Is Environment just a political football for NDA and UPA?

Do we know how much Aam people depend on Environment?

The appointment of Union Petroleum Minister Veerapa Moily as Union Environment Minister (additional charge) by the Prime Minister Dr Manmohan Singh on Dec 21, 2013 shows how poor is the understanding of UPA government on Environmental issues and governance of natural resources. The fact that this happened after Rahul Gandhi spoke at FICCI meeting on that day shows that this was done to cater to the lobby of vested interests. Moreover, UPA leadership has clearly failed to understand the issue of conflict of interest with Moily holding both Petroleum and Environment portfolios. Moily is also known for his bias for specific industrial houses, which is coming to light now.

Mr Rahul Gandhi, you are right! The loopholes in our environmental regulations are so huge that entire dams, mines, mountains, valleys, Western Ghats, Ganga & other rivers can be driven through them.

Did you have a look at the official website of environmental clearances (http://environmentclearance.nic.in/) or forest clearances (http://forestsclearance.nic.in/) or CDM clearances (http://www.cdmindia.org)?

Mr Modi had made serious charge that former Environment Minister Mrs Natarajan was taking bribes to clear the projects, but instead of making only a political statement on such a serious matter, he should have gone to court and demanded an investigation into the functioning of MoEF under Mrs. Natarajan. That he has not done this shows how non serious he & his party are on such crucial issues.
Mr Gandhi, while we agree that the decisions need to be transparent & fair, they also need to be democratic, well-informed & professional, and that means much better Environmental Impact Assessments, people with understanding of environment in Appraisal Committees and informed participation and consent of the impacted people in the impact assessment and in decision making. It also means a credible compliance mechanism in place.

Mr Rahul Gandhi’s statement that environmental regulation in India has huge loopholes is true. This requires tightening the environment governance, not making it further lax as is being done by Mr. Moily. What Mr Moily is doing in MoEF is neither transparent nor fair. From day one in office at Paryavaran Bhawan, he has earnestly started to dismantle whatever little and poor environmental regulation exists in this country. This is disastrous for the people and future of India and also for the future of UPA. Mr Moily’s stint at the MoEF has been disastrous so far with allegedly over 70 projects having been pushed through in a short span of three weeks with not even the list of such cleared projects in public domain!

Mr Moily’s decisions also undermine the very pieces of legislation that his party routinely showcase as their big achievements- the Forest Conservation Act and the Forest Rights Act. **BJP is no different with its flippant statement on “Jayanti Tax”** While UPA has shown its mindlessness on this score, BJP’s Prime Ministerial candidate Mr Narendra Modi has done no better. While his track record on environment governance in Gujarat is nothing to crow about, his loose statements about “Jayanti Tax” show how non-serious BJP is about environment issues. Mr Modi had made a serious charge that former Environment Minister Mrs Natarajan was taking bribes to clear the projects. This is a very serious charge and instead of making only political statements, he should have gone to court and demanded an investigation into the functioning of MoEF under Mrs Natarajan. That he has not done anything of this sort shows how non-serious he and his party are about crucial issues.

**Congress’s frivolous response** At the same time, the Congress Party’s response to these serious charges from Mr Modi is bordering on frivolousness. If the charges were untrue, then the Congress leadership should have taken Mr Modi to court. By not doing so, Congress has indirectly accepted them. It is clear from this whole episode that both parties use environment only as a political football, they have no clue what is at stake for the common people of this country.

**How UPA has undermined Environmental regulations** Prime Minister Dr Manmohan Singh said at his press conference on Jan 3, 2014 (http://www.ndtv.com/video/player/news/pm-rules-out-third-term-says-he-will-hand-over-baton/303780?pfom=home-topstories), “There were bottle-necks in terms of timely clearances of the projects from the point of view of environmental-forests clearances.” (RBI governor Raghuram Rajan has made similar statements). Mr Prime Minister, this only shows how ill-informed you are. To give you just one instance, the Expert Appraisal Committee appointed by your government on River Valley and Hydropower projects has not rejected environment clearance to a single project in last seven years (for details see: http://sandrp.in/env_governance/TOR_and_EC_Clearance_status_all_India_Overview_Feb2013.pdf).

Even when all of the members of the standing committee of the National Board for Wildlife unanimously rejected Wildlife Clearance to Lower Demwe Dam in Arunachal Pradesh for its disastrous impacts on communities and ecosystems in downstream Assam, Jayanti Natarajan, as the chairperson of the Committee, sanctioned it. On Forest clearance also the story is almost same. Here in rare event when the statutory Forest Advisory Committee rejected forest clearance for the 300 MW Alaknanda Badrinath Hydropower project (twice), your minister Mrs Natarajan overturned the FAC decision and gave clearance (it should be clear that we are not writing this in defense of Mrs Natarajan’s tenure at MoEF). In another instance, when FAC said no to Kalu Dam near Mumbai in April 2012, a more pliable FAC was put in place and when your party’s Chief Minister from Maharashtra wrote to FAC to clear it, lo and behold, in April 2013 it was cleared!
Mr Prime Minister sir, you yourself have gone ahead and laid the foundation stone for the 3000 MW Dibang Hydropower Project in Arunachal Pradesh on January 31, 2008, when the project did not have statutory environment and forest clearances. The project still does not have these clearances, because the basic studies have still not been done. All this only shows how off the mark your statements are.

While both UPA and NDA have shown their lack of concern and understanding of such an important issue, we hope voters in coming elections will have a better, third option.

Remove Mr Moily If the UPA has slightest the concern for the common people and environmental governance of this country, it must immediately remove Mr Moily from Paryavaran Bhawan and replace him with a more credible person, without a bias against environment. A petition on this issue (see: http://www.change.org/en-IN/petitions/government-of-india-the-same-minister-for-oil-and-environment-how-is-that-reasonable) has by now been signed by close to 760 people and more people continue to endorse it.

Among other things, this whole episode highlights the poor understanding of UPA leadership to the signals that Aam people of this country. You are ignoring these signals at your own peril. While both UPA and NDA have shown their lack of concern and understanding of such an important issue, we hope voters in coming elections will have a better, third option.

SANDRP

Muck dumping by damaged Vishnuprayag HEP in River

Matu Jan Sangathan has filed a case against JP Associates’ for dumping muck in the river downstream in the name of restoration work. The operating 400 MW Vishnuprayag HEP of the company was damaged in the Uttarakhand flood disaster of June 2013, due to the wrong operation of the dam. The dam was filled with the debris brought by the river. Now the company, while trying to restore the project, is dumping the debris downstream from the dam, the case says. Notices were issued by NGT on Nov 1, 2013 to respondents that include Union Ministry of Environment and Forests and Uttarakhand government, besides the company. This is a significant case since in India, after such a disaster, there is no environmental regulation that governs how the damaged projects will be restored. This is unlike US where the damaged project needs to apply for restoration work along with a plan and only after approval of the plan, can the restoration work start. Before such a restoration plan, there is also an independent assessment of the disaster by FERC. In India there is no such regulation in place. Some significant parts of the NGT orders in this case are quoted below.

NGT order on 20.11.2013: “Despite service, nobody is present on behalf of Ministry of Environment and Forests (for short ‘MoEF’). It is strange phenomenon that despite oral directions, letters written to the MoEF and the matter being mentioned in the Meeting where Joint Secretary, Mr. Surjit Singh was present, nobody is appearing on behalf of the MoEF in the case. Presence of MoEF in this matter, which is of very serious consequences in relation to dumping of muck in the river Alaknanda, is essential before the Tribunal. It may be noticed that despite service and information, Counsel are not appearing in number of cases.”

NGT on 12.12.13: “Learned counsel appearing for the Applicant has placed before us certain photographs of muck and debris laden trucks being emptied on the river bed. This is disputed by the Project Proponent.”

NGT on 20.12.13: “The Learned Counsel appearing for the Project Proponent submits that they are not dumping any debris, construction material or muck in the river bed, particularly downstream, and they are carrying on their restoration work. He further states that they would not dump in future any debris, muck or construction material in the river bed/bank downstream.”

The trouble with above assurance of Project Proponent recorded in NGT order is that this can be implemented only if there is clear defined space for river and riverbank. In absence of that, such assurances could become license for the proponent to do what they want.

NGT on 20.12.13: “The trouble with above assurance of Project Proponent recorded in NGT order is that this can be implemented only if there is clear defined space for river and riverbank. In absence of that, such assurances could become license for the proponent to do what they want.

Looking at the photos submitted by MATU, there is little doubt that the company is dumping muck into the river. This episode also reflects the failure of MoEF and Uttarakhand government. The claim of the company that it is doing only restoration work and no dumping muck into the riverbed does not look tenable, such claim depends on what is defined as riverbed and floodplain. As NGT had done in case of Yamuna, any dumping of muck on the riverbed should be prohibited. The next date of hearing is on January 31, 2014. We hope NGT passes orders also about how such restoration work would happen in future, in addition to ensuring that any wrong doing in given case by the company and governments is punished.

(http://matuganga.blogspot.in/, http://www.greentribunal.gov.in/)
Possible Explanation for Nepal’s Seti River Floods of May 2012
A chain of events that started at 25000 feet elevation

In late April and early May 2012, what was usually a roaring Seti river in Northwestern Nepal had slowed to a trickle. The milky-white turbid water had turned blue and clear. And then suddenly on May 5, 2012, the flooded river laden with slurry of sediment, rock, and water surged through the Seti valley in the Kaski district, obliterating dozens of homes and sweeping 72 people to their deaths. The floods waters were upto 30 m high at places. It reminded of the sequence of events leading to Tsunami. Questions swirled about where the water had come from and how it arrived with so little warning and that too in a non-monsoon season.

