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# Dams, Rivers & People

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**Index**



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**Uttarakhand Floods of June 2013:**

## Curtain Raiser on the events at NHPC's 280 MW Dhauliganga HEP

*"This fascinating account of the events at the NHPC's 280 MW Dhauliganga HEP has been taken from a larger account of Uttarakhand floods of June 2013 by* E. Theophilus, *titled "River Pulse". For this detailed eye opening piece, see: http://www.himalprakriti.org/*

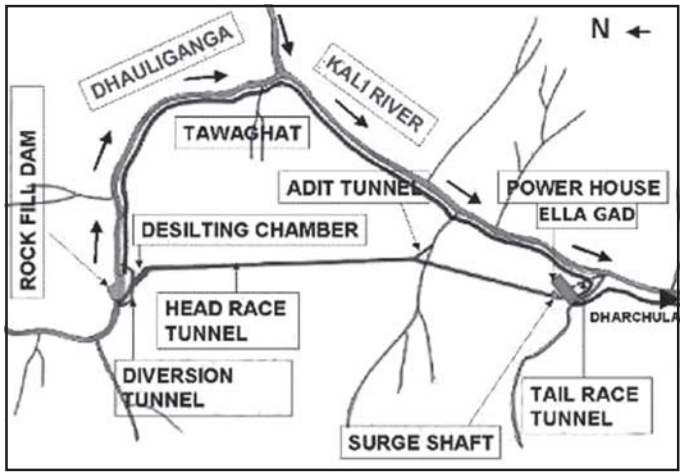
This account of the events at this Dhauliganga HEP during the Uttarakhand floods of June 2013 raises many questions. One of the biggest is, should this ill designed and wrongly operated power project be allowed to continue to operate or should it be asked to be decommissioned? Would the people who cleared this ill designed project and people who wrongly operated it be held accountable for their actions? These are difficult questions, but not finding convincing answers to these will not be a prudent way forward.

Days after walking down the Gori, we go to the Sub-Divisional Magistrate of Dharchula sub-division, Pramod Kumar, who is busy coordinating rescue and relief on a war-footing, but still has the courtesy to meet. On being asked by me regarding the sudden release of water by the 280 MW National Hydro-Power Corporation (NHPC) Dhauliganga Hydro-Electric Project (HEP, see below the layout of the project given on NHPC website) at Chirkila and the ensuing damage downstream, he confirms that he received an emergency call on the night of 16th June, 2013 from the NHPC, asking that they be permitted to release the impounded water in their reservoir, because it was in danger of breaching. Under normal circumstances they do not need his permission. He also confirms that he had refused, because the water level in the Mahakali main-stem was already flowing at danger-mark. NHPC went right ahead and opened their gates at full on the night of 16th June, without authorization or any prior warning to anybody[1] but their own office-residence complex 20 km downstream, at Dobat.

Was this really an emergency, or was this purely opportunistic on the part of NHPC to take this opportunity early in the season to flush their reservoir that had been filled almost to half with bed-load and silt? We went looking for clues and information. I went to the NHPC office complex at Dobat, and met Bhuvan Chand Joshi, their Public Relations Officer. After giving me the spiel on how safe, and how green this so called run-of-the-river (ROR) project was, constructed by no less than the Japanese, the Germans and the Koreans put together[2], he admitted that their

1 NHPC never gives warning of sudden releases. There is a notice painted on a board at Tawaghat, the first river-side habitation downstream, that warns people not to go anywhere near the river, because water may be released *anytime.*

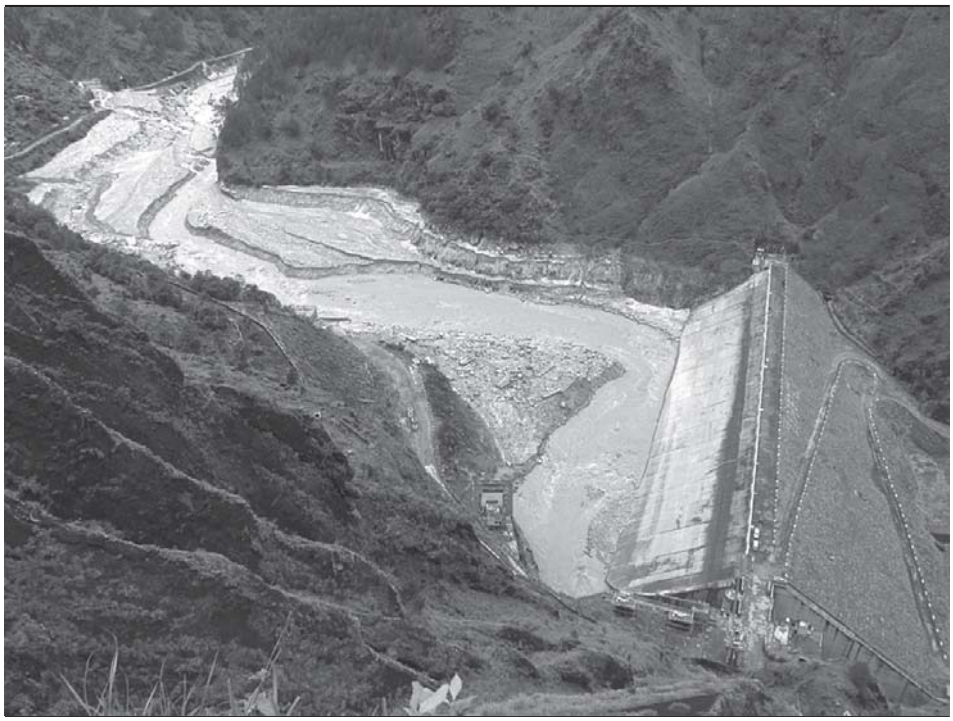
2 Kajima Construction Corporation Ltd of Japan, Daewoo Engineering and Construction Company of Korea, and Bauer Maschinen of Germany.




underground power-station was entirely flooded. Housed in a gigantic underground cavern about 100 meters long, four-storeys high at 40 meters and about 16 meters wide, river water had filled it right upto the control-room on the fourth floor. I had already been told by Kesar Singh Dhami, taxi owner of Dharchula, that on the 16th June itself, when he was ferrying the first batch of Kailash *yatris* to the road-head on their way up to Tibet, he had noticed the reservoir was filled high already with flood-waters, with large uprooted trees and other woody debris floating at the damsite. He confirms that water was being released, but only a small release, despite the dam being fuller than he had ever seen it.

I was also told by another employee of NHPC (who did not wish to be named) that what had gone wrong was that despite the high flows on the 15th and 16th June, the power-station continued with production of electricity as usual. In what seems to be an unbelievably short-sighted and poor design, the Tail-race Tunnel, from where water is released back into the river after having turned the turbines, is flushed into a tributary stream, the Ellagad. It was when Ellagad also pulsed, that it sent a train of bed-load debris down its lower reaches, effectively blocking the exit of the Tail-race Tunnel coming out of the powerhouse. The power house continued to take in water from the Head-race Tunnel intake to work their turbines, unaware that the exit for water had been blocked. It is only when the water blocked in the Tail-race Tunnel surged back up, burst through the turbine units and began flooding the powerhouse, that NHPC even know that something was wrong. It was then that the massive curved steel gates of the intake were slid shut, and the powerhouse evacuated. This was further confirmed by Joshi, PRO, who also said that the 'matter was under investigation' by their own team for organizational detail. The General Manager and the Chief Engineer of the Dhauliganga HEP had meanwhile been transferred out. It is not clear yet how soon after the powerhouse was flooded, that they opened the sluice gates at the bottom of the reservoir. Draining it was clearly beneficial for NHPC, but catastrophic for roads, bridges and habitations downstream, both in India and Nepal.

If you look closely enough, there are two separate events here. The flooding of the powerhouse, and the 'emergency' release of reservoir water. The powerhouse was not flooded because of too much water in the reservoir, but because it was in operation when its tail-race exit seven km downstream, is blocked-off because of poor short-sighted design[3]. They are then forced to close the gates of the intake, and abandon the powerhouse where water has reached the control-room on the fourth floor. The intake gates are now shut, but the flood waters continue to fill the reservoir further. They have already al-



*The Dhauliganga Hydro-power dam, after being flushed of bed-load sediment.*

3 How a tail-race exit could be planned on the Ellagad stream which is very steep and unstable, full of debris from a service tunnel, and highly 'flashy', is indicative of poor design and of lax design approval mechanisms.

lowed the dam fill to a very high level, and here is the other curious factor.

The design of the Dhauliganga dam, is such that the dam has no provision for water to 'overflow' the dam safely, should undesired (even if foreseeable) levels be reached as they did this year. Or say if giant boulders block the narrow sluice gates at the bottom of the reservoir. Or in the real-time situation of what actually happened this year, the blocking of the tail-race tunnel leading to flooding of the power-house, hence requiring the shutting off of the intake, and losing the option of reducing reservoir levels more gradually and safely through two simultaneous releases. They then open the flood-gates. Clearly, one of two things have led to this decision:

*Stitched photo of the bed of the drained Dhauliganga reservoir.*

One, letting the reservoir fill to a very high level is not out of the ordinary for NHPC; they do it every monsoon, as they had done on 16th June as well. It is not for many months in the year that they have enough water to run all four turbines. Despite the run-of-the-river label, Joshi confirmed that they were unable to let *any* water to continue to flow un-diverted in the river-channel during the winter-spring months (we have photographic evidence of this as well), or they would not have water to turn even one turbine! The mandatory requirement that every hydro-power dam in Uttarakhand be required to release at least 10% of the river's *minimum* flows at all times (as greatly insufficient as such a small flow is for efficiency of the power-station is one thing, but what it means to all life in and along the river, is quite another.

Two, that the faulty design of the dam, both in location of its tail-race exit as well as no provision for over-topping, in combination with the carelessness of allowing the reservoir to fill to such levels at the start of the monsoon, was responsible for the 'emergency' catastrophic release.

The Dhauliganga HEP is located on the *Darma-yangti* river, re-christened the Dhauliganga river, just a couple of kilometers upstream of the confluence with the Mahakali at Tawaghat. In these two kilometers, the rivers flows (twice a year when it is allowed to, for a few hours) down steeply to the confluence which it meets at right-angles. With the Mahakali already in spate,

Their regular annual schedule for flushing the reservoir of bed-load and sediment is normally the 15th of July and the 31st of July every year. Here again, when the reservoir is full, and there is enough water to provide the pressure for increased and accelerated flow to flush the reservoir on a twice-annual basis. Both flushing schedules follow each other closely at peak-flow season, so that the flushing is as complete as possible, and there is enough of a monsoon season ahead to fill the reservoir up again before the winter-lean. The probable reason for preponing the flushing could be the chance of flushing some of the unusually high accumulation of bed-load debris that had come down in this years flood. What this meant to the

In what seems to be an unbelievably short-sighted and poor design, the Tail-race Tunnel, from where water is released back into the river after having turned the turbines, is flushed into a tributary stream, the Ellagad. It was when Ellagad also pulsed, that it sent a train of bed-load debris down its lower reaches, effectively blocking the exit of the Tail-race Tunnel coming out of the power-house. The power house continued to take in water from the Head-race Tunnel intake to work their turbines, unaware that the exit for water had been blocked. It is only when the water blocked in the Tail-race Tunnel surged back up, burst through the turbine units and began flooding the powerhouse, that NHPC even know that something was wrong. It was then that the massive curved steel gates of the intake were slid shut, and the powerhouse evacuated.

coupled with the sudden release of more than 6 million cubic meters of stored water (Gross Storage Capacity), plus the flow of the river in flood (steadily increasing from 398 cubic meters a second on 15th June), as well as millions of tonnes of bed-load boulders and sediment, the damage downstream is clear to see. If you look at the fresh scour-level on the banks downstream of the dam, it is in places more than 15 meters higher than the flood-level flow of the Dhauli River. The river added thousands of tonnes of even more debris when, because of the flood level it reached, it tore through, plucking high at the talus-cones on either bank, and at every turn. At the confluence at Tawaghat, there must have been something of a back-flood for some time (a common flood phenomenon where the high-flowing main-stem creates a temporary water-dam), because the water-level seems to have risen very high, taking away the bridge that connects the entire Kuti valley and the trade route to Tibet, tearing away almost the entire village-market complex at Tawaghat, and destroying the road as well. The flood waters had clearly reached the top of the road because of the deposition of river-sand on it. When I walked this section days later, the river was only less than a meter below danger mark. Even so, it was flowing about 12 meters below the road! Further downstream, the destruction was more serious.

In order to understand the magnitude of this flood event, I ask Joshi of NHPC for flow-data of the Dhauli river between the 12th and the 18th of June. He goes off for some time and returns with a sheet of paper that has hand-scrawled 6 hourly flow volumes from 12th June, but stops short at 15th June. All the flow volumes between the 12th and the 15th were below 150 cubic meters a second (cumecs), and at 12 am, on the night of the 15th June it jumps up to 389.92 cumecs. This is just the start of the flood. Joshi seems to balk right here, and says that they have not received data for the 16th June yet (the day I speak to him was the 8th of July), and that he may get it after a week or so. And anyway, he says, the powerhouse was abandoned from the night of the 16thJune, so getting data beyond that would be out of question. It is clear that Joshi was unwilling to give me flow-data for the duration of the flood-pulse. He had only minutes before informed me of how automated the whole operation was, and that it was possible for them to even operate the power-house sitting in their Dobat office-complex itself. The real scenario will be clear when we get flow data for the 16th and 17th of June.

According to NHPC, the Peak Flood Design for the Dhauliganga HEP is 3,210 cumecs, at a return interval of 100 years. That is the flow volumes that the dam is designed to be able to take without damage, at flood levels expected at least every hundred years. It is unlikely that flow volumes had reached almost 10 times the flow volumes of the flood on the 15th June at the damsite (389.92 cumecs). NHPC gets its flow data from an automated level-gauge at the reservoir, so it did not require anyone to take readings manually, even prior to abandoning the station. If unprecedented levels had indeed been reached, then why had they held on to water in the reservoir right till the night of the 16th June? Please see the accompanying photographs, of the dam reservoir, empty of water. You can see at least two levels of cut-away terraces. The lower ones are alluvial terraces, consisting clearly of coarser gravels and cobbles deposited by the flowing river. The higher terraces, more visible high on the upper true-left bank in the photo, are remnant lacustrine (lake-bed) terraces, consisting of finer silts and sand, deposited by the stilled waters in the reservoir when it was full. This was the highest point of sediment accumulation in the reservoir prior to being flushed out. Clearly, at least 45% the reservoir was full of debris and sediment before NHPC flushed it. And if you look at the brown line on the concrete face of the dam, you see the level that the reservoir was allowed to fill upto, marked by the 'bath-tub ring' of floating bark and woody debris stuck there after draining.

