completely silent. Further, to carry out social impact assessments especially from the HEPs and on the tribal people of Arunachal Pradesh and more importantly prohibit the destructive dams in the ecologically sensitive areas, especially protected areas.

In regard to above submission the following basic issue need to be addressed.

Preliminary Submissions (All Dams)

1. **Cumulative Impact Assessment Studies**

The Cumulative Impact Assessment (CIA) of the major valleys of Arunachal – namely Lohit, Dibang, Siang, Subansiri & Kameng **as per acceptable scientific parameters as fixed now for Uttarakhand valleys** has now become an imperative need to assess the **effect of these dams on Arunachal and Assam**. The CIA of the proposed 144 Nos. of peaking dams of Arunachal to generate 46,454 MW of power need to be undertaken through independent agencies / bodies to assess

(i) The technical aspects

(ii) The Biodiversity aspects

(iii) The social and demographic aspects

Arunachal is world terrestrial hotspot area. It has Dihang Dibang Biosphere Reserve Areas. Its biodiverse Forests is a treasure trove of hidden medicinal and other secrets for mankind's benefit.

Its valleys have very **small tribes with unique and rich traditions and cultures**. The Dibang Valley for example has only 12,000 Idu Mishimis. The entire Arunachal is in zone-V of the seismic zoning and earthquake above 8 in Richter scale has hit the region already.

The Terms of Reference (ToR) of the CIA studies,– technical, biodiversity & social and demographic of the valleys must be refixed taking the above factors in consideration for studies by independent prestigious bodies like IIT consortium Tiss etc.

The Independent Expert Bodies should be able to evaluates the Cumulative Impact of the Basins, - technical, biodiversity, demographic and social issues **without restrictions.**

Apart from the above issues, the CIA assessments has to have the following **basic objectives** as far as **technical assessment** is concerned.

(i) To assess the **destructive impacts** of the proposed peaking hydro power projects on account of big reservoir submergence, dam safety, massive reduction of forest cover, downstream effect due to release only 20% eFlow etc., so that a realistic evaluation of the **peaking dams** can be undertaken.

It is worthwhile noting that Thomas Hardy, IAHR and Texas State University has in an interview has commented if it is peaking, it is not an RoR! as posted July 1, 2014 by Sandrp.

(ii) **When only 20% eFlow will be released from Lohit, Dibang, Siang, the constituents of Brahmaputra, Brahmaputra (including Dibru Saikhowa National Park) will have only 20% of its natural flow flowing at the first phase of its journey for atleast 12-20 hours of a day in lean months,** depending on peaking schedule of the 3 HEPs : Brahmaputra flowing at 20% of its natural flow certainly **cannot be a acceptable situation on any account.**

In this scenario, eFlow need of Brahmaputra at its beginning stretch has to be evaluated.

The TOR of the CIA must include this very important aspect for study.

(iii) **The CIA study must have a mandate to fix and suggest locations of naturally flowing 24x7 RoR SUSTAINABLE DAMS and their possible impacts in all the 5 major valley of the Arunachal**.

After the Uttarakhand catastrophie of 2013 where the peaking dams had a role to play, one significant recommendation for **immediate** action by Expert Body Committee regarding eFlow is :

"Till such time as final decision is taken on eFlow recommendation of IIT consortium, eFlow of 50% during the lean season and 30% during remaining non monsoon months should be ensured. Sustaining the integrity of Uttarakhand rivers and their ecosystem is not negotiable"

2. **<u>Fixation of eFlow of Lohit, Dibang & Siang Valleys after eFlow fixation of Brahmaputra</u>**

It can be mentioned that the eFlow requirement of the peaking dams of Lohit, Dibang and Siang **must be co-related with the eFlow requirement of Brahmaputra from near Dibru Saikhow National Park where Lohit, Dibang and Siang meet to constitute Brahmaputra** as we know the river in India. **How much of eFlow in Brahmaputra is needed in its starting stretch from DSNP to sustain its biodiverse biota, the dolphins, for its natural geomorphological needs etc. etc. has to be worked out**. **That much water from Lohit, Dibang, Siang must be made available as per eFlow of Lohit, Dibang and Siang to flow to Brahmaputra as its eFlow**.

Also, eFlow is calculated in various methods to suit the project proponent's projections. As an example, as per the TEC report of Thatte & Reddy Committee, the eFlow of subansiri below the dam has been projected as below :

According to current MoEF prescription : 90 cumec

According to environmental class : 226 cumec

According to WG headed by Member (RM), CWC :35to70 cumec

Minimum flow of 6 cumec during lean season was made conditional by MoEF for SLHEP through the dam.