The abstract of the paper by Shreekamal Dwivedi and Yojana Neupane of Department of Water Induced Disaster Prevention of Government of Nepal (presented in a conference in Nov 2012 and published in Nepal Geological Society (2013, Vol. 46)) provided some details of what happened in the floods: “Comparative Analysis of the Landsat ETM satellite images of 20th April, 2012 and 6th May, 2012 revealed that the area of about 32000 square meter of the southern ridge 1.5 kilometer away from the Annapurna IV peak failed in the north western direction. The impact of descending mass of the failed mountain from 6850 meters to 4500 meters almost vertically pulverized the ice, sediment and rock. The impact even triggered seismicity at 9:09.56 AM. local time which was recorded all over the 21 stations of National Seismological Centre. The closest seismic station at Dansing which is 32 km. south west from the area recorded the high signals for 70 minutes which corresponds to the duration of the debris flow. (The seismicity was equivalent to magnitude 3.8-4 in Richter Scale.) Lab analysis of the flood water sample revealed the density of the flow as 1.88 gm/cc. Analysis of the satellite based hourly rainfall GSMaP NRT from the period form 20th April - 6th May 2012 revealed that there were just 4 occurrences of rainfall which amounted less than 1 mm/hour in the source area of the avalanche. The rainfall > 6mm/hour which occurred in the Kharapani area on 4 May was localized rainfall which did not extend to the avalanche area. Lack of systematic disaster preparedness caused huge loss of life and property even though the early warning message was received from the Ultralight pilot who was flying close to the area. The avalanche triggered high intensity floods which have similar characteristics to glacier lake outburst floods (GLOFs) have emerged as a new hazard in the Himalaya.”

Now, twenty months after the disaster, experts like Dr Jeffrey Kargel, hydrologist at University of Arizona, are in a position to throw more light what happened. Dr. Kargel has concluded that it was not just one event but a series of event that combined to produce the devastation.

NASA Earth Observatory site describes the affected landscape as: “The landscape in this part of Nepal is shaped by a cycle of landslides and subsequent erosion.

Map thanks to Dwivedi et al
As the tectonic collision of India with Asia pushes the Himalaya upward, ice, water, and gravity, assisted by sporadic earthquakes, combine to grind the mountains down. The channel of the Seti River itself is cut into the remnants of a much larger debris flow, perhaps 1,000 times as big. 60 to 100 meters (200–330 feet) thick, the landslide deposits are composed of the same limestone as the peaks to the north. Likewise, the May 2012 flow left behind jagged fragments of limestone, carried from the crest of the Himalaya to the foothills in a single event.

‘Seti’ in Nepalese means white, and Seti is the ‘White River’, its water is glacial white, turbid and laden with sediment.

The high intensity floods in May 2012 came in waves, and the first wave alone had around a quarter of a million cubic meters of water in just a few minutes. There were about 27 waves in all over the next hours, according to eyewitnesses, so several million cubic meters of water flowed overall.

It is heart warming to see that many lives were saved, as Dwivedi et all write, “Capt. Alexander Maximov, the pilot of ultra-light plane of Avia Club Nepal in the morning of May 5 was in a regular sightseeing flight close to the Mountain Machhapuchhre. He noticed a huge dark cloud in the high-mountain depression (Fig. 9) and immediately turned back. He sent a message to the tower of Pokhara Airport. His quick understanding of the unusual event and timely response has saved hundreds of lives during the Seti flood of 5th May 2012. He informed the tower at 9:16 AM and the message was broadcasted through FM radio; police forces evacuated hundreds of people living and working in the bank of the Seti River. Some eye- witnesses in the field said that information about the flood was also received in Kharapani bazar by mobile calls from the people who saw the flooding in the upstream area. This message has helped many people to run to safety. However there was no organized approach of the warning dissemination in the ground.”

AFTER IMAGE: shows the area on May 6, 2012, roughly 25 hours after the landslide.

BEFORE IMAGE: the same area on April 20. The diagonal lines are gaps in the data, due to a partial failure of the satellite.

However, the series of event started weeks before the flood with a series of rockfalls that sent debris tumbling into the Seti River, backing water up in the extremely deep and narrow gorge. The last of these landslides occurred just a week or so before the flood. The situation grew dire on May 5, 2012, when an unusually powerful ice avalanche and rockfall tumbled down a vertical cliff on a ridge just south of Annapurna IV Mountain peak. The total drop from the Annapurna IV ridgeline to the bed of the Seti below Pokhara is about 6,100 meters (20,000 feet) spread over a distance of only 40 kilometers. The distance between the landslide dam and sight of worst floods was about 29 km.

Prof Jeffrey Kargel, writes (http://earthobservatory.nasa.gov/blogs/fromthefield/2014/01/24/setiriverclues/), “A flash flood—what geologists call a hyper concentrated slurry because it was thick with suspended silt—had torn through some villages along the Seti River, in north-central Nepal, just north of the country’s second largest city, Pokhara. It was immediately recognized as a very deadly event, but the death toll—and a tally of those who remain missing but were clearly also killed—was not known exactly for several months. 72 souls lost. Though not large on the scale of global disasters, this event was terrifying for the fact that it seemed to come from nowhere—literally from beneath a blue sky.”
One scenario (see: http://earthobservatory.nasa.gov/ IOTD/view.php?id=78070&eocn=image&eoci=related_image) estimates that roughly 22 million cubic meters of rock broke off the slope of Annapurna IV. Colin Stark at Lamont-Doherty Earth Observatory at Columbia University said: “There’s a drop of about 2,000 m into the canyon, so we’re talking an enormous gain in momentum. Then I think the debris ran down the canyon at speeds upwards of 30 meters per second—a guess but what we see for the landslide itself.” Stark estimated that events unfolded in a matter of minutes with no time for a temporary dam to form.

This flood appeared to behave like a glacier lake outburst flood, and the news media can be pardoned for having assumed that it was. Prof Kargel adds: “Seeing that the disaster occurred at the foot of the Annapurna Range, within the Greater Himalaya, probably every expert’s first thought was “glacial lake outburst flood” (GLOF), because these were common in Nepal’s Himalaya, and the news accounts of the disaster event resembled accounts of GLOFs”. However, available satellite images showed there were no such lakes. “It was, however, clearly a disaster that had its source in a high Himalayan amphitheatre-like bowl, a glacially-carved structure called the Sabche Cirque. This structure was rimmed by some of Nepal’s most famous, picturesque mountain peaks, including the storied, holy Machapuchare ("fishtail" peak) & Annapurna IV, a 24,688 ft” mountain.

Thanks to video from winged camera of a 2 seater plane incidentally flying over the area at the time of the event, the disaster’s trigger was sourced on a ridgeline near Annapurna IV. Apparently part of this ridge—probably initially the glacier ice—collapsed, dropping ice and rock over 3000 m almost vertically onto unconsolidated rock debris (glacial moraines and ancient glacial lake silts and gravels) resting unstably in the deep bowl of the Sabche Cirque.

Some of that loose debris was also swept up by the avalanche, and the mass flowed and dropped through an additional 1,500 m into the Seti River gorge. Indeed, the conversion of gravitational potential energy to heat could have melted roughly a tenth of the falling snow.
and ice by the time it reached the Seti River.

One possible source that seemed to be involved, was a rockslide-dammed reservoir in the gorge. This was definitely not a GLOF, but was caused by a rockslide into the Seti River gorge, formation of an impoundment reservoir over a several week period due to damming of spring snow and ice melt, and then the final triggering event of the mighty rock and ice avalanche off Annapurna IV.

**Warning: More such events could occur**

As Dwivedi et al have noted, “The southern slopes of Annapurna range have been experiencing avalanche-triggered high intensity floods also in the past. On August 15, 2003, the Madi River had experienced an unprecedented flash flood which destroyed the recently built rural road and triggered many landslides along its course and killed 5 people”.

“There are good reasons to be concerned,” Jeffrey says, “Something like this will hap-
The proposal for a 140 MW Tanahu Seti storage project downstream of this flood event & supported by the Asian Development Bank, Japan International Cooperation Agency, European Investment Bank and Abu Dhabi Fund is questionable, says Ratan Bhandari of Nepal. Considering that the Seti River Basin is prone to such events in future, the proposal could be an invitation to disaster.

India needs to learn lessons from what happened in Seti River Basin, not only because of the shared Seti river basin, but also because the shared Himalayan ecosystem. Compared to Nepal, India seemed to have fared worse off if we look at the experience during and since the Uttarakhand disaster of June 2013. The way Uttarakhand and Union governments are pushing the massive Lakhwar dam without even proper Environmental Impact Assessment shows we have learnt no lessons.

More significantly, this whole episode raises the question as to how much do we really know about the Himalayas. Uttarakhand disaster of June 2013 was a wake up call to understand the Himalayan ecosystem and its implications for future well being of the people and environment of India. However, in stead of learning any lessons, our governments in Uttarakhand (as also in Himachal Pradesh, Kashmir and North East) and at the Centre, with environmentally-challenged Mr Veerappa Moily as the environment minister, are playing into the hands of short sighted vested interests. This is also apparent in the recent decision to sanction the massive Lakhwar dam on Yamuna River in Uttarakhand without so much as an Environmental Impact Assessment!