Joshi tells me that when a delegation of people from Nepal came to NHPC to talk about the possible role that NHPC's sudden release of water might have had on the flood that devastated Khalanga bazar at Darchula, he had told them that to the contrary, the dam had saved Nepal from great damage. "See how much debris is still behind our reservoir!" This was bare-faced misinformation. There are two aspects being denied here. One, that great masses of debris were actually flushed out from the lower-end of the reservoir on the night of 16th June, leading to greatly increased flood levels as well as erosive potential downstream, especially on the Nepal bank at Darchula, which bore the brunt of flushed debris centrifuged on the curve. As is evident from the photo of the dam-site above, most of the debris that has been flushed, is from the *front-end* of the reservoir only. And two, that *all* dams and reservoirs, despite some being able to flush out debris from a section of the reservoir, do actually hold back a great deal of bed-load as well as suspended sediment in the *upper end* of the reservoir. They impede the very essential flow of sediment down to the oceans. Look now at the geometry of bed-load debris in the stitched photo. Distortions from the wide-angle lens apart, it clearly shows a gradual slope, and a filling up of the bed-rock channel to form a wide, sloping flood-plain. Had it not been for the dam, the bed-load would have continued to fill up the bed-rock channel downstream at about the same angle, slowing the entire flow of water and entrained debris. It would not have been washed down catastrophically all the way down to Darchula, without the force of an additional 6 million $m^3$ of stored water released suddenly.

**Emmanuel Theophilus** (etheophilus@gmail.com).

# Yettinahole Diversion: An imprudent, Rs. 100 Billion proposition

Karnataka has been mulling over diverting waters of the west flowing rivers to the east for many years. Netravathi-Hemavathy Link was proposed by the National Water Development Agency (NWDA) as a part of peninsular component of the River linking project. In the meantime, Karnataka appointed a committee under Dr. G. S. Paramshivaiah which worked on a plan to divert waters from west-flowing rivers including Netravathi to 7 districts of Bayaleseeme region including Kolar, Bangalore, Tumkur, Ramanagara, Chikmagalore, Chikkaballapur, etc.

But currently, the Karnataka Government is seriously considering Yettinahole Diversion Project which plans to divert head waters of the Gundia River (a tributary of the Kumardhara, which is a tributary of the Netravathi) in the west and transfer this water to the other end of the state, in the east. It has been reported that tenders for this project have been floated already. Its Project Report (June 2012) is titled as 'Scheme for diversion of flood water from Sakleshpura (West) to Kolar/ Chikkaballapra Districts (East)'.

> Purpose of this scheme is stated as drinking water supply to Kolar and Chikkaballapur Districts. However, analysis of the Project Report indicates that drinking water to be supplied to Kolar and Chikkaballapur will be a bare 2.81 TMC or 11.7% of the 24.01 TMC diverted. If water is supplied to Bangalore (urban) as is said in the Budget, but not the Project Report, then water supplied to Kolar and Chikkaballapur will be even less, possibly nil. Kolar and Chikkaballapur have better options but they won't even be considered if this project goes ahead.

SANDRP analyzed the Yettinahole Project Report (YPR) which was obtained under RTI by Mr. Kishore Kumar Hongadhalla, who had specifically asked for a 'Detailed' Project Report. The total cost of the project as per the YPR is 8323 Crores. But the estimate does not include many costs like Rehabilitation and Resettlement (R & R), complete land acquisition, construction of reservoirs on Palar Basin as mentioned in the YPR, pipeline to 337 tanks, Forest NPV, etc. If these are included, cost of the project will certainly go beyond Rs 10000 crores, or Rs 100 billion.

Analysis of the Project Report and site visit to Yettinahole and surrounding catchments indicate that this project is economically, socially and technically unviable and will have a massive impact on the ecology of the Western Ghats and eastern plains. The analysis also assesses the claim of providing drinking water to Kolar and Chikkaballapur: whether it is viable, desirable and optimal option.

**I. The Project** The project involves construction of 8 dams in 2 phases at the head waters of Gundia River catchment in the West flowing Netravathi River Basin, the lifeline of Mangalore and Dakshin Kannada districts. The YPR insists on calling these as weirs, but the drawings indicate the height these dams as 15 meters from deepest foundation, making them large dams, as per the definition of International Commission on Large Dams {ICOLD}.

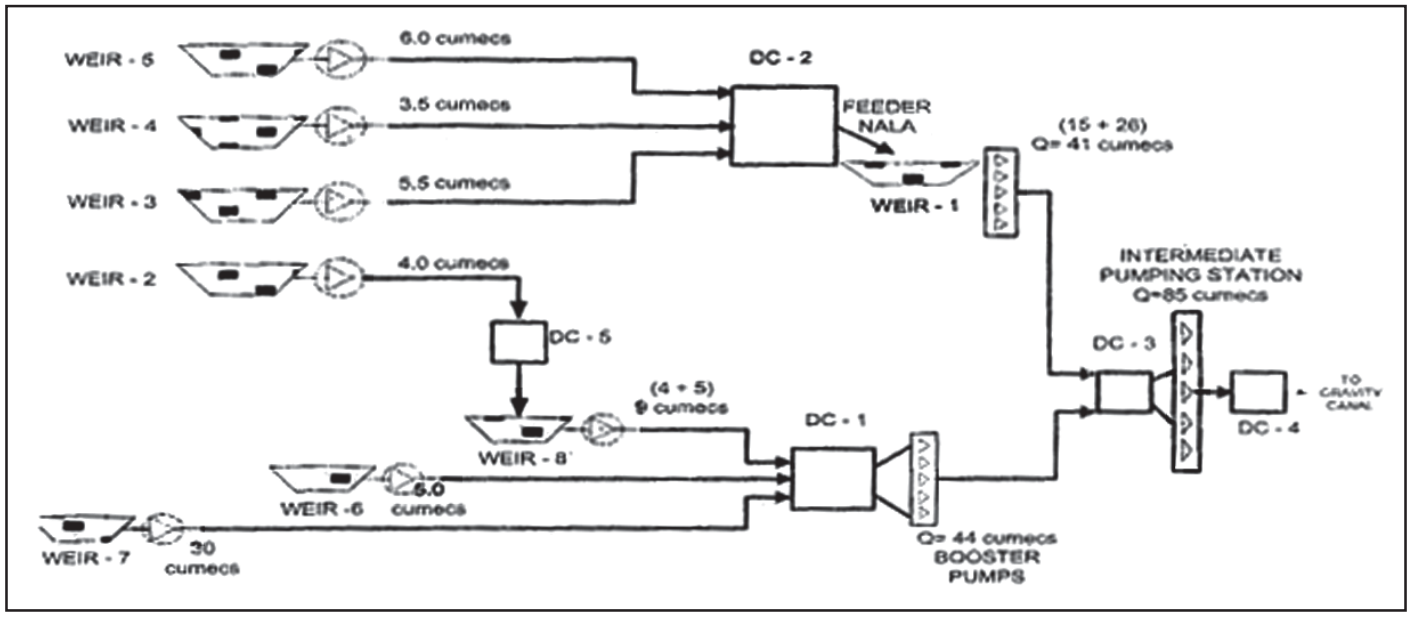
**Dams and rising mains in Western Ghats**: 2 dams are planned across Yettinahole stream, 2 on its tributaries, 2 across Kadumanehole stream, 1 across Kerihole stream and 1 across Hongadhalla stream. All these streams are rivulets which join at various points to make river Gundia. Rising mains (large pipelines that transport water under pressure) from these projects will pump water into 3 delivery chambers. From the delivery chambers, water will be lifted to an intermediate pumping station at Doddanagara in Sakaleshpur. From Doddanagara, water will be lifted again and conveyed to Delivery chamber 4 located near Harvanahalli in Sakaleshpura.

**233 kms long Gravity canal** From Harvanahalli, water will flow through a gravity canal of 233 kms (Proponent says 250 kms in MoEF Meeting) in length to Tumkur.

**Devaranya Durga Reservoir** From Tumkur, again the water will be lifted through a rising main and will culminate into a reservoir to be built at Devaranya Durga. This reservoir will have a height of 68 m and gross storage capacity of 11 TMC (Thousand Million Cubic Ft, a unit for large quantity of water typically used in south India. 1 TMC = 28.32 Million Cubic Meters (MCM)). It will submerge approximately 1200 ha, half of it forests.

When this project was discussed in the Expert Appraisal Committee meeting of the Ministry of environment and Forests, the proponents have claimed that Devaranyadurga Reservoir will submerge 1200 ha of land, of which 50% will be forest land and will also submerge at least 2 villages.

From here, two rising mains of 80 kms and 55 kms will again lift and convey water to Chikkaballapura and




*Schematic Representation of pumping involved in Yettinahole Diversion Project. From: KNNL Project Report Volume I)*

Kolar respectively. In Chikkaballapura and Kolar, the rising main will feed various streams and rivers and will have dedicated pipelines to feed Minor Irrigation (MI) and Zilla Parishad (ZP) tanks. Scheme envisages feeding 198 tanks in Chikkaballapur and 139 tanks in Kolar District.

> In Karnataka Budget, Feb 2012, Rs 200 Crores have been allocated for making DPR & initial works while Rs 2670 Crores have been sanctioned and Rs 850 Crores allocated in 2013-14 for works upto Harvanahalli in Sakaleshpura. All these allocations have been made without a Detailed Project Report, cost benefit assessment, options assessment, environmental and social appraisal, or any statutory clearances.

The scheme envisages providing 14 TMC for Hassan, Chikkamagalore, Tumkur and Bangalore rural and 10 TMC for Kolar and Chikkaballapur, through the dam at Devaranyadurga. So, the claims that Kolar and Chikkaballapur will get 24 TMC water is false. **The project report is titled 'Scheme of diversion of floodwaters to Chikkaballpur and Kolar' but these districts seem to be getting less than 50% of the diverted water. As we see in later sections, of this 10 TMC barely 2.81 TMC is earmarked for drinking water supply.**


*Locations of Dams / Weirs of Yettinahole Project (SANDRP)*

**New Reservoirs planned:** In addition to the 8 dams in Gundia basin and Devranya Durga reservoir, following reservoirs are part of the scheme.

**Chikkaballapur District** A new reservoir across Kushavathy River at Gudibande and one at Timassandra across Palar River.

**Kolar District** Bethmangala Tank to be used as an important reservoir; one at Tanadihalli on Palar River North to store 2.20 TMC water. Electricity needed: As per the YPR, the scheme will require massive 370 MW power.

**Volume of water to be diverted** 24.01 TMC water is proposed to be diverted between June-November from a catchment area of 89.66 sq km (8966 ha). It has to be noted that 24.01 TMC water is

available at 50% dependability. So, in 50% years, full quantity of 24.01 TMC volume would not be available for diversion. The structures and conveyance system has also been designed at 50% dependability.

This may imply one or more of several things:

- **The scheme can work beyond June-November**
- **The scheme can divert more than 24 TMC waters from Yettinahole**
- **The scheme can be used later for diverting waters of other rivers.**

This further warrants a serious look at the entire project.

**II. Environmental Impact of the Project on Western Ghats and other regions: Impact on Forest Land and Wildlife** The exact extent of revenue, private, agriculture and forest land required for the scheme is not known from the YPR. The report (Vol II, Estimates) mentions a head 'clearing of thick forest by burning' under costs for laying rising mains from dams to pumping stations. According to these estimates, 107.27 ha of thick forests will have to be cut or burnt for the rising mains alone.

No provision has been made for environmental flows. This will be extremely damaging for the downstream ecology, wildlife and forests. This will be clearly unacceptable. The scheme may look unviable if e-flows are released, as they must be, from the dams for the downstream river.

The forest land involved in submergence of dams, approach roads, workers colonies, muck dumping sites, electrical substations, mining of materials for the project, destruction due to blasting, etc. will be additional. The project report does not provide any of these details.

Most of the forests in the vicinity of Yettinahole, Kadumanehole, Kerihole & Hongadhalla are not only reserved forests, but important wildlife corridors. When IISc studied this region it recorded 119 trees species, 63 shrubs and climbers, 57 herbs and 54 pteridophytes, 44 species of butterflies, 4 dragon and damsel flies, 23 species of amphibians including the threatened Gundia Indian Frog, 32 reptiles, 91 birds and 22 mammals including Tiger, Lion Tailed Macaque, Elephant, Slender Loris & Gaur.

The region is witnessing rising **man-animal conflicts** due to destruction and degradation of habitats. During 2002-2012-13, 34 people have died and 17 elephants have been electrocuted in Sakaleshwar Taluk alone (http://www.thehindu.com/news/national/karnataka/elephant-encounter-is-an-everyday-affair-for-them/article4874172.ece). The Karnataka Elephant Task Force has acknowledged the impact of mini hydel projects in Sakaleshpur on Elephant corridors and has given strong recommendations about reviewing clearance and cancelling projects which affect elephant distribution areas negative and do not comply with existing laws.

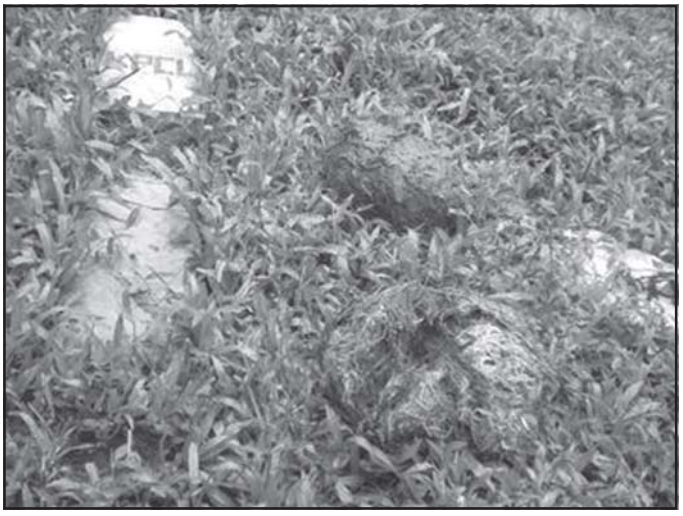
Dams, roads, blasting, muck disposal, workers colonies, sub stations, increased traffic in this region will have a pronounced impact on the wildlife, including the elephants. Any more stress on these regions will precipitate in furthering of conflicts and disturbance.

