

16 January 2013

Members of the Forest Advisory Committee
Ministry of Environment and Forests
Government of India
New Delhi.

Dear Sirs,

Teesta IV project

Herein we draw your attention to what is stated in the Executive Summary of the Carrying Capacity Study of Teesta Basin in Sikkim. The study was commissioned by the Ministry of Environment and Forests (MoEF) and conducted by Centre for Inter-Disciplinary Studies of Mountain & Hill Environment, University of Delhi, Delhi.

The report clearly states that the carrying capacity of the region for any developmental activity that disturbs the land, biological and cultural environment is abysmally low (pg 208). Based on the Executive Summary of the study, we submit that Teesta IV should not be constructed and request you not to recommend forest clearance for it.

The **Chief Minister has declared the State as Ecological Security Zone on the floor of the State Assembly** (pg 272). This sets the tone of development that is to be permitted in the State.

The **Forest Minister** in a speech at a function stated that globalisation and **liberalisation cannot be at the cost of environmental health and cultural and ethnic identity** (pg 266). That the environmental health is under serious threat due is borne out below.

The **Power Minister** of the State of Sikkim **urged people not to attend the public hearing and rejected the hearing**. When the Power Minister does what he did, it means that the project is not welcome and it should not be permitted. Attached are news reports on the same.

(1) The Executive Summary (repeatedly) states the following. Some instances of where they occur in the report are in parenthesis. The page number is that of the pdf file.

- Sikkim is geologically highly fragile (pg 167), with little geological information at the micro level (pg 47) and is sensitive to any disturbance (pg 167)
- Sikkim is ecologically fragile
- Sikkim is seismically active (pg 42) and “any future large magnitude tremor” cannot be ruled out (pg 168)
- “The thick moraine deposits at several sites in North Sikkim provide weak substrates on which it seems very unsafe to establish any mega developmental project.” (pg 168)
- Area of Teesta IV is highly vulnerable to earthquakes (pg 14 read with Fig 7 pg 40)

- Sikkim “lies in the high damages risk zone (VIII) corresponding to a magnitude of 6.7 on the Richter scale” (pg 41)
- Sikkim is an intense landslide area where the “number of new landslides outnumbers that of old landslides in most of the watershed in Teesta basin” and the “lower part of Teesta watershed contains maximum number of new landslides” (pg 44)
- “The spurt in developmental activity in the region has lead to substantial growth in area affected by landslide activity.” (pg 44)
- “It is evident that increased frequency of landslides is correlated with intensification of landuse change through human activities.” (pg 45)
- Increase in landslides leads to increased dumping in the river which results in increased sediment in the river which has a negative impact on freshwater ecosystems and sometimes also results in flash floods and downstream destruction of ecosystems (pg 47)
- Floods cause erosion and “erosion of land has even more adverse effects on environment and ecology not only in the affected areas but also in the plains lower down where the heavy loads of debris are deposited in the river beds and flood plains, aggravating the intensity of flood and disturbing the river regime” (pg 49)
- Largest number of lakes (153 in number) are erosion lakes (pg 51) which can result in GLOFs (Glacial Lake Outburst Floods)
- There is a imminent threat of GLOFs (pg 166)

The above list is not exhaustive. What is stated above also has an impact on the forests and wildlife. For example, if the Lhonak Cho glacier were to result in a GLOF (pg 52) then it would have a devastating impact at least till Chungthang (see Fig 9 on pg 46). The Teesta river before Chungthang flows through a very narrow and steep “V” shaped formation. The flood will result in a high column of water which will impact on the forests and wildlife along the river. That area is classified as the most bio-diverse in Sikkim.

Further, **the report also repeatedly mentions the impacts of non-judicious planning. We submit that a cascade of hydropower plants is non-judicious planning.**

Still further, **the report repeatedly raises the issue of socio-cultural concerns and Teesta-IV is being opposed also on socio-cultural grounds by ethnic groups.**

(2) The following non-exhaustive list of points bring out the richness of the forests and bio-diversity of Sikkim.