“There are good reasons to be concerned,” Jeffrey says, “Something like this will happen again. It’s inevitable.” The Seti River Gorge is unusually prone to dangerous blockages because of how narrow and deep it is. And the same processes that triggered the spring 2012 rockfalls and avalanche are still at work. “The only question is whether future events will be as destructive or whether people in the Seti River Valley will have absorbed the lessons of 2012 and found ways to move their homes out of the flood plain.” India should not forget that we are downstream country in Seti basin and what happens in the upstream will have consequences downstream too.

The proposal for a 140 MW Tanahu Seti storage project downstream of this flood event & supported by the Asian Development Bank, Japan International Cooperation Agency, European Investment Bank and Abu Dhabi Fund is questionable, says Ratan Bhandari of Nepal. Considering that the Seti River Basin is prone to such events in future, the proposal seems disastrous.

We still do not have full explanation for the Uttarakhand disaster of June 2013. This explanation of the Seti River Disaster in the same Himalayas, which happened just a year before the Uttarakhand disaster highlights the urgent need for more serious studies and applying precautionary principle while dealing with the Himalayas, its rivers and flood plains.

Compiled by SANDRP

Sources:
2. http://earthobservatory.nasa.gov/blogs/fromthefield/2014/01/24/setiriverclues/ This entry was posted on Friday, January 24th, 2014 at 10:34 am. See the absolutely amazing photos on the site that gives an insight into the situation in the head reaches of Seti River... possibly indicates how little we know about the catchments of our Himalayan Rivers.
8. Famous movie clip of the area, http://www.youtube.com/watch?v=Uk82ggshSKs &feature=related you can see landslide in the clip at 56-57 seconds of the movie. At this time the avalanche had not occurred yet. After taking one round the aircraft pilot has noticed the dark grey brown cloud formed by the avalanche (see the movie at 2 minute 7 seconds). This is thanks to Shreekamal Dwivedi
While hydro-power is projected as clean energy, there is sufficient evidence to the contrary, on various counts. One of the major concerns about hydropower projects, is that the dams, whether they be impoundment dams or diversion dams (the latter going under the misleading euphemism nowadays of run-of-the-river structures), critically fragment a river. Regulation and release of water at extreme lows (often nil) and sudden releases apart, dams are an impassable barrier for migratory fish, progressively depleting populations past critical thresholds, eventually leaving rivers bereft of life. Dead rivers affect not only the freshwater aquatic realm, but also all terrestrial life dependent on rivers, including large human populations. The impacts are known to cascade down the entire river continuum down to the oceans. Not only does such river regulation have serious political implications in terms of equity and justice between proximate and faraway users, but far-reaching cultural repercussions as well.

In the on-going discourse on the large-scale build-up of hydro-power projects in the Himalaya, which will soon be the most densely dammed region on earth, one encounters proposed part-solutions, often billed as mitigation measures. Of course, every attempt at addressing the serious problems created by hydropower projects is desirable and welcome. However, which of these actually mitigate or provide solutions to the problems created by hydro-power projects, and which of them only serve to provide camouflage from public gaze, or a cover of legitimacy for mandatory approvals, does require to be looked at more closely.

We have been hearing for long about fish passes of various designs constructed on hydro-power dams in the US and in Europe, to allow the passage of many species of migratory fish, to travel to their breeding grounds in distant mountain rivers. None of the numerous hydropower projects under construction in Uttarakhand have incorporated any provision for the passage of seasonal migratory fish, and this is puzzling. How are hydro-power projects cleared on environmental grounds and approved despite their disastrous impact on fish movement and subsequently on fish populations?

One instance of a proposed mitigation measure is what was proposed by WAPCOS for NTPC’s Rupsiaabar-Khasiabara HEP in the Gori river basin where we live. While the project has recently been denied Forest Clearance for diversion of forest land for the specific dam-site, it had earlier managed to secure overall Environmental Clearance on the basis of proposed mitigation measures, and is being cited here as a case in point. Addressing the problem of creating a barrier for movement of migratory fish, WAPCOS proposed an entire fish breeding-and-stocking programme. The proposal was for setting up facilities for producing seed of snow trout (*Schizothorax richardsonii*) at a cost of Rs. 16.05 million, for periodically stocking 3 cm long fingerlings with 100 fingerlings per km of river, for 10 km upstream and downstream of the dam structure, for 5 years. Serious money that could even sound like a serious effort. Only, anyone living close to the river knows that the proposed dam-site itself, let alone 10 km above it, is entirely uninhabited by any fish whatsoever. This was clearly a ‘mitigation measure’ proposed only to obtain environmental clearance. It is another matter that even WAPCOS’s species fish-list for the river was just a wish-list.

In the context of addressing the problem of fish-passage, we were informed of a fish-ladder constructed by the NHPC for the Kurichhu HEP in Mongar in Bhutan, so we undertook to visit and see the fish ladder design, and to speak to the hydro-power company to understand how effective it was. The Kurichhu is a medium sized Himalayan river in Eastern Bhutan, forming the upper main-stem of the Manas river which originates in Tibet. Access to it by road is long and circuitous, and after a year of trying to get away for long enough to visit, we finally reached there on the cloudy afternoon of 11th January 2014. Prior permission had been sought for the visit through contacts in India, and we were received and shown around with rare grace and courtesy by officials of DrukGreen, the company running the hydropower project after handover to it by the NHPC of India. The sight of the ladder was thrilling, and we were even permitted take photos of the fish ladder. January is not the season for either upstream or downstream movement of fish in that zone, so we could not see fish movement in the ladder for ourselves. However, we gathered the following:

The dam is a 55 m high (from the foundation) concrete gravity dam located at an altitude of about 530 meters asl and is 285 meters across the beautiful, dark, blue-green Kurichhu river at Gyalpozhing. At full reservoir level 15.70 million m$^3$ of water is impounded behind the dam. At the time of our visit, one of the four turbines was operational and there was a small release of water downstream of the dam. The fish ladder was in flow, releasing just 0.8 cumecs of water. The project authorities said that during such low-flows, this is the only flow...
from the dam, since there is no minimum flow required to be maintained by law in Bhutan. The ladder is a pool- and-weir type, with submerged orifices and centrally located notches. A pool and weir design is one of the oldest styles of fish ladders. It uses a series of small dams and pools of regular length to create a long, sloping channel for fish to travel around the obstruction, in this case the dam. The channel acts as a fixed lock to gradually step down the water level; and to head upstream, fish must either negotiate a slot, or jump over from box to box in the ladder.

The Kurichhu fish pass has a total of 98 baffles, each 1.5 m wide and 1.5 m deep, arranged at a distance of about 2.9 m. The total depth of each pool is 2 m. There are two exits (water entrances) to the fish pass, the lower exit placed 5 m lower than the other, to provide for flow at different draw-down levels. The vertical height between the water level of the 'stilling basin' (interesting name for a reservoir holding 15.7 million m$^3$ of water) and the water entrance for fish from below the dam is 32 meters. To achieve this height, the fish-pass channel has to traverse a total distance of 320 m, leading to a slope of 1:10, and resulting in a drop in height per pool of 0.3-0.4 m. Quite impressive, except that the slot in the centre of each baffle does not exceed 25 cm in width. Clearly, no way for big fish, and Mahseer ($Tor$), the fish with the longest migration distance in this river, also happens to be the largest carp in the world.

We asked the project manager whether they know the fish ladder to be effective. He said that on a few occasions during the fish migration season, they had stopped the flow of water in the ladder and found some small fish in some of the drained pools. They did not know which species they were. We enquired whether there had been any systematic study of the efficacy of the fish ladder, in terms of comparing, with a baseline since commissioning the dam in 2002. Whether there was a change in species composition, or a significant change in upstream fish populations during this time? He replied that they had not.

**Discussion:** It is understandable that project authorities in Bhutan were not familiar with names of fish species or other particularities, because people in Bhutan in general do not catch or eat fish. This could stem from Buddhist tradition, but also from funereal custom, where one of the traditional options is that the body of deceased adults is dismembered and consigned to the river for fish to consume.

On enquiring about any documentation with regard to the fish ladder design, they kindly shared a document titled ‘Feasibility Studies for fisheries development in Kurichhu reservoir, Bhutan’ prepared for NHPC, Faridabad, by CIFRI, Calcutta. While CIFRI has been hired by NHPC ostensibly for extending their expertise on fish, they could have spared us their use of tired nar-
ratives of ‘development’. It is clearly beyond their area of expertise. Prefacing their feasibility study on fish passes with statements such as “advancement of human civilization and distortion of natural habitat go hand in hand,” and “requirement of electricity is synonymous with the development of civilization”, and more, just exposes their fait accompli. We photographed relevant pages onsite, and along with discussions, have gathered the following:

Since every fish passage requires to be designed to cater to the specific behavioural propensities and physical capabilities of a particular set of fish species inhabiting the river in question, certain stretches of the river were sampled by CIFRI. The fish they caught can be grouped into three broad groups:

- Snow trout, mahseers and minor carps: *Schizothorax richardsonii*, *S. Progastus*, *Barbodes hexagonolepis*, *Labeo dolycheilus*.
- Loaches: *Garra lyssorhinchus*, *G. gotyla*,
- Catfish: *Glyptothorax coheni*, *G. brevipinnis*, *Pseudocheneis sulcatus*.

CIFRI did not catch Tor during sampling, but during dam building many fish were caught by workers and staff from India, one 15 kg and another 20 kg fish near Kurizhampa bridge. Fish of this size cannot be Barbodes or Chocolate Mahseer, and seem to be Mahseer of the *Tor* genus (species *tor* or *putitora*).

The three functional categories of fish migration in general are: Reproductive (spawning) migration, feeding (trophic) migration and refuge migration. For this, hill-stream fish are known to migrate between three major habitats: A wintering habitat, a feeding habitat and their spawning habitat.