**Environmental Flows** As per the working tables, all inflow from the headwaters will be diverted for the most of June, parts of July and August and all of September, October and November. The streams will be completely dry for most days during this period. (YPR Vol. I, Page A 21) No provision has been made for environmental flows. This will be extremely damaging for the downstream ecology, wildlife and forests. This will be clearly unacceptable. **The scheme may look unviable if eflows are released, as they must be, from the dams for the downstream river.**

*Yettinahole Catchment and surrounding forests Photo: SANDRP*

**Impact on fish assemblages and fish sanctuaries** Kumaradhara and Netravathi are home to some rare community conserved fish sanctuaries. Fish sanctuaries exist at Kukke Subramanya, Nakur Gaya and Yenekal, all of which are downstream from the proposed diversion. The fish assemblages, their feeding and breeding patterns are hugely affected by flow. Any drastic changes in flow regime will affect these species.

Gundia River itself has several rare and endangered fish species. 3 new fish species have been discovered and 1 rediscovered in Kumardhara river basin in 2012-13.



*Elephant dung at a KPCL survey in Hongadhalla region, to be affected by Yattinahole Diversion Project. Photo: IISc*

**Blasting using dynamite** The YPR and estimates state that hard rock will need to be blasted extensively with dynamite. Such blasting will have severe negative impact on the wildlife of the region. Blasting also has documented harmful effects on groundwater aquifers and can affect the existing water sources and water holes of the wildlife.

**Muck generation and disposal** As per the YPR, muck generated for laying the rising mains alone will be to over 1.3 MCM. All of this muck will be generated close to the rivers, in forest areas. Dumping of this muck will have a huge negative impact on water quality, forests and wildlife. Uttarakhand disaster in June 2013 highlighted how muck is routinely disposed into rivers and the havoc this causes in the downstream. **Additional muck** will be generated during construction of dam, approach road, colonies, substations, etc.

*Congregation of the endangered Mahseer fish at Yenekal Fish Sanctuary, Kumaradhara River downstream proposed Yettinahole diversion. Photo: SANDRP*

**Approach roads, workers colonies** All the dams/ dams, rising mains, electric substations will require approach roads which will pass through forests, further impacting forests and wildlife. Workers colonies and waste disposal will again have additional impacts on the region.

**Diverting entire rivers and not just floodwaters** The scheme claims that it is diverting only the flood waters of these rivers. However, the yield of all the rivers at 50% dependability between June-November is 28.94 TMC, out of which 24.01 TMC (83%) will be diverted. This leaves just 4.93 TMC, out of which evaporation losses are also to be accounted. This is total diversion of the rivers and not just diversion of 'flood waters'. Even when rainfall is low, the scheme will divert all available water till it gets its share of 24.01 TMC, which will then dry the rivers completely in the downstream.

These are monsoon-fed rivers. Only source of water for these rivers is the monsoon rain, which also replenishes groundwater, which constitutes the base flow in non-monsoon months. This diversion in monsoon months will have a huge impact on water availability in non-monsoon months also in these rivers and which in turn will have further impact on the biodiversity and livelihoods.

**III. Supposed Beneficiaries: Contradictions between Budget and Project Report** As stated (verbatim) in the YPR, following are the beneficiaries of the project (YPR Vol I: Sec 4.7, P 52)

These are monsoon-fed rivers. Only source of water for them is the monsoon rain, which also replenishes groundwater, which constitutes the base flow in non-monsoon months. This diversion in monsoon months will have huge impact on water availability in non-monsoon months.

- **Selected parts in Hassan District**
- **Selected towns in Chikmagalur, Chitradurga by feeding Vedavathi river**
- **Tumkur, Madhugiri, Pavagada and Koratagere Taluk**
- **Chamrajsagar reservoir**
- **Water to Devanhalli Industrial Area**
- **Augmentation of Hesarghatta tank**
- **Water to Chikkaballpur and Kolar District**

In addition, water will be used to rejuvenate Rivers like Arkavathy (Cauvery Basin), Palar, (Independent basin) Jayamangli, Kushavathy, Uttara and Dakshin Pinakini, Chitravathi and Papagni rivers (Pennar Basin) (YPR

Vol I: Sec 4.9, P 52) The YPR makes no mention of supplying water to Bangalore urban area or BBMP (Bruhut Benguluru Mahananagara Palike). However, the Karnataka Budget 2012-14 specifically mentions providing water to these areas. How much water will this be? What are the options of water supply to Bangalore? If water is supplied to voracious Bangalore and Devanahalli Industrial area, will there actually be water for Kolar, Chikkaballapur and other drought affected areas?

**River Rejuvenation** Long distance transfer of water involving huge ecological, social and financial costs seems to be a poor way of rejuvenating rivers. Experts say that rejuvenating rivers like Arkavathy can be more optimally achieved with rainwater harvesting, demand side management, pollution control and releasing treated water in rivers like Arkavathy and Vrishabhavati, not through interbasin transfers.

**Priority to Drinking water for Kolar and Chikkaballapur?** Of the 10 TMC to be provided to Kolar and Chikkaballapur, the YPR mentions that drinking water needs of Kolar and Chikaballapur Districts are 6 TMC. Rest of the 4 TMC will be used to fill up 337 MI and ZP Tanks in the districts.

The YPR proposes to fill these tanks at 60% live storage capacity. According to Table 2 and 3 in YPR Vol 1, P 7,

*River Gundia, formed by Yettinahole and other streams which are to be diverted by the Project Photo: SANDRP*

this proposed 60% filling requires 4.08 TMC water in Chikkaballapur & 3.11 TMC in Kolar. So together, as per the YPR, the proposed filling of MI tanks needs 7.19 TMC water. **This leaves bare 2.81 TMC water for drinking purposes of these districts!** If out of 24.01 TMC transferred, only 2.81 TMC will be supplied for drinking water to Kolar and Chikaballapur, this is clearly not a drinking water supply project for these districts, as claimed.

So non-serious and undecided the YPR is about supplying drinking water that it says, "…alternatively if water is to be used fully for drinking, then it will require 4 new storage tanks". The YPR does not conclude whether these tanks will be built.

**IV. Escaping Environmental Clearance by false claims** This scheme will:

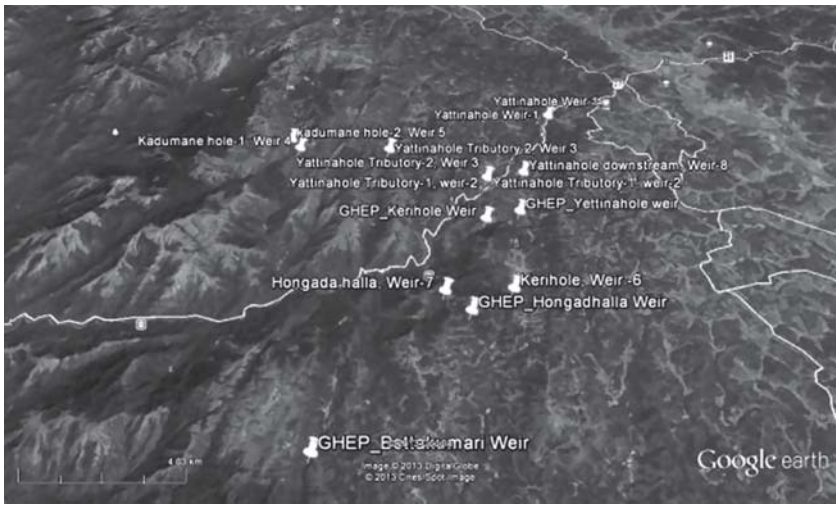
- Destroy hundreds of hectares of pristine biodiversity rich and unexplored forests, wildlife habitats, habitats of critically endangered species, reserved and protected forests in the Western Ghats
- Affect downstream flows and riverine ecology of the Gundia, Kumaradhara & Netravathi Rivers
- Its Devaranyadurga reservoir will submerge 1200 ha, 50% of it forest land and 2 villages

A joint letter has been sent by over 14 organisations and individuals across Karnataka, urging the MoEF to appraise this project under EIA notification. Signatories include former Forest Advisory Committee Member Dr. Ullas Karanth, Praveen Bhargav from Wildlife First, institutes like IISc, amongst many others.

- Main gravity canal which will be 250 kms long and 16 m wide (as stated in EAC meeting by proponent) will require a minimum of 400 ha
- It involves Interbasin water transfer, which is not prudent or viable as per the Western Ghats Expert Ecology Panel Report
- Clearly, at the least, the scheme requires detailed scrutiny for its impacts by undergoing participatory environment and social impact assessment and undergoing a thorough Environmental Appraisal.

The scheme has escaped this by wrongly claiming that it is a purely drinking water supply scheme. The proposal was considered by the Expert Appraisal Committee of the MoEF in its 63rd meeting in Oct 2012. In the meeting, the EAC noted that 'there appears to be some environmental and R and R issues which should be addressed" but recorded its inability to consider this project as drinking water projects do not fall in the purview of EIA Notification 2006. The minutes note that: *"The project neither proposes any hydro-electric power generation component nor comprises of any irrigation component and thus has no command area."* However, this is a wrong claim for the following reasons, among others:

**A. Irrigation Component** The EAC says that there is no irrigation component. However, the command areas of 337 minor irrigation tanks in Kolar and Chikkaballapur, as mentioned in the YPR (Vol I, Annex 3) come to 29,182 ha, all of which will benefit from the project. This is higher than command area of 10,000 ha stipulated in EIA notification; hence the project comes under the purview of EIA Notification 2006 and will have to be considered for Environmental Clearance by Expert Appraisal Committee of the MoEF under EIA notification 2006.




*Locations of weirs and dams of Gundia Hydel Project (GHEP) and Yettinahole Projects (SANDRP)*

**B. Hydropower Generation** The project claims that it can generate 125-150 MW of power through gravity canals. Location details are mentioned in the YPR (P 59, Vol I). As the total capacity is higher than 25 MW, the project comes under the purview of EIA Notification 2006 and will have to consider for Environmental Clearance by the Expert Appraisal Committee of the MoEF.

It is clear that the EAC's decision that the project does not fall under the purview of EIA notification is incorrect. Furthermore, it is unacceptable to exclude any large dam or project which has such significant impact on land and ecology from the purview of EIA notification and EIA notification needs urgent amendment.[1]

**V. Yettinahole & Gundia HEP overlap** While the Karnataka Neeravari Nigam Limited is making Project Reports, DPRs and has earmarked huge budget in 2013-14, Gundia HEP (Phase I & II: 200 MW each) has been planned on the same catchments and same rivers by Karnataka Power Corp Ltd (KPCL). Gundia HEP proposes to divert flows from Yettinahole, Kerihole, Hongadhalla and Kadumanehole (Phase II) through maze of tunnels to generate 200 MW power in phase I and 200 MW in Phase II. KPCL has completed an Environment Impact Assessment for the project (which is of a poor quality). KPCL has also made presentations to the Western Ghats Expert Ecology Panel about the project.

Power generation is based on water yield from the catchment, which will be intercepted by Yettinahole Diversion Project. In fact, dams of Gundia HEP and Yettinahole HEP are placed very close to each other. Both the projects, by the Karnataka Government are working in isolation and at cross purposes as if the other project does not exist.

> It is clear that the EAC's decision that the project does not fall under the purview of EIA notification is incorrect, it is based on wrong claims & inadequate appraisal. It is also unacceptable to exclude any large dam or project which has such significant impact on rivers & ecology from the purview of EIA notification & the notification should be amended.

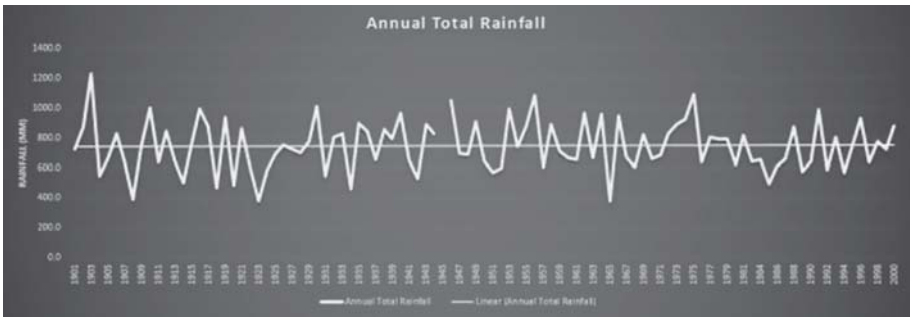
> Is diverting water from west flowing rivers, at a huge social, ecological and economical costs the only option to provide drinking water to Kolar and Chikkaballapur regions? Is there no other optimal solution? Did the Karnataka government undertake an options assessment study to arrive at such a conclusion?

Shockingly, both projects have also been considered within three months by the EAC of the MoEF for appraisal. The Expert Appraisal Committee of the MoEF in its 59th Meeting in July 2012 considered Gundia HEP and in its 63rd Meeting in Oct 2012 considered the Yettinahole Diversion Project. EAC has recommended Environmental Clearance to Gundia (another wrong decision), whereas it has indicated that Yettinahole Diversion Project does not require an Environmental Clearance. In doing so, the EAC has not considered that both these projects plan to divert waters from the same

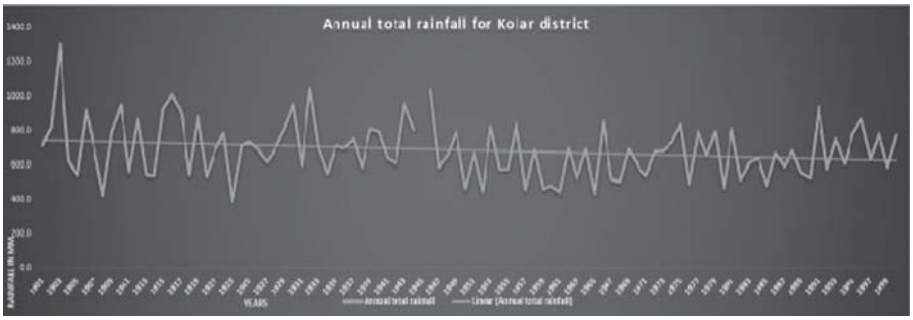
1 www.dnaindia.com/bangalore/1889546/report-govt-hiding-facts-on-yettinahole-say-activists, http://articles.timesofindia.indiatimes.com/2013-09-12/mangalore/42007183_1_yettinahole-project-chikkaballapur-districts-water-problem, http://articles.timesofindia.indiatimes.com/2013-09-13/mangalore/42039865_1_water-problem-drinking-water-supply-scheme-dams

catchments. This also says a lot about application of mind by the Expert Appraisal Committee. At the same time, it also raises questions about the coordination and work of Karnataka Government.