- ❖ Sikkim is the **smallest north eastern State with the highest endemism and flowering plant species** (Table 6, pg 61 and Fig 13, pg 63)

- ❖ “... **developmental activities have posed a serious threat to the floristic diversity of Teesta basin**” (pg 62)
 - ❖ “... there has been a **spurt of developmental activities** demanding more and more landuse changes that **threaten habitats and the species**” (pg 62)
 - ❖ “The region is **also very rich in other groups of plants** like pteridophytes, bryophytes, lichens, fungi, algae, etc.” (pg 62)
 - ❖ **The forests of Sikkim are conducive to speciation** (pg 73) with “**number of new reports of plant species**” (pg 169)
 - ❖ “**Teesta valley is vital for the conservation of biodiversity of Sikkim**” (pg 87)
 - ❖ “**Forests** constitute the major proportion of Teesta basin in Sikkim and **play an important role in maintaining the ecological balance and regulation of hydrological regime** of Teesta river. In addition, these forests form the first resource of Sikkim and **provide wide range of forest related services** for the welfare of human populace in Sikkim.” (pg 99)
 - ❖ The **richness and diversity of herpatofauna (pg 84), butterflies and small mammals (pg 89) is the highest** at elevation below 900 m. and the FRL of Teesta IV is 755 m.
 - ❖ Elevations below 900 m. are **important zone for small mammals and there are no Protected Areas in this zone** (pg 172) and hence **all forests need the highest degree of protection**
 - ❖ **Species found in one zone of Sikkim are not found in other zones** (pg 169) and hence **local extinction would result in extinction of the species in the State**
 - ❖ “**During and after the construction of the proposed hydel projects, the landscapes will undergo serious transformation leading to alien ecological conditions. The habitats will likely be dominated by exotic and weedy species resulting in biological communities that are unproductive and biological invasions, which will seriously undermine the endemics in the region**” (pg 176)
- (3) The report says the following specifically with respect to Teesta-IV (pg 199-204).
- “... **the intermediate catchment between Stage-III and Stage-IV harbours rich diversity of mammalian and bird fauna in addition to being a zone of diversity of butterflies. Therefore, any increased human activity in this critical zone would have adverse impact on the habitats of these species. There is possibility of reservoir induced seismicity in the region owing to geological setting, which clearly shows that no pondage of any duration should be allowed in this area which would lead to geological instability resulting in the increased incidence of landslides.**”

- **“Geologically the project area lies in the MCT zone. There is serious landslide activity between Mangan and Tong, the immediate catchment area upstream of proposed dam site. These landslips bring large amounts of silt into the channel and hence the proposed reservoir, thereby would have negative impact on the reservoir capacity.”**
- **“... the region between MCT and MBT is seismically active. All the appurtenant structures of the proposed project lie in the MCT zone.”**
- **“There would major reduction in water discharge from about 10 km. river stretch, which would lead to loss of fish fauna.”**
- There are **threatened species and species listed in Schedule-I and Schedule-II** of the Wildlife Protection Act. This includes the leopard, 121 species of butterflies (pg 173), all reptiles and amphibians in Sikkim are Schedule-II (pg 173), etc.

(4) Site visit report dated 18 May 2012 of the Additional PCCF(C)