Dams and other diversions for river regulation are seen to impact fish in five major ways:

- Obstruction in the ascent of fish in their migration for spawning.
- Reservoirs can inundate spawning habitat, silting up gravels,
- Changes in river water quality due to inter-basin transfers and stratification of water.
- Natural flows downstream are radically altered. This includes abruptness of changes in flow, in volume, velocity and seasonality.
- Prevention of young migratory fish and refuge migrants from descending to lower reaches.

In addition, adverse repercussions result from indirect effects such as the disruption of the food-webs downstream, stranding of fish during rapid flow fluctuations, and siltation in the reservoir above the dam. The chemical, trophic and thermal properties of a river are greatly altered. Additionally, changes in slope, riverbed profile, structure of the bottom surface, submergence of gravel zones, and changes in the thermal and trophic regimes, affect the habitability of certain stretches of the river.

Designs of fish passages are many, and can be broadly categorized as follows:

- Fish ladders. Pool and weir, baffle fishways, rock-ramp fishways, vertical slot.
- Fish lift locks
- Fish elevators
- Fish trapping and hauling.

The basic information you need for designing a fish pass, is details about the species particularities such as normal cruising speed and burst speed of target species. Some important criteria are:

- Provision of comfortable passage for all migratory species, including the poorer swimmers, over the entire length of the fish pass. To achieve this, provision for refuge against fast currents at regular intervals should be made.
- Year-round functionality, under different flow regimes, temperatures and oxygen levels, notably to enable fish displaced by floods to return to their initial habitat.
- Sufficient space or carrying capacity allowing massive upstream ascents during reproductive or trophic migration.
- Positioning the entry of the fish pass so that it is readily identifiable and accessible to the migrants.
- Attraction of fish to the fish pass entrance in the downstream (water exit) in case of upstream migration and deterring them from dead-ends and dangerous places.
- Positioning of upstream outlet (fish exit) of fish passes far enough from spillways and turbines to minimize the risk of being swept downstream or being damaged.

Clearly, creating an artificial fish passage is complex and would not work if the multiple aspects are not considered and provided for. Ease of physical passage is just one important aspect. Migration is specifically timed to match various conditions, and even a delay in migration can nullify the purpose. For example, upwelling and excessive turbulence in the areas near the fish entrance are undesirable, as they can confuse migrating fish from finding the entrance. For this, the gates of the dam are required to be manipulated so that the heaviest spill is at the bank opposite the fish-way, with the result that the velocity barrier forms a diagonal lead, a traffic signal
of sorts, across the river to the fish entrance. Apart from a sufficient ‘attraction flow’ at the entrance of a fish pass, projects elsewhere have experimented with directing fish traffic with the help of guiding screens, and the use of overblown ‘traffic signals’ such as acoustic arrays, strobe and mercury lights, and even electric fields.

At a fish passage such as the array at Kurichhu, it is critical that at the entrance of the fish-way, the gate is to be manipulated to ensure possible passage of fish. Depth and velocity to suit particular species need to be maintained. CIFRI recommended a ‘compromised’ depth of 25 cm to be sufficient to allow fish passage. In addition the gates should be regulated to ensure that all the baffles are submerged, allowing the fish to swim over them upstream comfortably. This was not the case, when we visited, the flow level did not allow for the baffles to be submerged, as visible in the photograph as well.

Even with a depth of 25 cm in the fish exit, the variable head-height as per the draw-down of the reservoir can create a higher velocity than desired. While CIFRI warns that this poses apprehensions regarding hindrance to fish migration, they dismiss these apprehensions summarily thereafter, stating that this high velocity is observed only for a short distance, which fish would be able to negotiate using burst speed (high speed, short duration). CIFRI mentions that it is only when the speed at the water entrance or any other point exceeds burst speed, (5-6 m per second) that fish would be unable to cross this speed barrier.

While variables such as water temperature and fish length are determinants of swimming speed of fish, CIFRI has assumed that *Schizothorax* and *Barbodes* can swim at 3-5 and 2-4 m per second respectively. They have taken the flow speed of water with head height, and fitted it to the equation for determining the velocity through the orifices in or over the baffles, and they are estimated to be ranging from 2.69 to 2.80 m per second, which they say, ‘permits the fish to cruise through the fish-way comfortably.’

There are some doubts here. Even a short distance of one baffle, or at just the entrance is critical, because if that is unpassable, the entire fish-way is unsuccessful. Further, CIFRI has arrived at burst-speed of fish for this river not by actual studies on specific species, but by inference from studies on fish in other countries. What strikes as doubtful about this basis, is their assumption that all other things being equal, a fish of any species is capable of equal burst speed, provided it is of the same length. This does not match anything one sees as evidence in the occupation of different fish species in different river stretches, nor in their striking speed while feeding competitively.

In order to test whether the fish ladder was ‘working’, CIFRI officials operated the fish pass in March (the beginning of the migration season) for 3 days and then closed the sluice gates to check. They found *Schizothorax richardsonii*, *Garra gotyla* and *G. lissorhinchus* in the top-most pool. They did it again in June and found 8 species in the uppermost pool. While it is clear from this that some fish are making it up the channel right upto the top pool, they have no way of knowing for sure whether they were getting through the 25 cm gap at different draw-down levels.

The critical question here is not just whether some fish are making it up the channel, but which species, how many, and are breeding populations making it up on time? A relevant study cited on the April 2013 issue of the Yale Environment 360, titled ‘Fish and hydropower on the U.S. Atlantic coast: failed fisheries policies from halfway technologies’ by J.Jed Brown and 6 other co-authors (Conservation Letters, Vol 6, Issue 4, p 280-286, July/Aug 2013) is instructive. The discussion by co-author John Waldman is titled ‘Blocked Migration: Fish Ladders on US dams are not effective’, citing this study goes on to say that fishways on rivers in the U.S. Northeast are failing, with less than 3 percent of one key species making it upriver to their spawning grounds.

Waldman says that “in most major rivers in the U.S., maintaining some semblance of the integrity of migratory fish runs past hydropower dams is dependent upon the fish using ladders and elevators”. They undertook a study of the success - or, rather, failure - of Atlantic salmon, American shad, river herring, and other species in migrating from the sea to their spawning grounds past a gauntlet of dams on three rivers in the northeastern U.S. - the Susquehanna, Connecticut, and Merrimack. Waldman says “what we found was grimmer than we expected. For one species, American shad, less than 3 percent of the fish made it past all the dams in these rivers to their historical spawning reaches. The sobering aspect of these contemporary studies is that they are based on the insubstantial number of fish today as compared to earlier massive migrations of these species, which numbered in the many millions. For the international community, the record of fish passage on rivers in the northeastern U.S. is a cautionary tale”.

He goes on to say that “hydropower has often been billed as a clean source of renewable energy, and generating electricity without polluting the air or producing greenhouse gases is commendable. But ‘clean’ is in the eye of the beholder, and any claims to being sustainable ignore its multifarious aquatic effects, including blocking fish passage, fragmenting habitat, and undermining a river’s fundamental ecological services.”

What Brown and co-authors found was bleak. One metric used was the percentage of fish passing the first dam that also passed just the second dam. For shad, the numbers were 16 percent on the Merrimack, 4 percent on the Connecticut, and 32 percent on the Susquehanna. But
on these rivers, Waldman says, the second dam is only the beginning of the journey, and these rivers have multiple dams blocking access to historical spawning reaches. It’s important to put these results in perspective because they are merely relative to the present paltry numbers of fish that even attempt to migrate up these rivers.

The study says that there are three absolute numbers that matter. One is how many ran annually before the dam was created, the second is the numbers targeted for restoration in fish passage programs, and the third are the numbers that actually show up each year. On all the rivers examined by the study, restoration goals were in the hundreds of thousands of fish - at least one, if not two, orders of magnitude less than historic, pristine runs. Yet run sizes obtained across three decades ranged annually from a high of about 10 percent to, more commonly, 2 percent or less of the stated goals.

There are two significant aspects worth taking note of here. First, the three absolute numbers that matter, as mentioned in the paragraph above. The construction of a fish ladder must come with quantified stated goals, in terms of the number of fish that are required to pass as minimum, to achieve the desired stability of fish populations. This requires an estimate of populations prior to building the dam, and an estimate of the number that migrate unimpeded, as well as specific population dynamics. Fish migrations in large rivers can be in the millions, as already cited here from Brown and Waldman’s study. Here at the Kurichhu, or any other fish-pass in India, population and migration estimates, let alone quantified goals are a far cry.

Secondly, the study clearly illustrates that every subsequent dam upstream has a cumulative impact on the numbers of fish succeeding upstream, diminishing in orders of magnitude. This brings to the fore the critical importance of considering cumulative impact of multiple projects, despite ‘mitigation measures’, along an entire stream-length, before any clearance is given piece-meal.

While on the design for fish-passes on specific hydro-projects, there are many aspects other than physical passability provided by a fish-pass, that determine its success or failure. Changed flow, turbulence, and volumes can be disorienting for fish leading to serial delays, making it unlikely that the many fish make it to the spawning reaches at the optimal time in the river’s seasonal ecological cycle. The numbers of adults successfully returning downstream past the dams also sacrifice their future spawning potential. The flow out of an operating fish-ladder is often very small compared to the water going into the intake to the turbines, and fish will often choose the larger flow during descent, to their peril. At Kurichhu for example, the flow down the fish ladder is just 0.80 m$^3$ a second, which is a fraction of the flows for the 4.75 m diameter intake of any one of the four 15 MW turbines.