**VI. Options Assessment**




*Annual Rainfall in Chikkaballapur District during 1901-2001 (Data Source: IMD, Graph: SANDRP)*




*Annual Rainfall in Kolar District during 1901-2001 (Data Source: IMD, Graph: SANDRP)*

The project raises pertinent questions about water management and water sharing: Is diverting water from west flowing rivers, at a huge social, ecological and economical costs the only option to provide drinking water to Kolar and Chikkaballapur regions? Is there no other optimal solution? Did the Karnataka government undertake an options assessment study to arrive at such a conclusion?

An analysis of rainfall for the one hundred years (1901-2001) indicates that rainfall in Kolar and Chikkaballapur has not shown significant fall.

**Kolar District, especially was once rich in water tanks and local harvesting measures.** Average rainfall in Kolar is 750 mm, which is not low. According to the Karnataka Gazetteer, the district had, in 2012, only 2,095 tanks from the 35,783 tanks in 1968. Most of the tanks were a victim of siltation, encroachment and neglect. Organisations like Gramvikas and Dhan Foundation have demonstrated how desilting and management of tanks in Kolar can secure water for drinking as well as for irrigation, cattle rearing, etc. Some groups have worked on highlighting the positive impact of applying reservoir silt to crops, as an option

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## Long-distance water transfer: problems and prospects

If many of the past and present experiences on long-distance water transfer are reviewed critically, the following major issues emerge:

(1) Mass transfer of water is often justified by considering only the direct cost of transporting water. Seldom are the values of services foregone by the exporting region due to reduction of their water availability, i.e. the opportunity costs of exported water analysed.

(2) Various other feasible alternatives to inter-basin water transfer are often not investigated. There is a tendency within the engineering and economic professions to opt for technological solutions-"soft" options tend to be neglected. Since water resources development is dominated by these two professions, there is a tendency to opt for technological fixes before all viable alternatives are explored. Among possible options are:

- more efficient use of available water including demand side management;
- re-use of waste water;
- better management of watersheds;
- improved integration of surface and groundwater supplies;
- changing cropping patterns. *(United Nations University, 1983)*

to fertilisers and to facilitate desilting. Indian Institute of Sciences (IISc) has demonstrated that desilting these tanks in Kolar can not only help water security, but it can also reduce the incidence of fluorosis.

**River Rejuvenation** Long distance water diversion is not an answer to drying and dying rivers. Rivers like Arkavathy are dying due to persistent pollution from industries and urban areas and also due to catchment degradation. How will waters from Yettinahole revive this situation? Local efforts, sound environmental and water governance however, can help this situation. But this is not being explored with any seriousness.

**VII. Conclusion: Environment and Social Assessment are basic prerequisites for a project of such massive dimensions.**

All in all, looking at several serious issues associated with Yettinahole Diversion Project, it is urgently needed that:

- Project should undergo complete Environment appraisal and Clearance scrutiny, as laid down by the EIA notification, 2006
- Options Assessment and cost benefit analysis, including the ecological costs of the diversion should be carried out and put in public domain.
- Downstream affected communities, including cities like Mangalore and estuarine fisher folk should be consulted during public hearings.
- Unbiased assessment about the water stress in Kolar and Chikkaballapur should be carried out with members from groups which have been working from the region, to evolve a holistic water management policy for the region.
- Options for reviving rivers and tanks in Kolar-Chikkaballapur need to be explored using traditional and appropriate technology practices. Appropriate cropping pattern and cropping methods should be a part of this exercise.
- A review of rain water harvesting, efficient water supply, demand management, lake revival, groundwater recharge, grey water and sewage recycling for cities including Bangalore should be carried out prior to allocating more water from distant sources to such cities.
- A democratic bottom up exercise has to be taken up on such proposals both in the Western Ghats areas as well as the projected benefiting areas.
- Recommendations of the Western Ghats Expert Ecology Panel about avoiding inter-basin transfers in the Western Ghats should be adhered to.

It will not be in the interest of the ecology in Western Ghats, Eastern regions or communities in Dakshin Kannada, Hassan, Kolar, Tumkur, Bangalore and Chikkaballpur if a project of such massive proportions, with devastating social and environmental impacts is taken up for short term political or financial gains, bypassing proper credible appraisal and democratic decision making.

> Climate change reports like the 4X4 Assessment have indicated that rainfall in southern Western Ghats, which also includes Netravathi and Gundia catchments, is expected to fall in the coming years. This will affect water resource projects, crops, fisheries, etc. We cannot ignore these signals while planning expensive schemes at the cost of ecology and society which might prove to be unviable in a few years in face of climate change. Keeping all these factors in mind Karnataka needs to proceed extremely cautiously on Yettinahole diversion scheme.

Kolar and Chikkaballapur regions have been facing water problems, leading to hardships to local communities. But, for a long term and sustainable solution to these problems, Yettinahole Diversion does not look like a viable option, we do not even know how much water will reach these regions. But the project has the potential to exacerbate ecological degradation, fuel man animal conflicts and further water conflicts between regions.

Drought affected regions may have better options, including better operation and maintenance of existing water infrastructure, more appropriate cropping and water use pattern, revival of existing water harvesting structures, recycle and reuse of water, among others. Attention needs to be paid to these options, rather than 'diverting' it.

**Hidden costs of projects like Yettinahole Diversion are too big to remain hidden.**

**Parineeta Dandekar**

**References:**


[1] Volume II, Part B, Estimates, Section: Estimates for implementation of the scheme: Drawings

[2] Minutes of the Meeting, 63rd EAC Meeting, MoEF held on 12-13th October 2012. Agenda Item 2.11 (B)

[3] Pteridophytes are plants from the fern family that reproduce by spores.

[4] http://www.deccanherald.com/content/264870/researchers-stumble-species-fish.html, Ichthyological Exploration of Freshwaters, Vol. 23, Number 4

[5] http://www.thehindu.com/news/national/karnataka/tanks-fast-disappearing-in-kolar/article4975328.ece

[6] http://gramavikas.org/Tank%20Desilting.pdf

[7] http://ces.iisc.ernet.in/energy/water/proceed/section6/paper1/section6paper1.htm

[8] http://sandrp.wordpress.com/2013/07/26/climate-change-in-western-ghats-4x4-report-and-beyond/

**Kerala Govt agrees to change operation of Chalakudy River Hydropower Project:**

# Public pressure leads to changes in dam operation

The decision to increase off-peak generation at Poringalkuthu Left Bank Hydro Electric Project (PLB HEP) in Chalakudy River, taken at a meeting convened by the Hon Chief Minister of Kerala in the fourth week of April (PRD - Thrissur, 25-04-13) was a partial success to the sustained campaign for dams re-operation at Chalakudy river. The meeting was attended by the Ministers for water resource and power, River Basin MLAs and officials of state electricity board and irrigation department. The decision however falls short of the demand for reverting the operation of PLB HEP into base load.

Normaly the summer water availability in the river below Poringalkuthu HEP should be between 1.3 - 1.5 MCM / day. The failure of both monsoons in 2012 and violation of Kerala-Tamil Nadu interstate Parambikulam - Aliyar agreement (1970) condition that the Kerala Sholayar reservoir shall be kept at full reservoir level by Tamil Nadu on the 1st of February every year (Sch. II.3 – PAP Agreement), reduced the water availability in 2013 summer to less than 1 MCM per day resulting in severe water stress in the river basin. On top of the water shortage, intra-day as well as inter-day flow fluctuations in tail-race discharge from PLB HEP had worsened the situation. Anticipating water shortage the river basin MLAs as well as Local Self Government (LSG) heads had been demanding action from the State Government since December 2012.

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**Background: The river – dams and flow regime**

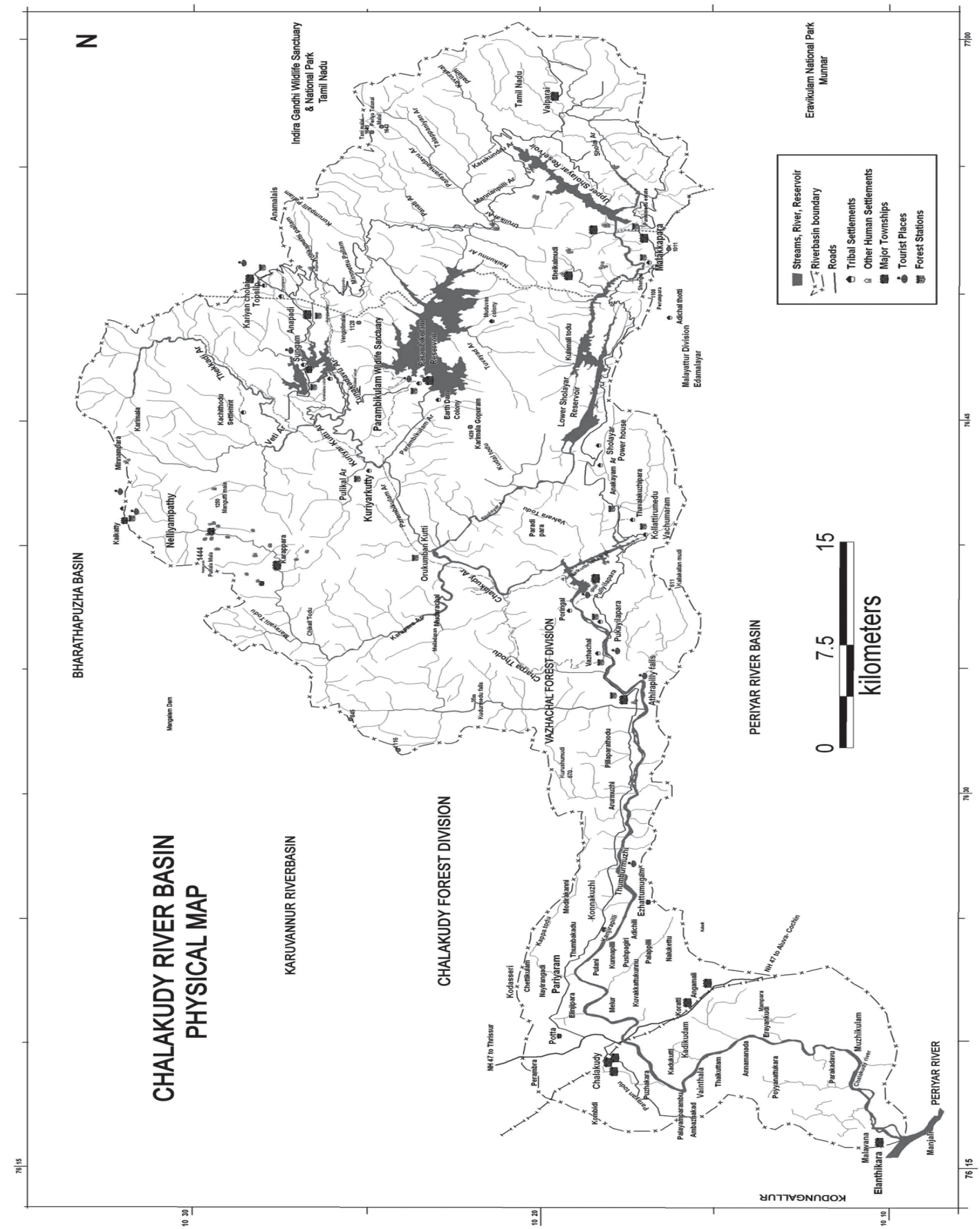
Chalakudypuzha (Chalakudy River), the fifth largest river in Kerala with a length of 144 kms and catchment area of 1704 Sq.kms is one of the heavily utilised rivers in the state. Major tributaries of this west flowing river originate from the Anamalai hills, Parambikulam Plateau and Nelliyampathy hills of Southern Western Ghats. The river/ its tributaries have been dammed at six places. The dams and diversions have completely altered the natural hydrological regime in the river. The river is the life line of about 30 Local Self Governments (LSGs) and about ten lakh people. Apart from the dams and diversion structures, numerous drinking water schemes and lift irrigation schemes are also dependent on the river. The table below provides details of existing major projects on the river.

**Existing dams/ diversions in Chalakudypuzha**

| Sl. No. | Project | Commissioning Year | Purpose | Storage MCM | Developer |
|---|---|---|---|---|---|
| 1 | Poringalkuthu LB HEP | 1957 | Hydro Power | 32 | Kerala SEB |
| 2 | Thunakadavu (PAP)* | 1965 | Diversion | 15.77 | Tamilnadu |
| 3 | Kerala Sholayar (PAP) | 1966 | Hydro Power | 153.49 | Kerala SEB |
| 4 | Parambikulam (PAP) | 1967 | Diversion | 504.66 | Tamilnadu |
| 5 | Peruarippallam (PAP) | 1971 | Diversion | 17.56 | Tamilnadu |
| 6 | TN Sholayar (PAP) | 1971 | Hydropower + diversion | 152.7 | Tamilnadu |
| 7 | Chalakudy River Diversion Scheme | 1959 ** | Irrigation | 0,218 | Kerala-Irri Dept |
| 8 | Idamalayar Augmentation Scheme | 1990s | Diversion | NA | Kerala SEB |

**PAP- Parambikulam Aliyar Project **Partially operational since 1952*

Almost 75 percent of the catchments of the Chalakudy River were forested at the turn of 20th century. Hence the river had a fairly healthy flow even during summer months. However, at present, the natural summer flow in the river has reduced drastically due to forest degradation and dams and diversions. Consequently, the


CHALAKUDY RIVER BASIN
PHYSICAL MAP
N
BHARATHAPUZHA BASIN
KARUVANNUR RIVERBASIN
CHALAKUDY FOREST DIVISION
PERIYAR RIVER BASIN
KODUNGALLUR
Indira Gandhi Wildlife Sanctuary & National Park Tamil Nadu
Eravikulam National Park Munnar
Parambikulam Wildlife Sanctuary
Parambikulam Reservoir
Upper Sholayar Reservoir
Lower Sholayar Reservoir
VAZHACHAL FOREST DIVISION
Malayattur Division Edamalayar
Streams, River, Reservoir
Riverbasin boundary
Roads
Tribal Settlements
Other Human Settlements
Major Townships
Tourist Places
Forest Stations
0
7.5
15
kilometers
PERIYAR RIVER

The High Level Working Group formed to look into the WGEEP report acted in a non-transparent manner. They conducted a field visit with the project proponent (KSEB), without informing the public, press or the Grama Panchayath and not providing opportunity for the organisations opposing the project to present their case.

present river flow in non-monsoon months is almost entirely dependent on the storage at Kerala Sholayar and Poringalkuthu reservoirs. The downstream major irrigation project, the Chalakudy River Diversion Scheme (CRDS) does not have storage of its own. It is completely dependent on the tailrace discharge from the PLB – HEP. Over the last two decades, the daily flow fluctuation due to the semi-peaking operation of the PLB-HEP is affecting the functioning of CRDS. Incidentally, the campaign against the proposed Athirappilly hydroelectric project (AHEP) had first brought this issue into focus. One of the major issues with regards to AHEP, a peaking power station, was the downstream impacts of drastic intra-day flow fluctuation (to the tune of 1:17).