CWC has recommended asd continous flow of 320 cumec

(Sl. 112 of the Thatte & Reddy TEC Committee report)

Eflow fixation of Lohit, Dibang & Siang

Also, the eflow of Lohit, Dibang and Siang the 3 constituents of Brahmaputra have been arbitrarily fixed as 20% of natural flow in lean months. it means, the **flow of Brahmaputra at its starting point is fixed at 20% of its natural flow. 20% certainly cannot be the eflow** of Brahmaputra when its starts it journey in Assam near DSNP.

So in order to fix the eflow of Lohit, Dibang and Siang , the eflow need of Brahmaputra is to be scientifically ascertained but the calculation of eflow of Brahmaputra may not be in the realm of Reality.

If we cannot fix eflow of Brahmaputra based on the need of all its biota, the DOLPHINS, the geo morphological requirement and the requirement of the riparian people, **we CANNOT fix the eflows of LOHIT, DIBANG & SIANG**.

In this context alone, these rivers will have to flow naturally through 24x7 RoR sustainable dams only.

B. For other Valleys, - Subansiri, Kameng and others, **atleast 50% eflow must be fixed** as is recommended for Uttarakhand dams and must flow automatically without human control.

The peaking dams mean big dams with big reservoirs. The solution lies in converting the HEP dams of Arunachal to true 24x7 RoR sustainable projects. It will take care of all environmental, ecological, safety issues due to seismic consideration, issues of the riparian people etc. etc. The power generated will be sustainable power.

Since, true RoR dams do not create big reservoirs, number of dams can be put within a short space as the Chinese are doing with Zongmu, 520 MW, Dago 640 MW, Jiexu 560 MW, Jiacho 320 MW. 3000 MW may be developed by 3 sustainable dams, not by one HEP like the DMD, the world's highest gravity dam.

3. <u>Throttling of Brahmaputra</u>

Average Natural flow of Lohit – 417 cumec

Average Natural flow of Diang – 471 cumec

Nov. to April (source NHPC's reply on DMD page 574)

Average Natural flow of Siang – 1765 cumec

2653 cumec

As there are no major tributaries from the lower dams of the above rivers upto DSNP, we may assume 2653 cumec of average flow as the natural flow of Brahmaputra when it is formed after the above 3 constituent rivers meet.

When Lohit, Dibang and Siang go into non-peaking mode, it will only release 20% of its flow as eflow, i.e.

20% of 2653 cumec i.e. **530 cumec will be released to the river Brahmaputra** as against **its natural flow of 2653 cumec**.

If we assume that 'peak demand criterion' guides the peaking operation of the 3 HEPs, then they will release in 4 hours or so from the respective Dams as shown below :

Lohit	1729 cumec
Dibang	1426 cumec
Siang	5158 cumec
	8313 cumec

It means the Brahmaputra will have a flow of only **530 cumec for 20 hours or so and 8313 cumec for 4 hours or so**. (Source Annexture RI of the reply by MOP)

If the peaking operation is synchronized as one after another, or in any other sequence, there will be a little moderation to the above fluctuation, but we need to work on the worst scenario only.

4. Dibru Saikhowa National Park(DSNP), – running of one turbine etc.

Dibru Saikhowa National Park is flushed by 3 big rivers, - Lohit in its southern boundary, Dibang and Siang in the north of the DSNP. Lohit flow in the south of the DSNP is independent of the flow of Siang and Dibang as far as the DSNP is concerned. Lohit meets the combined flow of Dibang and Siang just outside the DSNP. So we need to consider Lohit flow separately while assuming the diurnal fluctuation of eFlow and peak flow in the DSNP.

During nonpeak hours, Lohit will have a flow of 56 cumec and a peak flow of 1729 cumec in a day for the entire lean months i.e. Dibru Saikhowa National Park will be impacted by this huge diurnal water fluctuation **in its southern areas**. When the normal average flow between Oct & March is 463 cumec (page 574 of NHPC reply) - [1729 cumec, reference Dr. A. R. Rahmani's official report to MoEFCC]

Thus the daily extreme fluctuation of flow in the southern side of DSNP will be 56/60 cumec to 1729 cumec for the lean months. This extreme fluctuating diurnal flow, day in and day out in the lean months will certainly destroy the Dibru Saikhowa National Park and the river itself as corroborated by the observation of N. Le Roy poff.