There is also the larger question of flows in a river being regulated by series of dams, and sometimes being too low to provide the necessary cues for hormonal change and migration, puts paid to fish even reaching fish-ladders in the first place.

The study by Brown and colleagues in the US says that despite vast spending on modern technologies, contemporary shad migrations on these rivers are at least three to four orders of magnitude below the original unfathered run sizes, with similar results for salmon and river herring. While dams alone don’t explain these results; overfishing, habitat destruction, and alien species contribute - but there is widespread consensus among fish biologists that dams (such fish-passes notwithstanding) are a primary cause. Surely, a cautionary tale for India.

And here is another cautionary tale for India, where unlike Bhutan, fish are eaten, readily. Thirty-three years ago, standing on the Sutlej Barrage at Ropar in Punjab, I witnessed a strange sight. At the base of the barrage, there was some urgent movement in the cold blue waters of the Sutlej in early spring. Mahseer fish were attempting to migrate up and beyond the 10 meter high barrage. There, right along the buttress of the sloping spillway, one could see a living pyramid of thousands of fish upon fish, slithering up the side of the uni-dimensional triangle against the spillway, barely submerged in the leaking flow from one of the gates, and wriggling on top of and past each other, in a futile effort to make it over the barrage. While this may just have been a collective shoal strategy to get past smaller rapids, it was a death-trap for fish there, against a steep and high barrage. Some other men had already seen this, and I could see them wade up to the desperate and tenuous pyramid in knee deep water below the barrage, and carrying away fish in sack-loads.

Hydro-power projects in India may undertake to construct fish-ladders projected as mitigations measures to obtain environmental clearance, but that does not prevent the staff and others from making the best of the concentration of fish at the base of the fish-ladders and even at un-passable barrages and predating on them. The CIFRI study for the Kurichhu mentions that Indian workers hired by NHPC regularly fished at points of concentration during migration season, nullifying the purpose of the fish-pass. Clearly, the dam authorities will also need to be charged with the responsibility for protection of fish-passes, and other points of concentration even on dams without fish passes.

These are some of the aspects that require to be further investigated about fish-passes in our Indian context, and to be put on the table for discussion and closer scrutiny when mitigation measures are proposed by hydro-power projects.
Dams, Rivers & People
Dec, 2013 - Jan, 2014

PCA Final Order on India-Pakistan Kishanganga Dispute

India asked to increase environmental water releases to 212%;
India’s plea to re-interpret Feb 2013 order rejected;
Both countries asked to expand analysis & practices on e-flows

In a clear\(^1\) set back to Indian government stand, the Final Order of Dec 20, 2013 by the Permanent Court of Arbitration\(^2\) (PCA)\(^3\) has not only asked India to increase the environmental flows downstream from the Kishanganga dam at all times to 9 cubic meters per second (Cumecs) from the Indian government proposal of 4.25 cumecs (an increase of 112%), the PCA has also rejected Indian government plea to reconsider or re-interpret the PCA order of Feb 2013 that the 330 MW Kishanganga Hydro Electric Power Project (KHEP) under construction and all other subsequent projects cannot draw down the water level in projects below the dead storage level. (The accompanying maps are from the PCA Award in Feb 2013.)

The dispute

India’s 330 MW KHEP on Kishangana River (known as Neelum in Pakistan) in Jammu and Kashmir plans to divert the water of Kishanganga River to Bonar Nallah, which then flows to Wular lake. The overflow from Wular lake is known as Jhelum river, which then flows to Pakistan and meets Neelum River there. However, upstream from this confluence, Pakistan is building a 980 MW Neelum Jhelum HEP (NJHEP) on Kishanganga river, called Neelum in Pakistan, and diverting the water to Jhelum. Because of the diversion of water by KHEP, Pakistan fears its NJHEP will become unviable. It had filed a case against India in Permanent Court of Arbitration, alleging that the KHEP was in violation of the India Pakistan Indus Water Treaty of 1960. As the official website of PCA says, “On May 17, 2010, the Islamic Republic of Pakistan instituted arbitral proceedings against the Republic of India under Paragraph 2(b) of Annexure G to the Indus Waters Treaty 1960. A Court of Arbitration composed of seven members has been constituted pursuant to Annexure G. The Permanent Court of Arbitration acts as Secretariat to the Court of Arbitration pursuant to Paragraph 15(a) of Annexure G. The Court of Arbitration is composed of: Judge Stephen M. Schwebel (Chairman), Sir Franklin Berman KCMG QC, Professor Howard S. Wheater FREng, Professor Lucius Caflisch, Professor Jan Paulsson, Judge Bruno Simma, H.E. Judge Peter Tomka”. On Feb 18, 2013, the Court gave partial award\(^4\),

\[\text{Nevertheless, for a project of the magnitude of the KHEP, the Court is of the view that an in-depth assessment of the type that Pakistan has attempted for these proceedings is a more appropriate tool for estimating potential changes in the downstream environment... In contrast, the Court is not wholly satisfied that India's consideration of the water depths available for fish and its associated analysis offer adequate assurances in light of the complexity of the ecosystem in the Kishenganga/Neelum.}\]

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1. This analysis has been published as a blog at: http://sandrp.wordpress.com/2013/12/23/international-court-asks-india-to-release-more-water-and-rejects-plea-to-re-interpret-february-verdict-on-kishanganga/. We got a lot of positive feedback on this, including from Shri Ramaswamy Iyer, who wrote in his edit page article in The Hindu (http://www.thehindu.com/opinion/op-ed/technologically-advanced-projects-and-emerging-concerns/article5520055.ece), “A detailed analysis of the decision by Himanshu Thakkar from SANDRP (South Asian Network on Dams, Rivers and People) faults the PCA for its flawed determination of the environmental flow (e-flow). That criticism is entirely valid, but it must be remembered that the PCA was not a body set up to determine environmental flows”. The blog also contains compilation of relevant extracts, which is not included in this issue of DRP.

2. I have used PCA throughout this article and not Court of Arbitration, which is more correct way to put it. The Kishenganga dispute was dealt with by the Court of Arbitration set up for the purpose under the Indus Waters Treaty 1960. It is not a ‘Permanent’ Court of Arbitration but only a CoA for this particular dispute. As a matter of convenience, the Permanent Court of Arbitration at The Hague acted as the secretariat of the CoA on Kishanganga.


that resolved most of the issues, except that of the environment flows that India needs to release from KHEP. The Final award of Dec 20, 2013 is about the environment flows.

**What India said about Environment flows** “India’s experts examined the riverbed profile at 12 sites at one kilometer intervals from the KHEP to the Line of Control. At each site, India estimated the water level for minimum flows from 0 to 3 cumecs (at increments of 1 cumec), from 3.94 cumec, and from 4 to 10 cumecs (at increments of 0.25 cumecs), and replicated each calculation across the 99.99-, 90-, 75-, 50-, 25-, and 10-percent dependable flow values. India’s experts then compared these depths to the minimum depths required by three umbrella species of fish: brown trout, snow trout and Tibetan stone loach. Based on these calculations, India’s experts conclude that: The reach between the dam and the first tributary is the most vulnerable to reductions in flow and the site at 6 km downstream show the 90th and 99.9th percentile flows as dropping below the minimum 0.5 m depth specified for brown and snow trout. However, *Triplophysa* (Tibetan stone loach) would have sufficient depths even with a minimum flow of 2.0 m³/s. Thus, the analysis indicates depths would drop below minimum depth requirements for trout species about 10 percent of the time in the upper 5.7-km reach below the dam. Downstream of this point, contribution of runoff from the tributaries will dilute the effects of the dam on flow regime.” (para 65) Based on this India told the court that even 2 cumecs flow would be sufficient, but they offered to release 4.25 cumecs as required by India’s Ministry of Environment and Forests (MoEF). It is not clear what is the basis for the 4.25 cumecs e-flows as mandated by MoEF.

**Pakistan case on Environment Flows** Pakistan had presented a more elaborate analysis of environment flow regime. The Award says about the Pakistan case: “In keeping with the DRIFT methodology and based on the predicted response of the indicators to various flow regimes, Pakistan’s experts graded the resultant ecological condition of the Kishenganga/Neelum under the 17 scenarios on a scale from A to F, ranging from pristine to critically modified. The results show that the current baseline condition of the Kishenganga/Neelum at the Line of Control is in low category B (near pristine). Various high release sce-

narios, for example a 20-cumec minimum flow and above, would maintain the river in category C (moderately modified from natural). Other scenarios, including a 10-cumec minimum flow, would achieve high category D conditions (significantly modified from natural), while a minimum flow of 3.94 cumecs and a maximum diversion scenario would reduce the river to low category D.” (Para 56) Pakistan concludes that between 20 and 40 cumecs flow releases should be required from KHEP.