Incidentally, Western Ghats Ecology Expert Panel had recommended not to give clearance to the project after conducting field visits and detailed and transparent consultations. However, the High Level Working Group formed to look into the WGEEP report acted in a non-transparent manner. They conducted a field visit with the project proponent (The Kerala State Electricity Board - KSEB), without informing the public, press or the Grama Panchayath and not providing opportunity for the organisations opposing the project to present their case before the committee. The HLWG recommended that the project proponent can approach the Ministry of Environment and Forest (MoEF) for fresh clearance, if it so desired, after some studies despite identifying the project location as ecologically sensitive area.

Analysis of hydrological data for AHEP as well as debates on the issue revealed the existing flow fluctuations due to changed operation pattern of PLB HEP since early 1990s. As the capacity of the PLB HEP was enhanced from 32 MW (8 MW X 4) to 48 MW with the commissioning of a 16 MW generator in 1999, the peak generation and the resultant flow fluctuation increased. The field assessment in the CRDS command area had confirmed the impacts due to the flow fluctuations.

As part of an action research done by the Kerala State Centre of Forum for Policy Dialogue on Water Conflicts in India, an attempt was made to find possible solutions to the conflict of interest between power generation and downstream needs. The conflict between CRDS and other downstream uses due to total diversion of water at its head works at Thumboormuzhi was also taken up. An alternate reservoir operations management (ROM) strategy that aims at sustainable and equitable sharing of available water resources was prepared as part of the study.

**ROM strategy for Chalakudy River** The ROM strategy tried to synchronise the operations of Kerala Sholayar and PLB HEPs with the downstream requirements. Secondary data regarding the river flow, rainfall etc. was collected from concerned agencies like KSEB, Water Resources Department etc. Issues with respect to the present flow regime were assessed through field surveys and stakeholder consultations. After analysing the available data and assessing downstream irrigation needs through people's perception and based on the suggestions/ comments by the experts, the draft reservoir operations strategy was prepared. ROM strategy is attempted for water available to the basin after diversions to Tamil Nadu and Idamalayar with focus for non-monsoon months.

At present the entire flow reaching Thumboormuzhi weir, the head works of CRDS is being diverted to the canals, except for some overflow during peak hours. This is affecting the downstream areas including the ecological functions of the Chalakudy river. The ROM strategy proposes a minimum flow of not less than 2 m3/ sec to be released from Thumboormuzhi weir in to the river.

In the proposed ROM strategy, the summer water availability for the downstream needs is suggested to be increased through modifications in the operation pattern of Kerala Sholayar and Poringalkuthu HEPs. At Kerala Sholayar, the total utilisable quantity of water is fixed as per the PAP agreement. The monsoon discharge is proposed to be reduced by about 15 % of the average flow (data period - 1979 to 2006) so that the non-monsoon water availability can be enhanced. At Poringalkuthu, the ROM strategy proposes that the water level in the reservoir shall be kept at close to the full reservoir level up to the end of January. The change in the operation of the two HEPs is expected to ensure water availability of not less than 1.5 MCM/ day for the downstream uses. The ROM strategy proposes to operate the Poringalkuthu HEP, the lower dam, that discharges water into the main river as a base load station (as it was operated before 1990s) in non-monsoon months. This can ensure a steady discharge of over 17 m3/sec.

*Peringal Dam: Photo source: CPSS*

At present the entire flow reaching Thumboormuzhi weir, the head works of CRDS is being diverted to the canals, except for some overflow during peak hours. This is affecting the downstream areas including the ecological functions of the river. The ROM strategy proposes a minimum flow of not less than 2 m3/sec to be released from Thumboormuzhi weir in to the river. This may be increased later after improvement in natural summer river flow through eco-regeneration of the upper catchments and by reducing the irrigation demand through adoption of 'more crop per drop' approach in the CRDS command.

The revised operation pattern is not expected to have significant impact on the power front. The non-monsoon power generation from the river basin is expected to slightly increase, whereas, the peak power generation will be reduced by 8 MW to 16 MW, which is about 0.25-0.5 % of the present summer peak demand of Kerala of about 3400 MW.

**Building public awareness and public pressure**

The ROM strategy was widely discussed with the LSGs and other stakeholders. As the LSGs, farmers and Irrigation and Agriculture departments were active partners in the action research (2008 – 2012) they readily accepted the proposed ROM strategy. Many LSGs demanded the state government to implement this, through resolutions. With the shortage in rainfall during 2012 monsoons, severe water stress was anticipated and a series of steps were taken to put pressure on the state government for dams re-operation so that the summer water shortage for downstream areas can be reduced.

- A meeting of the LSG representatives organised by Chalakudy Puzha Samrakshana Samithi (CPSS) before the start of irrigation season discussed the anticipated scenario for the 2012-13 season and decided to step up campaign for changing the operation pattern at PLB HEP.
- The project advisory committee meeting of CRDS, in December 2012 also took a similar decision.
- In December 2012, five MLAs of the Chalakudy River basin, cutting across party lines, jointly demanded the Chief Minister to convene a meeting of the concerned ministers, MLAs, LSG heads and officials to discuss the issues with regards to the summer water availability in the river basin. This was the result of a series of interactions with these MLAs by the CPSS team.
- In the second week of January 2013, 25 LSG heads gave a submission to the CM demanding action by the government to ensure water availability at Kerala Sholayar as per the PAP agreement and changing the Poringalkuthu HEP to base load station.
- Even as no action was taken by the state government and the situation was becoming grim, the project advisory committee meeting of CRDS decided that a delegation must go to Thiruvananthapuram and meet the CM and other concerned ministers. A meeting of LSG heads organised jointly by CPSS and Chalakudy basin Block Panchayaths also decided to take necessary actions.
- On March 19th 2013, four MLAs and 10 LSG heads from Chalakudy River basin met the Chief Minister and Minister for Water Resources. Rajaneesh from CPSS was also part of the team. The people's representatives wanted the Govt to take necessary steps to ensure better water availability for Chalakudy basin. The main points raised were regarding violation of Parambikulam - Aliyar Agreement condition and ensuring steady flow from Poringalkuthu HEP for the downstream needs. The CM agreed to convene a meeting of all concerned immediately. However, the meeting was delayed by more than one month and when the meeting finally took place, the LSG representatives were not invited for the same.
- Meanwhile a detailed discussion was held with the KSEB Chairman in the first week of April 2013. The Chairman promised to look into the issue.

The campaign / advocacy for further changes in operation will have to be continued as the present decision is of a temporary nature. Moreover, a collective of Local Self Government heads is emerging for the cause of the river and this collective, if it becomes active, can really help take forward the efforts for the revival of Chalakudy River.

- All along the campaign, the print as well as visual media reported these developments and published / telecast stories on the issue.

**Partial re-operation** The daily average generation at Poringalkuthu in January 2013 was 0.4481 MU (Million Units, as per Kerala State Load Despatch Centre website) and the corresponding discharge was about 1.2 MCM per day. Due to the non-compliance of PAP agreement condition, the combined storage at Kerala Sholayar and Poringalkuthu reservoirs on the 1st February was only around 115 MCM against an anticipated volume of 160 -170 MCM. Consequently, the generation was less in the following months. The average generation and discharge in February, March and April were 0.3457 MU / 0.93 MCM, 0.3237MU / 0.87 MCM and 0.3343 MU / 0.9 MCM respectively. The semi-peaking operation at PLB HEP continued resulting in intra-day fluctuations. The off-peak generation was mostly limited to 8 MW with a corresponding discharge of around 6.5 m3/sec, which is highly insufficient to meet the irrigation demand of the CRDS command. There were also instances of practically no generation during off-peak hours, especially during night times.

Apart from the intra-day fluctuation the inter-day flow fluctuations was also a major cause of worry. The situation was particularly bad in the second half of March and first half of April. On 4 days between March 21st and April 10th, the generation was between 0.158 MU and 0.182 MU. The corresponding discharge was less than 0.5 MCM. On a few other days, the generation was between 0.2 -0.3 MU.

*Upper Sholayar Dam Photo Source: CPSS*

Since the decision of the meeting convened by the CM, the situation has slightly improved. The inter-day fluctuation was less since 25th of April with the discharge of 0.9 -1 MCM on most days. More importantly, the off-peak generation was at least 16 MW (except on a couple of days). The average discharge since the last week of April has also slightly increased in comparison to the previous months.

The change in operation pattern does not seem to have had any negative impact on power front. Initially the KSEB had increased off-peak generation without reducing peak generation. The generation figures as per the SLDC website shows the generation at PLB HEP on 25th, 26th and 27th April (after the decision at Ministry level meeting) as 0.425 MU, 0.402 MU and 0.412 MU respectively, corresponding to discharge of around 1.1 MCM. Later only one machine was available and the peak as well as total generation reduced. The average generation during this period was around 0.35 MU corresponding to a discharge of about 0.95 MCM. The generation figure shows that the station was running continuously as a base load station (by default?) for two weeks. Even though the rate of discharge was less than the actual requirement, we have requested the irrigation officials to assess the effect of steady inflow at CRDS.

The decision for increasing off-peak generation is significant since it is acknowledgement by the government that the downstream requirement should be given priority over power generation. However, the long delay in taking such a decision even after the river basin MLAs and LSG heads unanimously demanded for the same cannot be justified. Also, the steps taken so far are not sufficient. The storage position as on 27-04-2013 at Kerala Sholayar and Poringalkuthu reservoirs (33.78 MCM and 9.23 MCM respectively) could have supported a daily discharge of upto 1.3 MCM till May 31st, especially since the catchments traditionally get good pre-monsoon rains and an inflow of 100 cusecs from Tamil Nadu Sholayar was anticipated, on the basis of inter-ministerial discussion on PAP agreement.

The campaign / advocacy for further changes in operation will have to be continued as the present decision is of a temporary nature. Until and unless the non-monsoon discharge from Poringalkuthu HEP is enhanced to around 17 m3/sec, sufficient river discharge from CRDS head works is not likely to materialise. (The suggested discharge rate from Poringalkuthu HEP as per the ROM strategy, based on anticipated water availability, is 17.25 m3/ sec and the corresponding generation will be 24 MW.) The fact that the Chalakudy MLA protested against closing down all generators of old powerhouse together since May 7th shows that the people's representatives are now more vigilant on the issue and this should help in stepping up the campaign. Moreover, a collective of Local Self Government heads is emerging for the cause of the river and this collective, if it becomes active, can really help take forward the efforts for the revival of Chalakudy River.

**S P Ravi** (cholayar@rediffmail.com)

# CAG blows the lid off *Massive* irrigation scam in Andhra Pradesh

**Summary**·

- As on March 2012, Rs 80,000 crores spent on the projects under Jalyagnam, which was launched in 2004 by the then CM Rajshekhar Reddy, involving 86 projects involving cost of over Rs 1.86 lakh crore.
- Almost all test checked projects were taken up and contract awarded without obtaining necessary clearances such as investment clearance (24 projects) from Planning Commission, forest clearance (21 projects) and environment clearance (18 projects) from Ministry of Environment and Forests; in principle clearance (16 projects) from CWC and R&R clearance (14 projects) from Ministry of Tribal Affairs.
- Out of 74 irrigation projects, 31 were Lift Irrigation Schemes. The power required for these schemes amounted to nearly 54.43 percent of total Installed Capacity of the state and around 30.93 percent of total consumption of the state.
- Audit scrutiny revealed that state government was yet to approve the draft plan for R&R of over 50 percent of displaced from 546 villages. Out of 281 villages for which the draft R & R plan is yet to be submitted, 206 villages pertain the controversial Polavaram project.
- CAG noted that while the state government shows an extra ordinary commitment in expediting the task of awarding the contract for Spillway (in March 2005) and ECRF dam work (in August 2006) for Polavaram project, it had not even initiated the socio-economic survey of the submergence zone and not yet identified the PAFs.
- Some of the contractors garnered most of the work packages, largely through cross-formation of Joint Ventures amongst themselves. CAG found several flaws in tendering process such as, awarding contract on single tender basis, keeping qualification criteria fixed for empanelment of contractors at less stringent levels etc.

Jalyagnam, the most ambitious irrigation scheme of Andhra Pradesh has come under severe indictment in a recent performance audit carried out by CAG of India. The report got tabled in Andhra Pradesh assembly on June 21st, 2013, the last day of the budget session. The program comprised 86 projects (44 major, 30 medium, 4 flood banks and 8 modernisation works) and was estimated to cost Rs 1.86 lakh crore. While 12 under implementation projects (with an approved cost of Rs 2139 crore) were brought under Jalyagnam with an express aim of expediting their completion, the rest of the projects got sanctioned between 2004-'05 and 2008-'09. The programme aimed at extending irrigation in an ayacut of 97.40 lakh acres and stabilise another 22.53 lakh acres of existing ayacut in Telangana and Rayalseema. It also promised to provide drinking water to 1/4th of the state's population and generate 2700 MW of power.

Almost all test checked projects were taken up and contract awarded without obtaining necessary clearances such as investment clearance (24 projects) from Planning Commission, forest clearance (21) and environment clearance (18) from Ministry of Environment and Forests; in principle clearance (16) from CWC and R&R clearance (14 projects) from Ministry of Tribal Affairs.