The submission made by wildlife biologist, Firoz Ahmed, gives a reference of a paper by leading freshwater biologist, N. LeRoy Poff : "The extreme

daily variation below peaking power hydroelectric dams have no natural analogue in freshwater systems and represent, in an evolutionary sense, an extremely harsh environment of frequent, unpredictable flow disturbance. Many aquatic population living in these environments suffer high mortality from physiological stress from washout during high flow and from stranding during rapid dewatering especially in shallow shoreline habitats, frequency exposure for even brief periods can result in massive mortality of bottom dwelling organism and subsequent" severe reduction in biological productivity (Poff et al 1997)"

One turbine running is not a environmental solution

In SLHEP after people's protest, and under duress, NHPC Ltd. has claimed now, that it will keep one turbine running continuously. **Taking this cue, in Dibang Lower Dam, NHPC now asserts that it will keep one turbine running, so will Siang Lower, Lohit Lower dams.**

But this assertion **cannot be any basis for environmental safety and preservation of the downstream of the river**. **Who can guarantee a generator running continuously for say 1000 years, 500 year or even 100 years? Running a turbine 24x7 cannot be an environmental solution – <u>environmental solutions must be a built in process, not in human hands</u>**.

Also, releasing water through turbine and not directly from dam, will result in longitudinal disconnection of the river from the dam upto the release point of water from the turbine of the Power House.

5. **<u>The Ganjectic Dolphins</u>**

The Government of India declared the Ganjectic Dolphins as the National Aquatic Animals on 5th Oct 2009 and notified by MoEF on 10th May 2010. India became the first country in the world to have a cetacean fauna as a National Aquatic Animal. In the Conservation Action Plan for Ganjectic Dolphins 2010 – 2020 of Ganga River Basin of MoEF, GoI under the heading – Importance of the species states.

"India is the last stronghold with extent population in the Ganga-Brahmaputra River Systems". Under the caption "The Gangectic Dolphins is a Flagship species for river conservation" it is stated

"As a flagship species, its conservation requires greater efforts along the lines of that provided in the tiger and elephant."

Under Conservation Status

This species has been included in Schedule I of the Indian Wildlife (Protection) Act 1972 in Appendix I of the Convention on International Trade in Endangered Species (CITES) in Appendix II of the convention of Migratory Species (CMS) and categorized as Endangered on the International Union for the Conservation of Nature (IUCN) Red list.

This Ganjectic Dolphins, India's National Aquatic Animal and in the highly endangered red-list of IUCN and in the Schedule I of the Indian Wildlife Act 1972 is a natural resident of Dibru Saikhowa National Park, (located starting from 65 km downstream of the Dibang Lower Dam) and dolphins are seen in 7 different location in the park. (Dr. S.P. Biswas, Professor and Head Deptt. of Biosciences, Dibrugarh University as quoted by Dr. A.Rahmani). The Lohit river flows by the southern rim of the DSNP. Dibang and Siang and both combined flow in the northern rim of the DSNP. The park is crisscrossed by channels

like webs of life. The alternate choking of the D.S.N.P. river system and peaking release of the 3 lower peaking hydro electric projects, Siang, Dibang, Lohit, when commissioned will annihilate the dolphins without a shadow of doubt. **No study has been undertaken about survival of the dolphins in the Dibang, Siang, Lohit and specially in the stretch of the D.S.N.P, which is considered as the nutrient filled nursery of the dolphins and in Brahmaputra.**

"Ganjectic Dolphins require sufficient year-round water flow to move forage and carry out activities that ensure reproduction success and recruitment into breeding population **large daily fluctuation in flow should be avoided"** recommendation as adopted by Conservation Action Plan for the Ganjectic Dolphin 2010 – 2020. **These are major eFlow& peaking issues which needs resolution**.

6. **The above policy of Power at any Cost, based on Hydro Power of 2008, where ecology, environment, riparian people have no place (and no clear policy before that), has created the monsters of peaking dams.**

Peaking dams means –

(i) Big reservoirs, high dams, posing serious safety and security hazards in the Zone V of region in the highest seismicity scale.

(ii) Destruction of huge forest areas in world's Hotspot areas, - a serious threat to endangered flora and fauna.

(iii) Huge workforce that will seriously threaten the culture, tradition of small, tribal communities.