- The wildlife that “abound the area’ include Leopard, a Schedule-I species, bats and “different varieties of snakes and birds”. The site visit report fails to mention the species of bats, snakes and birds. It erroneously relies on the EIA and not on the records of the Forest Department. The Carrying Capacity report makes specific mention and reference to the importance of this area for bats and herpatofauna and states that all reptiles and amphibians of Sikkim are protected under Schedule-II and Schedule-IV (pg 173).
- Kanchendzonga National Park and Biosphere Reserve is at a distance 5.83 km. This explains the abundance of wildlife in the area.
- Fambonglho Wildlife Sanctuary is at a distance of 4.3 km.
- The crown density of the forests is 0.8.
- The slopes are very steep with a gradient of more than 75 degrees.
- On removal of trees: “The immediate effect will be accelerated soil erosion which may lead to landslips/slides on steep slopes. The felling, logging, extraction all shall add together to this. Removal of top canopy shall have effect on middle/lower canopy as well as on ground flora and fauna.” The Carrying Capacity study is clear on the adverse impacts of landslides and soil erosion on the ecology.
- The Compensatory Afforestation sites have “difficult approaches” and could not be visited. Approaches will have to be made to carry out Compensatory Afforestation. Ironically, this development of creating approaches to 12 different sites could lead to greater damage to ecology that what is proposed to be mitigated.
- The Regional CCF has failed to appreciate that large hydro is not a clean form of energy. Globally, large hydro has been excluded from the definition of clean energy. Teesta-IV is a large hydro power project.

- The Regional CCF has admitted to submergence of trees. This leads to generation of methane, a potent GHG. Research has confirmed that methane emissions from reservoirs, especially tropical reservoirs, are high and can even surpass the CO₂ equivalent emissions from thermal power plants.
- The Regional CCF has raised the “issue of “cascade development of HEP over River Teesta” and its impacts (as pointed out in para 18 of this report) on Biodiversity, especially aquatic and amphibian flora/fauna” and has said that it “should be discussed and understood in the greater forum of experts and then a final decision be taken whether to grant clearance or not to this project”. These statements read with what is stated in para 18 makes it clear that Regional CCF has serious reservations about this project.
- In para 18 the Regional CCF states that everything is “woven together in forming an important eco-system requiring least disturbance”. Teesta-IV, a hydroelectric project, will cause major disturbance. This is also stated in the Carrying Capacity report.
- In para 18 the Regional CCF has raised the issue of cascade of hydroelectric projects not letting the river flow freely and having minimal flows in the river which impacts on the ecosystem and biodiversity. Your Committee has also received over 1,300 emails to let this last free flowing stretch of Teesta flow freely.
- The site visit report while listing the other envisaged benefits in para 17 fails to mention the strong opposition to the project from the Lepchas, who boycotted the public hearing. In para 20 it states that 50% of the people comprising the right bank did not attend the public hearing. The right bank is Dzongu, the sacred land of the Lepchas. It is admitted that the entire Lepcha community boycotted the public hearing.
- The site visit report in para 20 fails to mention that the Forest Department has filed cases against the project proponent, NHPC, for violations in the completed Teesta-V hydro electric project. This shows the conduct and attitude and track record of the project proponent after receiving clearances.

(5) The Pronab Sen Committee report (Report of the Committee on identifying parameters for designating ecologically sensitive areas in India, Ministry of Environment and Forests, September 2000) lists 13 primary and 7 auxiliary criteria for declaration of areas as ecologically sensitive. The report states that even if one of the primary criteria is satisfied then the area should be declared as ecologically sensitive. Six of the thirteen primary criteria, namely, endemism, rarity, endangered species, specialised ecosystems, areas with intrinsically low resilience and steep slopes, and two of the seven auxiliary criteria, namely, upper catchment areas and not so steep slopes, apply to Sikkim and hence, as per the Pronab Sen Committee report, the Teesta-IV project sites. **The area more than satisfies the parameters laid down for ecologically sensitive areas in India.**

From the above it is abundantly clear that permitting Teesta-IV is not advisable for geological, seismological, ecological, socio-cultural and environmental reasons.

If your Committee is still in favour of recommending forest clearance then we request that the minutes of your meeting reflect why the above is not considered significant to reject Teesta-IV project. This is also required under order dated 26 November 2009 of the Delhi High Court in Writ Petition (Civil) No. 9340 of 2009 (*Utkarsh Mandal vs Union of India*).

Thanking you.

Yours faithfully,



Samir Mehta
South Asia Program Director
International Rivers
Email: samir@internationalrivers.org
Mobile: 98202 46368