CAG audits for Andhra Pradesh have been reviewing irrigation projects in Andhra Pradesh almost every year. During 2004-2010, it had examined 18 irrigation projects. Almost all of those projects formed a part of Jalyagnam and those audit findings are under discussion by Public Accounts Committee. Those earlier audit reports have raised mainly two concerns: i) the need for building safeguards in the EPC (i.e. Engineering, Procurement and Construction) mode of contracts with regard to variation in scope, specifications, design etc. and ii) the impact of non-acquisition of land and non-obtaining statutory clearances from CWC, MoEF and MoTA before awarding the contracts.

Under the new report, CAG carried out performance audit of 26 out of 74 major and medium irrigation projects, involving a capital outlay of Rs 1.43 lakh crore, taken up under Jalyagnam during June – December 2011 with a focus on irrigation benefits. As on March 2012, Rs 61,498 crore were spent on these projects. Some of these 26 projects had also come under audit scrutiny earlier as individual projects or as part of performance audit of AIBP and Godawari Water Utilisation Authority. Those audit findings haven't been repeated in the present report.

Audit scrutiny of project related documents around feasibility issues revealed that many projects were taken up without adequate planning on ensuring the availability of water and power (in the case of Lift Irrigation Shcmes), and inadequate delineation of the targeted ayacut in some cases. It was especially so, in respect of projects on river Krishna and Pennar, where the water required for successful implementation of the projects is far above the quantity available in these two river basins. The state government was conscious of this aspect and hence made a claim that it proposed to utilise the surplus/ flood flow in the two river basins. CAG audit observation noted that there was evidence in the records made available to audit that the flood data of these rivers were analysed to assess the average num-

> CAG noted that while the state govt shows an extra ordinary commitment in expediting the awarding the contract for Spillway (March 2005) and dam (Aug 2006) for Polavaram project, it had not even initiated the socio-economic survey of the submergence zone & not identified the PAFs.

ber of days that flood flows are available annually. There was also no uniformity in the number of flood days adopted for the designing of the projects that were supposed to use flood flows of Krishna.

**Where is the water for the projects?** CAG cites an opinion expressed by an expert committee constituted by the state government in July 1997, to examine the feasibility of implementing Galeru Nagari project. This expert committee had stated at that point almost 15 years ago that the number of flood days in Krishna was only 30 per annum that too with only 40 percent dependability. Examined alongside this observation, some of the projects taken up on river Krishna are not viable and this is corroborated by the fact that CWC has returned the project proposals of Galeru Nagari, Veligonda and Srisailam Left Bank Canal projects to state government, stating that the state government had failed to establish clear and firm availability of water on a long term basis for these projects. CAG audit scrutiny also underlined a Planning Commission stipulation that all projects that have inter-state ramifications should be cleared by CWC, but state government had not obtained for these projects as of September 2012. CAG also noticed that there was no evidence in the records produced for audit to show that the proposals in respect of Gandikota-CBR lift scheme and CBR Lingala canal were sent to the CWC at any stage for approval.

**Contracts before statutory clearances** Not only was it an issue of an abysmally poor planning of Jalyagnam projects, audit scrutiny revealed that four projects were taken up without even feasibility studies and another 11 projects were taken up without preparation of Detailed Project Reports. CAG's audit scrutiny also revealed that almost all test checked projects were taken up and contracts awarded without obtaining necessary clearances such as investment clearance (24 projects) from Planning Commission, forest clearance (21 projects) and environment clearance (18 projects) from MoEF, in-principle clearance (16 projects) from CWC and R&R clearance (14 projects) from MoTA. The much touted Jalyagnam had clearly bulldozed its way through the environmental regulation regime. It would be informative to find out if Planning Commission, CWC, MoEF and MoTA ever tried to engage the Andhra Pradesh state government to abide by the laws of the land. If this is not an example of brazen disregard for laws unleashed by development intoxication, where else shall we look?

As per annexure 3.1 in the audit report even as of July 2012 the following projects had not received Forest Clearances even as contracts for works on the same were awarded for quite some time now: Uttar Andhra, Galeru Nagari, Somasila Swarnmukhi Link Canal, Somasila Project, Rajiv Dummugudem, Pranahita Chevella, Dummugudem NS Tail pond, Telugu Ganga, Handri Neeva, Veligonda, Komaram Bheem, Kanthanapally, Devadula and Yellampally.

The same annexure states that following projects had not received Environment Clearance as of July 2012: Venkatnagaram, Uttar Andhra, Somasila Swarnamukhi Link Canal, Gandhikota – CBR Lift, CBR Lingala Canal, Pranhita Chevella, Dummuguddem NS Tail pond and Kanthanpally.

> Audit revealed that state govt was yet to approve the draft R&R plan of over 50% of displaced from 546 villages. Out of 281 villages for which the draft R & R plan is not yet submitted, 206 are to be affected by the Polavaram project.

**55% of AP power for Lift Irrigation Schemes?** Out of 74 irrigation projects, 31 are Lift Irrigation Schemes. The power required for these projects, taken up over the river Krishna and Godavari, works out to be nearly 54.43 percent of total installed capacity of the state, and around 30.39 percent of the total consumption of the state! Andhra being a power deficit state, providing the requisite power to operate these schemes would pose a big challenge for the state government and expose the wisdom of mad push for the Jalyagnam.

The Engineering Procurement and Construction (EPC) mode of contracting, currently the system followed by many governments for time bound execution of the project and minimising the risks to state, as adopted by state government did not ensure commensurate benefits to the State. Audit scrutiny noticed that several contracts were awarded on a single tender basis, and sufficient time was not given to ensure fair competition. Technical sanctions were obtained after the receipt and opening of bids in several cases. Audit also found cases where finalisations of Iinternational Bench Mark values were delayed and post tender changes to INMs were allowed.

MEIL Company got as many as 28 packages worth Rs 36,916 crore by entering into joint ventures with 23 companies. SEW construction company also garnered 51 packages worth Rs 25,369 crore by entering into JV with 20 different companies. Maytas, which was in the hands of Ramalinga Raju's son Teja Raju during 2004-10, had successfully grabbed 28 packages worth Rs 23,186 crore by entering into joint venture with 17 companies. CAG also pointed that MEIL, AAG, BHEL and ABB companies were not in the original empanelled list but have teamed up with several empanelled firms to obtain contracts under open category.

**No concern for Rehabilitation** A program that was taken up and marketed all around in a mission mode to

fast track the irrigation projects proceeded at snail pace when it came to ensuring resettlement and rehabilitation of affected people. Audit scrutiny revealed that state government was yet to approve the draft plan for R&R of over 50 percent of displaced from 546 villages. Out of 281 villages for which the draft R & R plan is yet to be submitted, 206 villages pertain the controversial Polavaram project. The Commissioner, R&R stated in a reply dated July 2012 that the government had prioritised 191 villages in different irrigation projects as of March 2012, and all the activities in this regard will have to be completed within the next two to three years. CAG was not quite convinced with this explanation and noted that "the reply confirms that Government is unable to complete even the planning process, despite expiry of the original agreement periods, for a majority of the projects".

Further, provision of houses for the populated slated to be affected by the projects was abysmally slow, with just about 13 percent progress in constructing houses for these families. In respect of nine projects, namely Pulichintala, Veligonda, Bheema, Nettempadu, Tarakaram Tirth Sagar, Neelwai, Kalwakurthy, Handri Neeva and Devdula; as against 23166 houses contemplated, not a single house was completed as of March 2012! Further, in two projects, namely Polavaram and Yelampally involving five districts, the progress in completion of houses was only marginal.

**Polavaram** CAG indicted the controversial Polavaram project, which involved submergence of 277 villages, affecting 42,712 Project Affected Families with 131045 persons in 3 districts in Andhra Pradesh, apart from affecting 2335 PAFs with 11766 persons from 4 villages in Chhatisgarh and 1002 PAFs with 6316 persons from 8 villages in Odisha for visible delay in R & R activity. CAG noted that while the state government show an extra ordinary commitment in expediting the task of awarding the contract for Spillway (in March 2005) and ECRF dam work (in August 2006), it had not even initiated the socio economic survey of the submergence zone and had not yet identified the PAFs. Audit scrutiny also found out that the first phase of R & R activity, which was due for completion by June 2008, was not completed even as of March 2012. Even those 9 villages that are situated in close vicinity of the dam have not been shifted as noted by the audit. The state government has resettled only 277 families with 1136 persons so far despite incurring expenditure worth Rs 108 crore on R & R. Thus the progress on R & R front in Polavaram was a mere 5 percent during the last seven years. Isn't it time for social scientists and researchers who have worked on the issue of displacement and rehabilitation to ask why is it that in projects after projects we witness that rehabilitation work is almost never carried out *pari passu* with civil construction work, let alone it being completed prior to embarking on the stages of construction!

> The power required for the 31 Lift Irrigation Schemes, works out to be 54.43 % of total installed capacity, and around 30.39 % of the total consumption of the state!

However, when it came to acquire land for the projects the state government appeared to be trying to put up a brave performance! CAG audit revealed that out of 9.19 lakh acres of land required for projects, state government had acquired 5.97 lakh acres (i.e. almost 65 percent).

CAG also noted that delays completion of projects, along with changes to the specification and scope of work pursuant to detailed study and investigation and designs, pushed up the costs by Rs 52,116 crores compared to the origination sanction.

This performance audit points at how Jalyagnam that was used by the successive regimes in Andhra Pradesh to build a grandiose image rang hollow on the issue of due diligence in planning, showing due regards to the environmental regulations and dealing with the displaced people sensitively. It drives home the message that citizens must probe into the lofty claims churn out by propaganda machinery of the state. Will citizens start asking some tough questions on what plagues irrigation sector in India?

**Bigger than Maharashtra Irrigation scam?** From the figures available so far, it seems to be larger than the irrigation scam of Maharashtra. Will the media take this up with equal zeal as they took up the case of Maharashtra irrigation scam and do persistent investigations into specific projects, specific irregularities, specific contracts, specific contractors, specific links of contractors with politicians, specific failure of regulatory agencies?

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**References, further reading:**

1. http://saiindia.gov.in/english/home/Our_Products/Audit_Report/Government_Wise/state_audit/recent_reports/Andhra_Pradesh/2012/Report_2/Report_2.html
2. http://saiindia.gov.in/english/home/Our_Products/Audit_Report/Government_Wise/state_audit/recent_reports/Andhra_Pradesh/2012/Report_2/Appendices.pdf

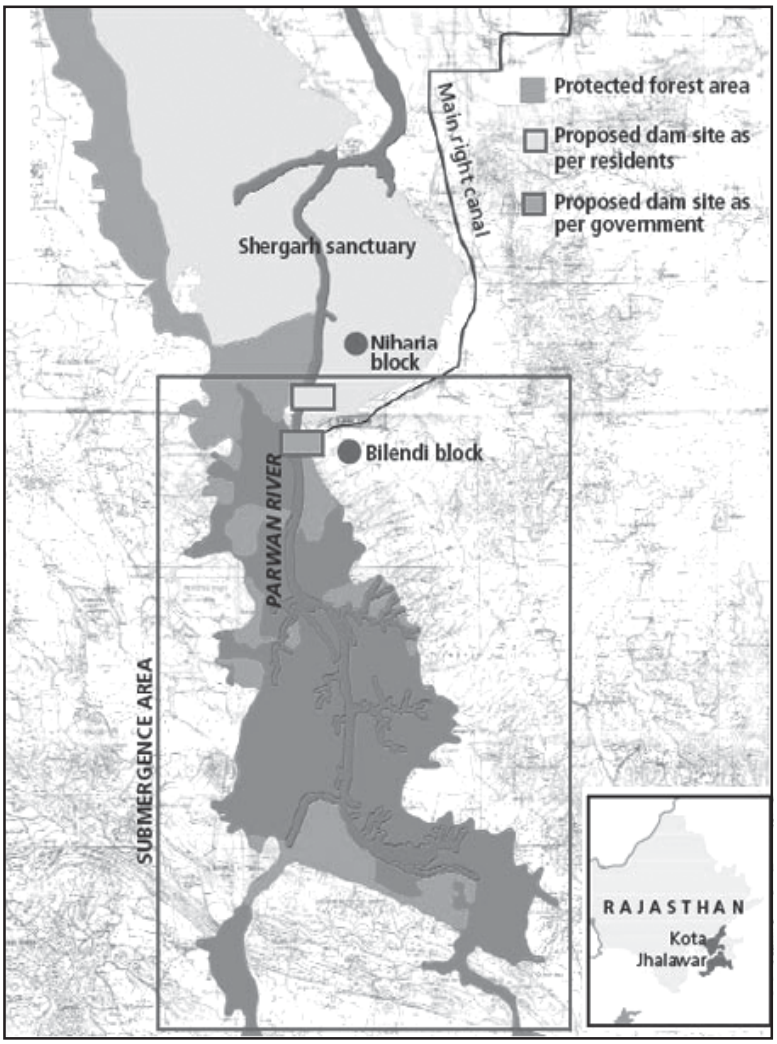
   **PS from DRP**: Following series of three detailed articles by Raman Kirpal throws light on who benefitted from the corruption in Andhra Pradesh Irrigation scam. These were published during Sept 9-10 after the above article was published as a blog on http://sandrp.wordpress.com/2013/07/19/cag-blows-the-lid-off-massive-irrigation-scam-in-andhra-pradesh/ on July 19, 2013.
3. http://www.firstpost.com/india/jalayagnam-ysrs-rs-90000-crore-lets-all-loot-scam-1094625.html
4. http://www.firstpost.com/printpage.php?idno=1097447&sr_no=0
5. http://www.firstpost.com/india/andhras-mother-of-all-scams-why-jalayagnam-coalgate-1100605.html

### Open letter to Rahul Gandhi on laying the Foundation Stone of Parwan Dam:

# Unjustified Dam plagued by manipulated clearances

Following reports[1] that indicated that Congress Vice President Rahul Gandhi is to lay foundation stone for the controversial Parwan Irrigation Project in Jhalawar district in Rajasthan on Sept 17, 2013, following open letter was sent on Sept 16, 2013. So far there there has been no response to this letter.

Detailed analysis of official documents and other reliable accounts indicate that this project (see the map, taken from *Down to Earth*), seems like an unnecessary dam that is being basically pushed to supply water for some of the proposed thermal power projects in Baran and Jhalawar districts.