There is possibility of 'panic release' as cautioned by the Technical Expert Committee of Thatte & Reddy on Subansiri Lower Hydro Electric Project, of flood water creating sudden devastating floods downstream the dam(as is happening often in the only commissioned Hydro Project on river Ranganadi) etc.

The above is contrary to Hon'ble Supreme Court's judgment of Hydro Power Co. Ltd. V/s Anuj Joshi & Ors. Case civil Appeal No. 6736 of 2013 in its judgment it has commented (in Sl. 36 of the judgment)

"The 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 risks which they fear and to avoid serious long term or irreversible environmental consequences".

6. **<u>Sustainable Dams</u>**

For sustainable Power development from the dams of Arunachal, the Petitioner has prayed for 24x7 continuous run of the river hydro projects to replace the 3-4 hour winter peaking destructive dams.

Siang, Dibang, Lohit are big rivers. The average winter flow from Nov-April

for Siang is 1763 cumec
Dibang is 421 cumec
Lohit is 417 cumec

which can run one or more turbines of 250mw continuously 24x7, generating sustainable power without destroying the downstream ecology.

One turbine running 24x7 is same as 6 turbines running for 4 peak hours.

In page 531 of NHPC's reply on DMD, NHPC Ltd. has stated that **"During monsoon season, due to availability of high discharge in the rivers, Dibang Multipurpose Project shall operate most part of the day to produce powers."**

It means that there is no technical problem in generating power 24x7 as True Run of the River projects in Arunachal. In winter, NHPC Ltd. themselves has now stated it will keep one turbine running (though for the wrong reason for ecology.

River Siang has sufficient flow in winter (1783 cumec) to run 4-5 number of 250 mw turbines continuously. Dibang and Lohit can operate 1 turbine in full capacity for 24x7 generation.

In India, there are few 24x7 RoR hydro projects in J&K in rivers flowing to Pakistan, because of the Indus Water Treaty 1960 between 'India and Pakistan'.

The Chinese Dams

The Chinese have commissioned in the Yarlung Tsangpo(Siang / Brahmaputra) the Zangmu Dam of 510 MW. The dam has a pondage is 86.8 MCM as a RoR hydro project. The small generation of only 510 MW and **storage of only 86.8 MCM confirms that the HEP is a true RoR project and not a peaking HEP**. [In contrast, the Subansiri Dam has a storage capacity of 1365 MCM (against 86.8 MCM of Zangmu Dam) and power generation of 2000 MW (against only 510 MW of the Zangmu Dam)]

The Chinese have planned 3 more dams Dagu 640 MW, Jiexu 560 MW, Jiacha 320 MW within a very short stretch from the Zangmu Dam. It is possible only because these are small RoR dams with small pondages where river is flowing freely. The small generation also indicate that these are true RoR dams. What the Chinese will do

tomorrow is anybody's guess, but the the 4 dams as above are 24x7 RoR dams as can be ascertained from facts only.

7. **Understanding the Power at any Cost Philosophy is the key for sustainable development**

In the above context, it is imperative to understand the guiding principle of peaking Hydropower Dams based on the Hydro Power Act 2008, **which has no 'objective' except hydropower development**.

As per the Policy MoEF has fixed policies and guidelines in order to maximize power generation like

(i) EIA only for 10km from the periphery of the reservoir

(ii) First project in a basin could come up without insisting on cumulative study, even after knowing that number of projects are planned in each valley.

(iii) "**After 5 years of the commissioning of the Project a study shall be undertaken regarding impact of the project on the environment and downstream ecology",**

(iv) T**he Project Proponents appoint their own Consultants** for preparation of the Environmental Impact Assessment (EIA) for projects on their behalf.

Peaking Dams are the outcome of Power at any Cost Policy of the GoI reflected through MoEF and other Ministries. MoEF has created an **Institutionalized Mechanism of Committee's and appraisals etc.** in order to push through Environmental Clearances of Hydropower Projects.

One cannot fault them for their push for accelerated and total power generation thrust as per the Hydro Power Act 2008.

But ignoring the effects of the peaking HEPs on humans, biosphere reserves, terrestrial hotspot region like Arunachal which is a treasure trove of diverse medicinal and other wealth, rare flora and fauna in this biodivere mostly undisturbed, forests, for mankind to unearth and use for the benefit of the mankind, ignoring the efforts on Brahmaputra etc. **may be a fundamental mistake. Ignoring the people's genuine concerns is likely to be counterproductive as we have seen in the case of Subansiri Lower HEP. People have seen firsthand the effect of the peaking dams in the Ranganadi HEP in a sub-basin of Subansiri**. **People are concerned about the fate of Brahmaputra their safety from seismic effects etc. etc**.