**PCA calls India’s analysis Simplistic and unsatisfactory** PCA praises Pakistan analysis: “Pakistan has undertaken a far more extensive analysis, attempting to capture complex interactions within the river ecosystem. The Court notes that assessments of this nature are increasingly used by scientists and policymakers to bring a deeper understanding of ecology to bear on the management and development of river systems. In contrast, India has carried out a simpler assessment, drawing its conclusions essentially from a single indicator—the habitat available for selected fish species... Nevertheless, for a project of the magnitude of the KHEP, the Court is of the view that an in-depth assessment of the type that Pakistan has attempted for these proceedings is a more appropriate tool for estimating potential changes in the downstream environment... In contrast, the Court is not wholly satisfied that India’s consideration of the water depths available for fish and its associated analysis offer adequate assurances in light of the complexity of the ecosystem in the Kishenganga/Neelum.” (Para 98, 100)

**PCA unconvincingly says E-flow of 12 cumecs is required** In Para 103-5 the Award concludes, “as the release falls below 12 cumecs, the lowest flows at the Line of Control progressively become the norm for a significant part of the dry season... The Court provisionally concludes that an approach that takes exclusive account...
of environmental considerations—assessed in the absence of other considerations—would suggest an environmental flow of some 12 cumecs... And if Pakistan’s hydro-electric uses alone were to be taken into account, moderating the KHEP’s effect on the NJHEP might entail even higher releases.” The PCA analysis as to how it reaches this conclusion is not very convincing, since this is protecting only the minimum flows and not looking at the river as an ecosystem that would require a range of flows. While KHEP may be passing occasional surpluses above 9 cumecs E-flow releases beyond what it cannot divert, but it should be kept in mind that the project has 18.35 Million Cubic Meters storage capacity behind the 35.48 m high dam and 58.4 cumecs capacity diversion tunnel with 23.7 km length. The quantum of release in most months in all years and almost all months in lean years will only be minimum flow prescribed by PCA.

More unconvincingly, PCA does not adhere to its own conclusions It is even more disturbing is that PCA decides not to adhere to even this 12 cumecs flow. Its reasoning for the same is equally unconvincing when it says that India has right to set up KHEP and also ensure it works effectively. This has already been concluded, but as PCA has itself stated, this right is not absolute and is subject to environment flow requirements. How can this right change the environment flow requirement remains an unanswered question. The second reason given by PCA in not adhering to this E-flow requirement is that according to Indus Treaty, considerations of customary international environmental norms and practices is secondary to the treaty. But that is not at dispute here, how can that again come in the way of determination of environment flow again remains unanswered. The arbitrary assumption that PCA has to recommend a minimum release more than half the minimum monthly release has resulted in recommendation of 9 cumecs (which is 49.1% of average dry season flow in the driest month of January). This assumption itself is arbitrary and unjustified. The PCA does not state that KHEP will become unviable with environmental flow releases more than 9 cumecs. In this scenario, just assuming that monthly flows should not

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be less than 50% due to environmental flows is clearly arbitrary, unscientific and unacceptable.

PCA determination of E-flow of 9 cumecs is also unimpressive In Para 113 the Award says, “The most severe winter in the 34-year record used by both India and Pakistan to assess impacts was 1974-75. The Court notes that, based on India’s data, a minimum flow criterion of 9 cumecs at KHEP is a relatively severe criterion with respect to environmental flow, but would nevertheless be sufficient to maintain the natural flows through the December, January, February period of that winter.” Elsewhere PCA says that this flow will not protect even minimum flow in 16% of the time. It is very disappointing to note that there is no scientific reason provided in the PCA award for arriving at the conclusion that why 9 cumecs E-flow would be sufficient.

Implication of 9 cumecs on KHEP generation “Preserving a minimum flow of 9 cumecs would result in a monthly reduction in energy generation at the KHEP of, on average, 19.5 GWh from October to March... On an annual basis, the average reduction in energy generation at the KHEP would be 5.7 percent... The Court’s figures for the net and percentage reduction in energy generation are calculated as against the 4.25-cumec minimum flow ordered by the Indian Ministry of Environment & Forests, which the Court takes as the baseline for its determination and for the purposes of this Award.” (para 114, footnote 165)

PCA uses minimum flows for environmental flow without providing plausible explanation It is strange that throughout the award, PCA uses the word “minimum flow” for environmental flow. It is apparent that PCA knows the difference, but the reasons it gives for this in a footnote (no 151, para 97) is rather lame: “It is only the particular characteristics of the Kishenganga/Neelum and the fact that low-season flows appear to be the principal drivers of ecological change that permit the Court to discuss environmental flows in terms of a fixed minimum.” This is doing a lot of dis-service to the cause of environmental flows.

PCA fails to mandate the method of E-flow releases One had expected that the PCA would, besides deciding
It is strange that throughout the award, PCA uses the word “minimum flow” for environmental flow. It is apparent that PCA knows the difference, but the reasons it gives for this is rather lame: “It is only the particular characteristics of the Kishenganga/Neelum and the fact that low-season flows appear to be the principal drivers of ecological change that permit the Court to discuss environmental flows in terms of a fixed minimum.” This is doing a lot of dis-service to the cause of environmental flows.

The quantum of flow releases, would also mandate the method of flow releases, including mandating well designed fish ladder and ensuring more regular sediment transport. Even as India considered only three umbrella species, 2 of these species (snow trout and brown trout) migrate in the downstream in winters. Without a fish ladder, these species will be severely affected. The PCA award says what India and Pakistan say about sediment flow, but PCA itself does not say anything about the impact of changing sediment flow on the river ecosystem. One had hoped that PCA would make it clear that India cannot make the E-flow releases through a dam-toe power house as India is doing in a number of other projects. One was looking for the PCA assessment of impacts of KHEP on the 12.07 km long downstream river stretch within India, since the stretch beyond Line of Control cannot be healthy if the stretch before is not. One sought for not just the lean season flow, but a range of flow regimes, including daily changing flows in each season. The changing flood character downstream from KHEP was also expected to be assessed by the PCA as also the issue of safe operation of the project. Unfortunately, there was only disappointment on each of these counts.

There was also an expectation that the PCA would put all the submissions of both parties in public domain.

**Indian media misleads the nation** The actual PCA award of Dec 20, 2013 is clearly contrary to the message the Indian Media seems to be giving. For example, the front page headline of *The Tribune* screamed on Dec 22, 2013, *Kishenganga: India’s right upheld - Arbitration court rejects Pakistan objection to diversion of water for power by India in J-K* (in reality, this was not the PCA decision of Dec 20, 2013, it was the decision of Feb 2013 order. The *Indian Express* headline on the same day was equally misleading: *Kishanganga: Court lets India build, operate as it wants*. This again was a decision of Feb 2013, not of Dec 20, 2013. *The Times of India* only had one-column news buried on page 20, strangely with dateline PTI-Islamabad, saying equally misleadingly:* Kishanganga project gets official nod.*

**Pakistan Media** Pakistan’s newspaper *Business Recorder* on Sunday said:* Kishanganga: India allowed to divert minimum flow of water: Commissioner. The Pakistan Tribune** headline said:* Kishanganga project: Victory claims cloud final arbitration award. They sound closer to the PCA order of Dec 20, 2013. The News headline though was off the mark: *ICA allows India to construct Kishanganga Dam.*

**PCAs advice in conclusion** The PCA awards notes that Pakistan’s historical practices does not match with what it was demanding from India in case of KHEP and that India’s own analysis of downstream impacts was too simplistic and unsatisfactory. It has advised both countries to expand their analysis and practices on environment flow regime and has clearly stated that this will not be against their drive for more power generation. This is good in spite of number of disappointments of the PCA award listed above. We hope both countries pay heed to this earnestly and at the earliest. We also hope the media in both countries would report this in proper perspective.

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5 In this respect the PCA award is more backward that India’s own current environment flow regime that mandates seasonal flows and the BK Chaturvedi committee has actually asked for daily changing flows so that the releases mimic the river flow regime.
6 http://www.tribuneindia.com/2013/20131222/main1.htm
9 http://www.brecorder.com/top-stories/0/1266506/
12 Thanks to Shripad Dharmadhikary and Parineeta Dandekar for providing comments on earlier drafts of this.
Year-end provides a wonderful opportunity to take stock. If we look at India’s water sector, the above-average rainfall in 2013 monsoon would mean good agricultural production. But the water sector as a whole is showing increasing signs of trouble.

Gujarat saw a very bad drought in 2012-13. There is an increasing perception in the state that Gujarat government is by design not building the distribution network to take the Narmada Dam waters to Kutch & Saurashtra, for whom the project was justified and built.

The most striking crisis of 2013 was the unprecedented flood disaster in Uttarakhand in June where thousands perished. Experts and media called it a man-made disaster with a significant role played by existing and under-construction hydropower projects and other unsustainable infrastructure. The Supreme Court order of Aug 13, 2013 directed the Union Ministry of Environment and Forests to set up a committee to look into the role of these hydropower projects in the disaster and also directed that no further clearance to any hydropower projects be given till further orders. This order was possibly the only hopeful sign since Uttarakhand government, other Himalayan states or the central agencies including NDMA and MoEF, seem to have learnt no lessons from the disaster. This has been most starkly evident in the recent clearance given to the massive Lakhwar Dam on Yamuna River in Uttarakhand in complete violation of the above mentioned order of the Supreme Court, directing no further clearance to any hydropower projects till further orders. Newly-appointed, environmentally-challenged Union Environment Minister Veerappa Moily has also agreed to demands of Uttarakhand government to further relax environmental norms.

Earlier in 2012-13 we saw triple crisis in Maharashtra in the form of worst drought in 40 years, worst irrigation scam in independent India and agitation against diversion of huge quantity of water from agriculture to non-agriculture sector without any participatory process. A new drip irrigation scam is likely to come up, as per initial signs. In Andhra Pradesh too, a massive irrigation scam was exposed by the CAG report. In fact, inequity in the distribution of costs and benefits related to water sector project lies at the heart of the bifurcation of the troubled state.