The project will require 12248 ha of land including submergence of massive 9850 ha of land as per conservative government estimates, displacing about 100 000 people[2] of at least 67 villages of Baran and Jhalawar districts in Hadauti region of Rajasthan. It will require at least 1835 ha of forest land, and will affect at least 2 lakh trees only on this forest land, lakhs of trees on non forest land will also stand destroyed. Most of the 1.31 lakh Ha of land in Baran, Jhalawar and Kota districts that is supposedly to get irrigation is already irrigated. These districts have average rainfall of 842 mm (Baran[3]), 923.5 mm (Jhalawar[4]) and 804 mm (Kota[5]), which is high by Rajasthan standards. If there is adequate rainwater harvesting of this rain, groundwater levels would certainly come up and remain sustainable with appropriate cropping pattern as has happened in neighbouring Alwar and Jaipur districts. This Rs 2000 crore dam with huge impacts is certainly not required for this purpose.

From all accounts, in reality the dam seems to be pushed for thermal power projects like the 1320 MW Kawai coal based thermal power project of Adani[6], 2320 MW coal based Chhabra[7] thermal power project of Rajasthan Rajya Vidyut Utpadan Nigam Ltd and the 330 MW gas based thermal power project of RRVUN at the same location. Very strangely, these projects applied for environmental clearance based on water supply from Parwan dam, when that dam does not have all the required statutory clearances, when work is yet to start. The MoEF should have refused to sanction these thermal power projects before this dam is in place, but it speaks volumes about poor environmental governance that the TPS received clearances based on water availability from a project which is yet to see even foundation stone or all necessary clearances. The allocation for thermal power projects has increased[8] from earlier 40 Million Cubic meters (MCM) to 79 MCM to current 84

1 http://www.dnaindia.com/india/1888665/report-for-second-time-in-a-week-rahul-gandhi-to-campaign-in-vasundhara-s-bastion

2 http://www.downtoearth.org.in/content/desperate-dam, http://www.downtoearth.org.in/content/poll-bound-rajasthan-hurries-controversial-parwan-dam

3 http://www.imd.gov.in/section/hydro/distrainfall/webrain/rajasthan/baran.txt

4 http://www.imd.gov.in/section/hydro/distrainfall/webrain/rajasthan/jhalawar.txt

5 http://www.imd.gov.in/section/hydro/distrainfall/webrain/rajasthan/kota.txt

The project will require 12248 ha of land including submergence of massive 9850 ha of land as per conservative government estimates, displacing about 100 000 people of at least 67 villages of Baran and Jhalawar districts in Hadauti region of Rajasthan.

MCM and this is likely to increase further considering these allocations did not take into account the transmission and evaporation losses.

**Manipulated clearance process** In fact the Parwan dam still does not have all the necessary statutory clearances. Let us quickly review the way the dam got various clearances.

**Environmental Impact Assessment** From the minutes of the 40th and 45th meetings of the Expert Appraisal Committee on River Valley Committee held in August and December 2010 it is clear that the EIA of the project did not have: Full social impact assessment, Full R&R Plan with Categories of Project affected persons and land for each category, Proper Dam break analysis, proper command area development plan with cropping pattern or necessary irrigation intensity (Only 14% kharif irrigation intensity provided as noted by EAC) and drainage plan, muck disposal plan. The basic facts in the EIA were wrong and the EAC should have rejected the EIA.

**Contradictions in EIA** The EIA is full of contradictory information. For example, it says the forest land coming under submergence is 1608.59 ha when the FAC Form A[9] says that it is 1731.48 ha. This is a very big difference by any standards.

**No R & R Plan** Firstly, there is such huge difference in the figures of displaced and affected people in various documents; it is clear there has been no credible social impact assessment. For example, EAC notes that 2722 houses to be submerged, 3002 (2142 in FAC factsheet in 0413) families to be affected, of which 461 tribal families. No R&R for non tribal families, which is completely unjust. Even for the tribal families, the provision of agricultural land is inadequate. FAC sub committee accepts: "Most of these families do not belong to the notified Scheduled Tribes and also do not have any documentary evidence to prove that they are in possession of the forest land for a continuous period of minimum 75 years." So most of the people will not even be eligible for resettlement or rehabilitation.

**How many people are affected?** About 1401 families with population of 8650 persons will be displaced fully while 741 families with 4172 persons will be displaced partially. The ST population comprises 340 families with population of 1524 persons fully displaced and 121 families population 882 persons are partially displaced. However, independent sources are saying that the project will affect more than a lakh of people. This is such a huge difference and track record of past projects shows that official figures are always gross under estimates.

**EAC recommendation** However, even when responses to EAC's fundamental concerns were not available, EAC recommended clearance to the project in December 2010. This showed how the EAC basically functions as a rubber stamp, clearing all projects coming its way.

**Environment clearance** After EAC's recommendation, the MEF is supposed to issue Environmental clearance letter. However, a visit to - MEF website[10] on September 16, 2013 shows no information about clearance for this project. We learn from other sources that the MEF issued clearance to the project in 2011, but since it is not put up on the MEF website as required under EIA notification and NGT orders, the project will remain open to legal challenge within 30/90 days of MEF putting up the clearance letter on MEF website.

**Wildlife clearance** The Standing Committee of the National Board of Wildlife in its 22nd meeting[11] held on April 25, 2011 considered the project. This was the infa-

6 http://greenclearancewatch.org/node/4838

7 http://www.rvunl.com/Chhabra.php

8 http://articles.timesofindia.indiatimes.com/2011-02-17/jaipur/28554617_1_mcm-hadauti-farmers

9 http://forestsclearance.nic.in/writereaddata/UploadFormA/2013_4_02_Apr_2013_1645005901formAparwan.pdf

10 http://environmentclearance.nic.in/Search.aspx

11 http://envfor.nic.in/sites/default/files/NBWL-22-Mom.pdf

12 http://articles.timesofindia.indiatimes.com/2011-09-30/india/30229554_1_clearance-process-nature-conservation-foundation-nbwl: ""The NBWL members note that in their last meeting during Jairam Ramesh's tenure as environment minister they were forced to clear most of the 59 proposals to start projects in protected areas - wildlife sanctuaries and national parks - in only two hours… Yet another fact of the same meeting was that 39 clearance proposals were received only two days prior to the meeting leaving very little time, and no working day, for the members to even glance through the proposals." The NBWL members who have signed the letter include Biswajit Mohanty from the Wildlife Society of Orissa, Asad Rahmani of the Bombay Natural History Society, T R Shankar Raman of the Nature Conservation Foundation, Bivabh Talukdar of Aranyaak, M K Ranjit Sinh, Divyabhanusinh Chavda, Brijendra Singh, Valmik Thapar, Prerna Bindra, Bittu Sehgal, Mitali Kakkar and Uma Ramakrishnan."

13 http://www.sanctuaryasia.com/magazines/commentary/5903-condemned-by-government-policy.html#sthash.otGYIc9L.dpuf: "Jairam Ramesh later made public the fact that such clearances were "under pressure"."

The Parwan Project will require at least 1835 ha of forest land, and will affect at least 2 lakh trees only on this forest land, lakhs of trees on non forest land will also stand destroyed.

mous meeting[12] chaired by the then-Union Minister of state (Independent Charge) of Environment and Forests Jairam Ramesh, who pushed 59 projects in two hours (average two minutes per project). He reportedly[13] latter said this was under pressure, but the damage was done. Dr M.K. Ranjitsinh[14] and Dr Divyabhanusinh Chavda[15] submitted dissent notes, but the minister had predetermined objective and did not listen to any argument.

The NBWL decided to clear the project even when it did not know if the Shergarh wildflife sanctuary will be affected, how much water the downstream river will need, what will be the impact of the project on Jawahar Sagar Sanctuary, Rana Pratap Sagar Sanctuary or Chambal River Sanctuary or if the project had completed basic options assessment or impact assessment.

**Location with respect to Shergarh WLS** One of the key issues about this project is the location of the project with respect to Shergarh Wild Life Sanctuary. As noted by the FAC sub committee, the *Parwan Doob Kshetra Hitkari and Jangal Bachao Samiti* has been saying that the dam site is right inside the Sanctuary. However, if the project were to affect the WLS, it would require a Supreme Court clearance. To avoid this, manipulations have been going on. The EIA of the project, as noted by the 40th and 45th EAC meeting said that the project is five km away from the Shergarh WLS (this itself shows how poor is the EIA and how poor is the appraisal by EAC. Shockingly, even the Environment Clearance letter of 2011 also reportedly says that the project is 5 km away from the WLS, another reason why the EC will remain open to legal challenge.) The Site Inspection Report[16] noted this issue and conducted a joint inspection in June 2012. The SIR said after this exercise that the proposed dam is 150 m in the upstream of the boundary of the WLS. However, the Parwan Doob Kshetra Hitkari and Jangal Bachao Samiti has contested this conclusion and said there was manipulation in this exercise. In June 2013 there was another attempt at resolving this dispute, but again due to heavy rains it could not be resolved. Funnily, the NBWL, which should be most concerned about this issue, has shown no concern. Until this issue is satisfactorily resolved, the project cannot go ahead, it will remain open to legal challenge.

**Recommendation of 25 cusecs release** The NBWL condition that 25 cusecs (cubic feet per second) water should be released is not based on any assessment of water requirement for the river and biodiversity in the downstream, since such an assessment has never been done. It seems like another manipulation, based on the fact that Shergarh weir, 10 km downstream from the dam site, has a storage capacity of 16 MCM, which is equal to release of 25 cusecs water!

**Gram Sabha resolutions** The FAC factsheet[17] agrees that there are contradictory gram sabha resolutions, one set against the project and another submitted by the project authorities in favour of the project. The resolutions submitted by the opposing committee, not having any vested interests, are likely to be correct. There should be an inquiry about the correctness of the gramsabha resolutions by an independent body.

**Forest Advisory Committee** The FAC considered the project in its meetings in Sept 2012 and April 2013 and recommended clearance in April 2013 meeting when all the fundamental issues remained unresolved.

**FAC sub-committee** A sub committee of FAC visited the project in March 2013. Their report accepts a number of serious anomalies. For example, it says: "FAC sub committee report says: "It (is) a fact that a major part of the command area of the project is presently irrigated by using tube wells… Though there is no mention in the EIA report and other documents, about 79 MCM water from the dam is proposed to be utilized for 1,200 MW and 2,520 MW thermal power plants being constructed at Kawai and Chhabra respectively, in Baran district… It has been accepted by the project proponent that approach road to the historic Kakoni temple will be submerged. Submergence of the approach road will hinder free movement of devotees to the said temple, which may result in public resentment."

14 "The Parwan major irrigation project, Rajasthan, which will submerge 81.67 sq.km. of the Shergarh Wildlife Sanctuary and what is more, will result in the destruction of approximately 186443 trees, in a tree deficit State like Rajasthan. Furthermore, even though 25cusecs of water is proposed to be continuously released into the Chambal from the proposed dam, this project will result in a major diversion of water from the Chambal, which has already been identified as deficient in water flow to support the last viable populations of the endangered Gharial and the Dolphin, in the April 2011 report prepared by the Wildlife Institute of India at the instance of the MoEF. The report specifically recommends that no further diversion of water from the Chambal should take place if the future survival of the endangered aquatic species mentioned above, is to be secured. There is also no EIA of the project, with regard to the impact upon the aquatic life and ecology of the downstream Jawahar Sagar Sanctuary, Rana Pratap Sagar Sanctuary and the National Chambal Sanctuary".

15 "With regard to Parwan major irrigation project in Rajasthan, please record that I had pointed out at the meeting that nearly 2 lac trees need to be inundated/chopped for the purpose. Though I did not mention it then, I feel very strongly that proper EIA of the project must be done."

16 http://forestsclearance.nic.in/writereaddata/AdditionalInformation/AddInfoReceived/0_0_02_Apr_2013_1648242431SIRparwan.pdf

17 http://forestsclearance.nic.in/writereaddata/AdditionalInformation/AddInfoReceived/0_0_02_Apr_2013_1712014131Parwan.pdf

**Forest Clearance** After the FAC recommended forest clearance for the project in April 2013 in questionable circumstances, the MEF is supposed to issue in principle forest clearance and than after fulfillment of conditions in the in-principle clearance, it can issue final clearance. A perusal of the MoEF FC website[18] on Sept 16, 2013 shows that the site does not display any of the clearance letters. Our letter to the concerned MoEF officers on Sept 15, 2013 remains unanswered. We came to know through independent sources that in principle forest clearance has been issued in middle of August 2013, final forest clearance will take a long time.

**Compensatory Afforestation Plan** Full plan and maps of CAP have not been submitted, says FAC factsheet. It is not even known if the land for CA is free of encroachment, the DFO says it will be ensured when the possession taken, as reported in Factsheet in April 2013. CA land is in 32 villages in at least 32 pieces, the DFO has not even visited all the lands to ascertain if it is suitable for CA and yet DFO has given certificate that it is suitable for CA. This seems like typical case where CA has no chance of success as noted by CAG audit report on CA in Sept 2013. It is completely illegal of CCF, PCCF, state forest department, FAC or MoEF to consider the project without full CAP with all the required details verified on ground.

> Most of the 1.31 lakh Ha of land in Baran, Jhalawar and Kota districts that is supposedly to get irrigation is already irrigated. These districts have average rainfall of 842 mm (Baran), 923.5 mm (Jhalawar) and 804 mm (Kota), which is high by any standards.

**CWC clearance** The Central Water Commission's Technical Advisory Committee is supposed to clear all major irrigation projects. This TAC appraisal is supposed to happen only after all the final clearances are given as TAC recommendation is the basis for Planning Commission's investment clearance. Since the Parwan project does not have the final forest clearance, it cannot be considered by the TAC of CWC. However, we learn that on Friday, Sept 13, 2013, TAC met and cleared the project. The Planning Commission confirmed this on Sept 16, 2013: "Parwan lift Irrigation Project Rajasthan has been recently recommended by the Advisory committee of the Ministry of water Resources (after the clearance of the CWC)." We have written to Planning Commission that it is wrong on the part of CWC and TAC to clear the project.

**Planning Commission Investment clearance** Project cannot have the Planning Commission Investment Clearance since it does not have all other clearances in place. Without this clearance no funds can be allocated for the project from state or central plans. Planning Commission sources, however, said: "As soon as the minutes of the TAC are received in the Planning Commission, we will start processing the Planning Commission clearance." It will clearly be wrong for Planning Commission to process clearance for the project based on this manipulated clearances.