Sustainable 24x7 RoR HEPs will mean quick development as there will not be any resistance from the people and it is prayed that there will be a shift in the GoI policy from Power at any Cost to sustainable power.

Para Wise Rejoinder:

1. That the contents of the corresponding paragraph merit no response as they are matters of record.

2. That the contents of the corresponding paragraph are matters of records and are accepted to that extent. Be that as it may, it is important to highlight here that the Respondent has completely mis read the aim and intent of the petition. First they have not understood

that it is the cumulative impact of all projects in a given state that is being questioned and the impact that they might have on the entire state and more significantly the downstream state. This cumulative impact was supposed to be arrived at based on scientific assesment of the various basins through basin wise studies so that the carrying capacity of the state is arrived at based on scientific basis. It is in this light that the petitioners have inquired as to how the Respondent No.2 is allowing such projects without an understanding of the cumulative impact of such huge number of projects. The O.M refered to in this para is merely talking about the exemption to singular project on a river and not necessarily the impact on the basin per se. Further the said O.M has not been implemented in letter and spirit despite the period of two years stipulated in the OM dated 28.05.2013 has long elapsed, but the answering respondent has not yet come out with the basin studies and more importantly their cumulative impact in the state as well as the downstream impacts they may have especially in the lower riparian Assam. The humble submission of the Applicant is that this Hon'ble Tribunal may direct the answering Respondent to not only expedite the process of publishing the basin wise report of every basin but more importantly how are they carrying out such studies, the scientifc agencies involved and whether they are covering the cumulative impacts of such basin studies on the entire river system of Arunachal Pradesh and its downstream impacts on Assam and place the same before this Hon'ble Tribunal. Further, the Respondent No.2 has not submitted any details on whether they have considered any individual project without the carrying capacity study of river basins in the state of Arunachal Pradesh.

3. That with regard to the contents of the corresponding paragraph, it is submitted that the anwswering respondent has byepassed its own stipulation regarding the non- consideration of environmental clearance and forest clearance in any basin without completion of such basin studies. By their own admission, two projects have been granted clearance between May 2013 and May 2015 that is Nafra HEP in Kameng and Dibang Multipurpose Dam, when no project was to be granted clearance until the completion of the basin studies. It is verily believed by the Applicant that the Respondent No.2 continues to grant clearances to HEPs without the finalization of such basin studies. Further, the contents of the original application with regard to the corresponding paragraph are reiterated as true and correct and may be read alongwith this paragraph. It is further prayed that projects on any basin be not allowed or exectuted by this Hon'ble Tribunal till the comprehensive basin studies by independent authorities and its consequence cumulative assessment is assessed by a competent authority.

4. That with regard to the contents of the corresponding paragraph, it is submitted that this Hon'ble Tribunal may be pleased to direct the answering respondent to place on record the said studies and more importantly the decisions to continue or discontinue any project and the reasons thereof .

5. That with regard to the contents of the corresponding paragraph, it is humbly submitted that the daily throttling of rivers and release of peak flow in the peaking period in the rivers of Arunachal will annihilate dolphins and other biota of these biodiverse rivers from the peaking dams. It will also effect the riparian people economically and culturally.

6. That with regard to the contents of the corresponding paragraph, it is submitted that the Respondent No.2 should immediately withdraw the two stated clearances that it has granted without the basin studies being finalized namely Nafra and Dibang as per their own admission. Further, it should also withdraw the unusual condition of allowing the first project in a basin without insisting on basin wise study. Infact, this application is aimed at questioning the cumulative impacts of all projects in the State of Arunachal Pradesh and its downstream impact on the state of Assa. Therefore, it makes no logical sense to allow any project in the basin without a cumulative impact assessment of all proposed projects and particularly, in the same basin.

7. In view of the above, it is prayed before this Hon'ble Tribunal that this Hon'ble Tribunal may be pleased to:

    a. Direct the Respondent No.2 to immediatrely withdraw the EC of the two admitted projects of Nafra and Dibang where they have granted EC without carrying out the basin wise study;

b. Direct the Respondent No.2 to withdraw the condition of allowing first projects in the basin without a cumulative impact study of the proposed dams in the said basin;

c. Pass any order (s) that this Hon'ble Tribunal may deem fit and proper in the facts and circumstances of the matter.

Date

Drawn and Filed By:

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