In Chhattisgarh and downstream Orissa, thermal power plants of massive capacities are going to impact the water situation in Mahanadi basin so fundamentally that big trouble is likely to erupt there, which may impact several other sectors. Madhya Pradesh government is on a big dam building spree in all its river basins, including Narmada, Chambal and also the water scarce Bundelkhand. All of these projects are for canal irrigation when canal irrigation has failed to add any area to the total net irrigation at national level for over two decades now. We could see a new massive irrigation scam in MP in coming years, in addition to agitations and interstate disputes. Gujarat too saw a very bad drought in 2012-13. There is an increasing perception in the state that Gujarat government is by design not building the distribution network to take the Narmada Dam waters to Kutch and Saurashtra, for whom the project was justified and built.

In North East India, it is now two years since massive agitation has led to stoppage of work at ongoing 2000 MW Lower Subansiri hydropower project. This is India’s largest under-construction hydropower project on which over Rs 5000 crores have been spent without putting in place basic studies or participatory decision making processes. Similar fate awaits other proposed mega-hydropower projects in the region if the government goes ahead with other hydropower development projects without learning lessons from this episode. During the year, Forest Advisory Committee’s rejection to grant forest clearance to 3000 MW Dibang and 1500 MW Tipaimukh projects in the region was a good sign, so is the stoppage of work at Maphithel dam in Manipur by the National Green Tribunal.

But we have seen no sign of improvement in environment governance. The year saw the questionable appointment of former Coal Secretary as chairman of the Expert Appraisal Committee on River Valley Committee by Union Ministry of Environment and Forest. In fact, several of the new appointees in the committee do not have any background in environmental issues. The year also began on the wrong note with the environment clearance to the 620 MW Luhri hydropower project in Himachal Pradesh, designed to destroy the last flowing stretch of Sutlej River in the state. In April 2013, while relatively poorer states like Rajasthan, Madhya Pradesh, Chhattisgarh & Orissa have shown big jump in agriculture growth rates in recent years, these have come at the cost of huge depletion in groundwater levels. In Rajasthan, the level of groundwater development increased from 59% in 1995 to 135% in 2009, indicating that the state is now in overexploited category.
the Forest Advisory Committee took the most shocking decision of approving the completely unjustifiable Kalu dam for Mumbai Metropolitan Region, without any assessments. The same FAC had rejected the proposal one year back and the reasons for that rejection remain valid even today.

In the Western Ghats, decision of the Union government of dumping the Western Ghats Expert Ecology Panel Report (Gadgil Report) and instead accepting the much criticized Kasturirangan committee Report in principle has already led to full blown crisis in Kerala and is threatening to engulf more areas. Now the government has put even the recommendations of Kasturirangan committee on back-burner. This crisis was completely avoidable if the MoEF, instead had used last two years to encourage public education on the need for implementing the Gadgil panel recommendations.

While relatively poorer states like Rajasthan, Madhya Pradesh, Chhattisgarh and Orissa have shown big jump in agriculture growth rates in recent years, these have come at the cost of huge depletion in groundwater levels. As Vijayshankar of Samaj Pragati Sahyog said at a conference in Delhi recently, in Rajasthan, the level of groundwater development (ratio of annual groundwater draft to annual utilisable recharge) increased alarmingly from 59% in 1995 to 135% in 2009, indicating that Rajasthan is now in the overexploited category. Of the 236 blocks in Rajasthan, massive 164 (69%) were in over exploited category in 2009. In Madhya Pradesh, while the state groundwater use has moved from 48 to 56%, about 89 blocks out of total 313 (28%) are using unsafe levels of groundwater.

This fresh news of groundwater depletion in new areas is bad sign in medium and long range. “Over the last four decades, around 84 per cent of the total addition to the net irrigated area has come from groundwater. India is by far the largest and fastest growing consumer of groundwater in the world. But groundwater is being exploited beyond sustainable levels and with an estimated 30 million groundwater structures in play, India may be hurtling towards a serious crisis of groundwater over-extraction and quality deterioration”, said Planning Commission member Mihir Shah at a recent meeting in Delhi. 12th Five Year Plan has started the new scheme of mapping groundwater aquifers of India, which is a useful step, but we have yet to crack the puzzle of how to regulate groundwater use to ensure its equitable and sustainable use for priority sectors.

The year 2012 ended with the National Water Resources Council approving the National Water Policy 2012. At the end of 2013 we have yet to see a credible plan in place for implementing the policy provisions. The year 2013 saw proposal from Union Ministry of Water Resources for a new Draft National Water Framework Law, Draft River Basin Management Bill and draft National Policy Guidelines for water sharing/distribution amongst states. None of them have reached finality and all of them are likely to be opposed by states as an encroachment on their constitutional domain. In fact the interstate Mahadayi River conflict has reached a flashpoint with upstream Karnataka and Maharashtra starting dams in the basin without even statutory clearances from the centre or consent from downstream state of Goa.

The state of our rivers as also the reservoirs and other water infrastructure is deteriorating but our water resources establishment has shown little concern for that. The IIT consortium report on the Ganga River Basin Management Plan is due soon, but if the pathetic interim report is any sign, there is little hope there.

While all this looks rather bleak, increasing agitations and informed protests all over India on water issues is certainly hopeful sign as it shows that more and more people are ready to stand up for their rights and against unjust policies and projects. More community groups are challenging inadequately done environmental impact assessments, cumulative impact assessments, basin studies, downstream impact assessments, concepts like eflows without any participatory processes etc., raising very informed and pertinent questions. Most of these studies have been the monopoly of select, fraudulent EIA agencies. Critical questions indicate that these studies and decisions about rivers and dams cannot be taken excluding local communities, their knowledge and their concerns. Among other hopeful signs include some of the decisions of the National Green Tribunal on Yamuna and other rivers.

With the end of year 2013 we’re also coming close to the end of the current term of the Union government. While there is little to hope from the main political parties ruling the centre and the states mentioned above, perhaps the emerging political alternative in Delhi will grow and move in right direction.

Himanshu Thakkar (An edited version of this was published in Jan 2014 issue of Civil Society)
Massive hydropower projects considered and cleared for northeast

An analysis done by SANDRP for the year 2013 has showed that massive hydropower capacity has been considered and cleared by Expert Appraisal Committee (EAC) on River valley and Hydroelectric projects in northeast India. The total installed capacity of considered by EAC for the year 2013 is 29458 MW and out of which 21805 MW (over 74% of 29458 MW) projects are in the northeast India. On the other hand out of the total capacity considered for northeast, 20180 MW (over 92.5% of 21805 MW) projects are in Arunachal Pradesh. The total number of projects considered from northeast for 2013 was 37, all (including the Dibang multipurpose project, which is basically a hydro project) are hydropower projects. Out of these 37 projects, 10 projects of 4917 MW installed capacity has been given TOR (Terms of Reference) clearance or the Stage 1 clearance. 4 projects with 953 MW installed capacity have been given final environment clearances. 13 projects with 9078 MW capacity have been given extension of their TOR validity, which implies that in next 2 years all these projects would also come up for final environmental clearance.

India-China Water Information Sharing MoU of October 2013

One of the most important developments of the year 2013 was signing of the Memorandum of Understanding between India and China through which India recognizes the value of river (on paper at least!) since the agreement says, “rivers and related natural resources and the environment are assets of immense value to the socio-economic development.” But this agreement has been misconstrued and misrepresented by a large section of the media. SANDRP wrote a detailed blog “Media Hype Vs Reality: India-China Water Information Sharing MoU of Oct 2013” which tries to clear the fog around this agreement. The article also lists formation and decisions of the meetings of the Expert Level Mechanisms (ELM) on Trans-border Rivers and MoUs on Hydrological Data Sharing on River Brahmaputra / Yaluzangbu and Satluj / Langquin Zangbu.

Forest Clearance Rejected for Tipaimukh and Dibang Hydropower Projects

In the year 2013 the rejection of forest clearance to 1500 MW Tipaimukh hydropower project and 3000 MW Dibang multipurpose project by the Forest Advisory Committee (FAC) of MoEF is noteworthy. Here it should be noted that the Prime Minister of India laid foundation stone for the Dibang Project in Jan 2008 when the project did not have any of the statutory clearances! However, NHPC has already started lobbying the Prime Minister-headed Cabinet Committee on Investments to intervene for the forest clearance for Dibang Project and a note has already been moved for this. We hope these FAC decisions are not reversed as it happened in case of Kalu dam in Maharashtra, where the FAC decision was reversed following a letter from the Chief Minister. The stay over the construction work of Maphithel dam in Manipur by the National Green Tribunal could have been regarded as a positive sign but recent reports suggests that Union Ministry for Tribal Affairs (MOTA) had done a U-turn by going “back on its views to say that the Forest Rights Act should not apply to the acquisition of land from the Tangkhul and Kuki tribal people as a ‘rare and unique’ exception.”

Two years of protests against Lower Subansiri HEP in Assam and Tripartite Talks

The protest against large hydropower dams in Arunachal Pradesh had reached a new milestone as the stoppage of construction work of 2000 MW Lower Subansiri hydropower project completed two years on 16th December 2013. This stoppage of the construction work of the Lower Subansiri project has brought the issue of downstream impacts of large dams to the forefront and also showed how a mass movement can question a top-down development project. These protests were led by Krishak Mukti Sangram Samiti (KMSS), All Assam Student Union (AASU), Asom Jatiyatabadi Yuba-Chatra Mukti Sangram Samiti (KMSS), All Assam Student Union (AASU), Asom Jatiyatabadi Yuba-Chatra Parishad(AJYCP) along with several other organizations.