**Big irrigation projects not delivering** As even Planning Commission and CAG has noted and as SANDRP has been showing through analysis for so many years, since 1992-93, net irrigated area by Major and Medium Irrigation Projects at National level has not seen any increase. There is little sense in spending massive amounts on such projects without understanding this reality. We hope Planning Commission, CWC, Rajasthan government and all others concerned will keep this in mind. Unless of course, the intention is to create reliable reservoirs of water for thermal power projects in the name of irrigation for farmers, as seems to be the case here.

> The NBWL decided to clear the project even without knowing if the Shergarh wildflife sanctuary will be affected, how much water the downstream river will need, what will be the impact of the project on Jawahar Sagar Sanctuary, Rana Pratap Sagar Sanctuary or Chambal River Sanctuary or the project even had done basic options assessment or impact assessment.

**Conclusion** What all this means is that Rs 2332.52 crore project with Rajasthan's fourth largest reservoir (after Bisalpur, Rana Pratap Sagar and Mahi Bajaj Sagar) is being planned without proper appraisal or legally supportable clearances. Bull-dozing ahead with a project with such huge social, environmental and economic costs is not only bound to keep it open to legal challenges and delays, it is also not likely to have justification in public eye. It can also prove to be politically counter-productive. Nehruvian era of trying to win elections through such so-called temples of modern era is gone by, and our politicians need to learn this fast.

It is hoped that better sense prevails and Mr. Rahul Gandhi asks the project to go through due processes, rather than laying the foundation stone of this controversial project which has more questions than answers.

**- Himanshu Thakkar**

18 http://forestsclearance.nic.in/search.aspx

Uttarakhand Flood disaster:

# Supreme Court's directions on Uttarakhand Hydropower Projects

On August 13, 2013, while disposing off a bunch of petitions[1] regarding the controversial 330 MW Srinagar Hydropower Project on Alaknanda River in Uttarakhand, the Supreme Court bench of Justice K S Radhakrishnan and Dipak Misra have given some welcome directions on the Uttarakhand hydropower projects.

Perusal of the full judgment[2] shows that the SC decision on the Srinagar project is a bit disappointing, since the court has directed that the project be completed and has disposed off all objections related to that, while asking for implementation of the Environment Management Plan and conditions etc. However, there are several contradictions with regards to this project which seem to have escaped the attention of the court, and a review petition on that part could be field by the petitioners. Importantly, Prof Bharat Jhunjhunwala, who argued the case in person, should be thanked for the role he played in this case.

**Courts's concerns on Uttarakhand Hydro Projects**
However, the most pertinent and interesting part of the order starts at the bottom on p 62 with the title "Court's concerns" and goes on till the end of the order on p 72. This part is most insightful and welcome.

> SC order: "We have gone through the Reports and, prima facie, we are of the view that the AHEC Report has not made any in-depth study on the cumulative impact of all project components like construction of dam, tunnels, blasting, power-house, Muck disposal, mining, deforestation etc. by the various projects in question and its consequences on Alaknanda as well as Bhagirathi river basins so also on Ganga which is a pristine river."

In these pages, the order notes that AHEC (Alternate Hydro Energy Centre at IIT Roorkee) has not done the cumulative impact assessment it was asked to do. This is very important to note. The order says, (para 46), "We have gone through the Reports and, prima facie, we are of the view that the AHEC Report has not made any in-depth study on the cumulative impact of all project components like construction of dam, tunnels, blasting, power-house, Muck disposal, mining, deforestation etc. by the various projects in question and its consequences on Alaknanda as well as Bhagirathi river basins so also on Ganga which is a pristine river." After this clear statement from the Highest Court, no one should rely on this report now on. We are glad that this statement of Supreme Court supports what SANDRP has been saying for years[3].

This part the order also refers to the BK Chaturvedi Committee (appointed by the National Ganga River Basin Authority in June 2012) report submitted in April 2013 to emphasise that, "The River Ganga has over a period of years suffered environmental degradation due to various factors." The court should have directed that the MoEF should make the BK Chaturvedi committee report public since the report is not yet in public domain. The committee itself stands discredited[4] since none of the independent members of the committee have accepted the report.

**The operative part of the order says:**

"(1) We direct the MoEF as well as State of Uttarakhand not to grant any further environmental clearance or forest clearance for any hydroelectric power project in the State of Uttarakhand, until further orders."

This means that environment or forest clearance to any hydropower projects of any size in Uttarakhand cannot be given either by MoEF or by the Government of Uttarakhand till further orders.

"(2) MoEF is directed to constitute an Expert Body consisting of representatives of the State Government, WII, Central Electricity Authority, Central Water Commission and other expert bodies to make a detailed study as to whether Hydroelectric Power Projects existing and under construction have contributed to the environmental degradation, if so, to what extent and also whether it has contributed to the present tragedy occurred at Uttarakhand in the month of June 2013."

This direction has two parts: A. assessment of cumulative impacts of existing and under construction hydropower projects[5] to the environment degradation in Uttarakhand and B. whether the projects have contributed to the Uttarakhand flood disaster, if so to what extent.

Only a credible independent panel with sufficient number of independent members can provide a credible report in this regard. This committee should be chaired by a non government person of the stature of Prof

> SC: "We direct the MoEF as well as State of Uttarakhand not to grant any further environmental clearance or forest clearance for any hydroelectric power project in the State of Uttarakhand, until further orders."

Madhav Gadgil. We hope the MoEF will soon constitute such an expert body and also ask the expert body to hold public hearings at various relevant places and seek wider public consultation. The mandate of the committee should be for the entire Uttarakhand and not just Bhagirathi and Alaknanda sub basins. The committee should have credible and independent geologists, sociologists, environmentalists, river experts and disaster management experts.

"(3) MoEF is directed to examine, as noticed by WII in its report, as to whether the proposed 24 projects are causing significant impact on the biodiversity of Alaknanda and Bhagirathi River basins."

Here it may be remembered that it was MoEF which had asked Wildlife Institute of India to submit a report on the cumulative impact of the hydropower projects in Uttarakhand on aquatic and terrestrial biodiversity. It should also be remembered that WII is one of the credible institutes and is also a centre of excellence of the MoEF. There is no reason for MoEF to reject the clear recommendation of the WII report that the 24 projects listed in its report should be dropped. The clearances given to all the 24 projects in WII list, including the projects like the 300 MW Alaknanda Badrinath HEP of GMR and 171 MW Lata Tapovan HEP of NTPC should be suspended immediately keeping this direction in mind.

"(4) The Disaster Management Authority, Uttarakhand would submit a Report to this Court as to whether they had any Disaster Management Plan is in place in the State of Uttarakhand and how effective that plan was for combating the present unprecedented tragedy at Uttarakhand."

This direction should have also been for the National Disaster Management Authority since preparation of proper State Disaster Management Plan and ensuring setting up of required machinery for its implementation is also a mandate of the NDMA. This is particularly important in view of the failure also of NDMA as reported by the Comptroller and Auditor General of India report of March 2013. Since the court has asked in para 52 that, "Reports would be submitted within a period of three months. Communicate the order to the Central and State Disaster Management Authority, Uttarakhand.", it is implied that NDMA is also to submit a report. Considering the failure of SMDA and NDMA in the Uttarakhand disaster, it would be useful to see their reports.

Since the original petitions and applications are disposed off, it is not clear if the original petition survives or a new case will be registered while considering above reports to be submitted to the SC. It is also not clear if the original petitioners survive. In such cases it is the normal practice of the courts to appoint an Amicus Curie and it would be interesting to see whom the court appoints for such a purpose.

These orders are indeed welcome as the HEPs have certainly played big role in increasing the disaster potential & disaster proportions in Uttarakhand floods in June 2013. Over 20 groups and individuals of Uttarakhand, Himachal Pradesh and other states wrote to the MoEF in July 2013, asking for suspension of such HEPs that have *prime facie* played such a role and set up an independent enquiry. The MoEF did not respond to the letter. We are glad now SC has asked for such an inquiry.

These orders are indeed welcome in view of the fact that hydropower projects in Uttarakhand have certainly played big role in increasing the disaster potential and disaster proportions in Uttarakhand floods in June 2013. More than twenty groups and individuals of Uttarakhand, Himachal Pradesh and other states have already written to the MoEF in July 2013[6], asking for suspension of such hydropower projects which have prime facie played such a role and to set up an independent enquiry. The MoEF has not yet responded to this letter. We are glad now SC has asked for such an inquiry.

**SANDRP**

**END NOTES**

1 These includes Civil Appeal No 6736 of 2013, Special Leave Petition no 362 of 2012, Civil Appeal nos 6746-47 of 2013 (arising out of SLP (Civil) nos 5849-50 of 2012 and Transfer cases (C) (National Green Tribunal) numbers 55 to 57 of 2013.

2 Full order available at: https://dl.dropboxusercontent.com/u/90325234/Elist_attachments/ALAKNANDA%20HYDRO%20POWER%20CO.LTD.%20Vs.%20ANUJ%20JOSHI%20%26%20ORS_imgs1.pdf

3 For SANDRP critique of AHEC report, see: http://www.sandrp.in/hydropower/Pathetic_Cumulative_Impact_Assessment_of_Ganga_Hydro_projects.pdf

4 For detailed critique of the B K Chaturvedi Committee report, see: http://sandrp.wordpress.com/2013/05/22/upper-ganga-report-with-pro-hydro-bias-does-not-do-justice-to-its-terms-or-to-ganga-people-or-environment/

5 For basin wise and size wise details of existing, under construction and planned Hydropower projects in Uttarakhand see: http://sandrp.wordpress.com/2013/07/10/uttarakhand-existing-under-construction-and-proposed-hydropower-projects-how-do-they-add-to-the-disaster-potential-in-uttarakhand/

6 See for details: http://sandrp.wordpress.com/2013/07/20/uttarakhand-disaster-moef-should-suspect-clearances-to-hydropower-projects-and-institute-enquiry-in-the-role-of-heps/

# Letter to MoEF about reconstituted Expert Appraisal Committee on River Valley Projects

A letter on above subject was sent on Sept 11, 2013, to Union Ministry of Environment and Forests, including the Minister Smt Jayanthi Natarajan, Secertary Dr V Rajagopalan, Joint Secretary Maninder Singh and Director B B Barman. The letter was endorsed by over 60 groups and individuals from 16 states. Some of the persons who endorsed this included Akhil Gogoi (KMSS, Assam), Shri Ramaswamy Iyer (former Secretary, Union Ministry of Water Resources), Prof M K Prasad (KSSP), Ravi Chopra (member, NGBRA), Madhu Bhaduri (former Ambassador), Ritwick Dutta (Lawyer), Latha Anantha (River Research Centre, Kerala), Subir Bhowmik (well known journalist). For the full list of endorsees, see: http://sandrp.wordpress.com/2013/09/07/reconstituted-expert-appraisal-committee-on-river-valley-projects-moef-has-neither-environment-sense-nor-guts-unacceptable-committee/

Text of the Letter is given below.

On Sept 5, 2013, Union Ministry of Environment and Forests came out with "Re-constitution of Expert Appraisal Committee (EAC) for River Valley & Hydro Electric Project" (see: http://envfor.nic.in/sites/default/files/EAC-Order-05092013.pdf). Mr. Alok Perti, former Coal Secretary, has been made chairperson of the committee that appraises all major irrigation projects, dams, hydropower projects and river valley projects for Environment clearances at two stages (TOR and final). It is shocking to see that Mr. Perti, who has absolutely no environment credentials, who has been known to be anti environment, who has been accusing the environment ministry to be a road block for coal mining and who has shown his ignorance about environmental issues on several occasions, has been selected as the chair person, putting aside basic environmental sense. This reconstituted EAC on River Valley and Hydropower projects under Mr. Perti's Chairpersonship is completely unacceptable.

It is equally disturbing to see that the committee has no woman representation, no sociologist, no one from non-government organisations. All ten members are either from the government, or from government organisations or government-funded academic organisations. This means that none of them would be in a position to take a stand which is independent of the government. The committee also has no river expert, no climate change-water expert, nor disaster management expert, all of whom are crucially important for a committee like this, which decides the fate of India's rivers, even more so after the Uttarakhand disaster. P K Chaudhuri, one of the members of the new committee has done no work related to rivers, water or environment, going by his CV. Hardip S Kingra, who was involved in the organization of Commonwealth games and has been the chairman of National Scheduled Castes Finance and Development Corporation, has had no work experience related to rivers or environment.

Specifically, Mr Alok Perti, who has been a senior functionary, including secretary of currently controversial Coal Ministry from Oct 2009 to early 2013 and in ministries like defense and family welfare before Oct 2009, clearly has had no background on environment or rivers. As a coal secretary, he had accused MoEF for stalling the growth by not giving clearances to coal mining projects automatically. The Economic Times quoted Mr. Perti as saying in a report[1]: "India has to decide whether she wants electricity or tigers." Such simplistic statements reflect that he has absolutely no understanding of environment, biodiversity, leave aside rivers. Mr. Perti's anti civil society stance was also exposed when he refused to discuss issues with activists and asked them to go and file RTIs[2]. By appointing such a person as chairman of the EAC on RVP, the MoEF has shown it has no interest in protecting the environment or forests which is supposed to be its mandate. This committee is clearly unacceptable and will also not stand legal scrutiny.

Under the circumstances, we demand that:

1. The notification (No. J-12011/EAC /2010-IA-I dated Sept 5, 2013) of reconstitution of the EAC be cancelled;
2. A participatory process be initiated for reconstitution of the EAC with the norms some of suggested in our letter to you dated June 29, 2013, see: http://sandrp.wordpress.com/2013/06/29/lessons-from-uttarakhand-disaster-for-selection-of-river-valley-projects-expert-committee/;
3. The EAC meeting slated for Sept 23-24, 2013 should be cancelled.

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1 http://articles.economictimes.indiatimes.com/2013-01-10/news/36258334_1_hasdeo-arand-coal-ministry-coal-blocks

2 http://environmentaljusticetv.wordpress.com/2013/02/25/greenpeace-india-protest-at-the-coal-ministry/

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12. **Damocracy: "The world is killing its rivers!!"** (http://sandrp.wordpress.com/2013/08/29/damocracy-the-world-is-killing-its-rivers-2/)

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