On Dec 6, 2013, a tripartite discussion was held involving the central government, Government of Assam and protesting organizations. Though this meeting failed to come to a common resolution, it led to the expert-to-expert meeting on the Lower Subansiri dam issues on 22nd December 2013. The next meeting in this context is likely to happen in second week of Feb 2014. These dis-
Discussions not only help in building public opinion about the issue but also provide platform to discuss the larger issues related with 168 hydropower dam proposed for Arunachal Pradesh and their cumulative impacts in the larger Brahmaputra basin.

**Foreign Funding of Hydropower projects in Northeast** In the year 2013 Asian Development Bank has agreed to give loan of $ 200 million to construct the Lower Kopili Hydropower project in Karbi Anglong and Dima Hasao districts Assam. This project is being constructed by Assam Power Generation Corporation Limited (APGCL) and it is 8 km downstream of existing Kopili hydropower project, first dam on Kopili river. It is important to note that acidic contamination of water due to unregulated mining in the upstream Meghalaya poses a major threat for the viability of the dam and this was disclosed in a study initiated by the project proponent. This project was given TOR clearance in the 69th meeting of EAC even as project proponent’s responses on many of the issues raised by SANDRP were far from satisfactory. SANDRP had written a detail blog titled “Lower Kopili HEP: Outstanding issues that must be resolved before EAC can consider the project” which discussed the issues related with the proposed dam including the increase in intensity of floods in downstream Nagaon.

Foreign funding for hydropower project comes with the risk of huge cost overruns. This was evident in the case of Pare HEP on Pare/Dikrong River for which developer NEEPCO is taking a loan of 80 million euros from KfW, a German Bank. This project was schedule to be completed in September 2013 but Central Electricity Authority status report on projects under execution now states the completion time as 2015. The cost of this project has already increased by 205% from its initial estimates. The loan amount along with the interest rest is also increasing year by year and NEEPCO’s 36th Annual Report of 2011-12 states that the loan taken from KfW is “repayable in 30 equal half yearly installments w.e.f. 30.12.2013.” This implies that even before the completion of the project the company has to start paying back the loan.

**Assam’s Flood Devastation** For Assam, floods are an annual event. In the year 2013 Assam witnessed three waves of flood. The table below provides a glimpse of the extent of the flood disaster Assam faced in 2013. The data is sourced from National Disaster Management website under the Ministry of Home Affairs of Government of India.

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### Data from SDMAA, Government of Assam

<table>
<thead>
<tr>
<th>Dates in 2013</th>
<th>No of People affected</th>
<th>No. of districts affected</th>
<th>No of Villages affected</th>
</tr>
</thead>
<tbody>
<tr>
<td>30th June</td>
<td>22,696</td>
<td>7</td>
<td>125</td>
</tr>
<tr>
<td>16th July</td>
<td>31,174</td>
<td>4</td>
<td>107</td>
</tr>
<tr>
<td>31st July</td>
<td>7716</td>
<td>4</td>
<td>45</td>
</tr>
<tr>
<td>10th August</td>
<td>53,714</td>
<td>4</td>
<td>164</td>
</tr>
<tr>
<td>15th August</td>
<td>33,563</td>
<td>5</td>
<td>102</td>
</tr>
<tr>
<td>24th August</td>
<td>6123</td>
<td>3</td>
<td>73</td>
</tr>
<tr>
<td>31st August</td>
<td>10,851</td>
<td>4</td>
<td>70</td>
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<tr>
<td>2nd September</td>
<td>2714</td>
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<tr>
<td>6th September</td>
<td>1,45,054</td>
<td>8</td>
<td>411</td>
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<tr>
<td>7th September</td>
<td>3,24,531</td>
<td>14</td>
<td>572</td>
</tr>
<tr>
<td>10th September</td>
<td>3,54,731</td>
<td>13</td>
<td>534</td>
</tr>
<tr>
<td>16th September</td>
<td>2510</td>
<td>2</td>
<td>16</td>
</tr>
</tbody>
</table>

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But it was surprising to find that the numbers of affected people and villages provided by a central government organization is much less than the number provided by the disaster management department of the state government. The State Disaster Management Au-

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authority of Assam (SDMAA) provides much larger number of affected people. During the monsoon months of 2013, SDMAA published daily flood report on its website. After following the flood reports of four months, the following table with some key dates has been prepared to give an idea of the discrepancy between state government and central government data.

This discrepancy points towards the lack of the coordination between the state and the central government agencies. Floods need serious attention and such misreporting can lead to confusion which will ultimately have bearing on the people. It is important to mention that many in Assam believe that the problem of flood in Assam has not been dealt adequately by the central government. The discrepancy detailed above reinforces that belief.

False claim about climate-induced displacement in Northeast India by a global agency In connection with the flood issue, the year 2013 will also be marked by the publication of the report named “Global Estimates 2012 – People Displaced by Disasters” by Internal Displacement Monitoring Centre (IDMC) based in Geneva, Switzerland. This report had stated that the largest climate induced displacement in the world for the year 2012 happened in two states of Northeast India, Assam and Arunachal Pradesh in June 2012 due to the monsoon floods which displaced 6.9 million people, constituting about 21.2% of the population of the two states. But a detailed analysis of this report by SANDRP revealed that these figures are highly exaggerated. This analysis is available at 2012 Floods Displaced 6.9 Million in Northeast-IDMC: Staggering but Highly Exaggerated4.

Havoc of Erosion In Assam, along with annual floods, river bank erosion by Brahmaputra and its tributaries is a major cause of concern. The year 2013 is also no exception and severe erosion was reported in several parts of the state. A report Study of Brahmaputra River Erosion and Its Control done by IIT Roorkee, published in 2012 measured the loss of land due to erosion of Brahmaputra for nearly two decades in twelve reaches of the river. The total loss of land on both sides of the river Brahmaputra is mentioned below.

<table>
<thead>
<tr>
<th>North Bank</th>
<th>South Bank</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Erosion Length (km)</td>
<td>353.85</td>
</tr>
<tr>
<td>1990 to 2007-08 (in sq. km)</td>
<td>538.805</td>
</tr>
<tr>
<td>1997 to 2007-08 (in sq. km)</td>
<td>327.726</td>
</tr>
</tbody>
</table>

This report, sponsored by National Disaster Management Authority (NDMA), was a very descriptive report from the point of information and data about the river Brahmaputra and its tributaries. But an analysis of the report done by SANDRP, found that this report was biased towards structural interventions and hydropower projects and oversimplifies the problem of erosion by identifying ‘sediment overloading’ as the main reason for erosion. This analysis can be found at “NDMA Commissioned IIT Roorkee Study on Brahmaputra River Erosion: A Biased and Structural Solution Oriented Report?”

The year 2013 also witnessed people in riverine areas of Assam demanding relief from erosion. On May 21st 2013, the people of Bahgara Dhunaguri village panchayat in the Lakhimpur district of Assam floated the effigy of the effigy of State Water Resources Minister Rajib Lochan Pegu in a traditional raft in the Subansiri River in Dhunaguri Baduli Para area. The TMPK units of Dikrong Awanori and East Dikrong joined in this protest. According to the beliefs of Mishing society when someone dies due to unnatural causes, his/her body is floated in a traditional raft in flowing river. People accused that Mr. Pegu had completely failed to perform his duty as a water resource minister and he had not been able to give any relief to the people by preventing flood and erosion. Failing to perform his duty has been regarded as the ‘unnatural death’ of the minister & that was why people floated the effigy of the minister.5

With respect to construction and repair of embankments, some serious issues were brought to light in the year 2013. In May 2013, All Assam Water Resources Contractors’ Association revealed that out of the total embankment length of 4473.82 km in Assam, the government had repaired only 1327 km embankment, leaving 3673 km long embankment completely vulnerable to floods.

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4 http://sandrp.wordpress.com/2013/06/15/2012-floods-displaced-6-9-million-in-northeast-idmc-staggering-but-highly-exaggerated/
5 Dainik Janambhumi, Guwahti, “Brahmaputra, Subanshirir Khohoniya Tras” 22nd May, 2013
Water Sector Review for Maharashtra in 2013

2013 will remain a memorable year for Maharashtra’s water sector in many ways. The year saw several remarkable events, including country’s the biggest dam scam, a severe drought followed by floods, unprecedented intrastate water conflicts, etc. These issues have raised a question mark over institutions and governance mechanisms around water in the state. 2013 year has been a crucible of sorts through which the flaws and strengths of prevailing water management in Maharashtra can possibly be assessed.

After spending Rs 70000 crores on irrigation projects in the past 10 years, the actual increase in irrigated area was negative. As was predicted by many, the white paper has been a white wash.

As the year 2012 ended, a White Paper on Irrigation Projects was published by the Water Resources Department (WRD) Government of Maharashtra after much pressure from civil society and media following colossal corruption charges against the WRD, and also against the NCP (Nationalist Congress Party) which held the portfolio for more than 11 years. This was looked at primarily as a political move in the ongoing tussle between NCP and Congress. Immediately after its publication, Deputy Chief Minister Ajit Pawar who had resigned over corruption charges in WRD was reinstated, without clearing his name. Modus operandi of the dam scam included pushing and initiating multiple projects, incomplete works, unbelievable and irregular cost escalations post tendering: some to the tune of 300%, favoring a cartel of contractors, poor quality of construction, absence of essential studies like water availability, detailed designs, DPRs, absence of canal networks, etc. All this culminated into the fact that after spending Rs 70000 crores on irrigation projects in the past 10 years, the actual increase in irrigated area was negative.

The white paper provided a status report of projects under the WRD, the money spent, cost escalations and reasons, status of clearances, etc. As was predicted by many, the white paper has been a white wash. Not only has it presented false information about many projects, it has chosen not to report many controversial projects, and has not given any convincing reasons for delay and cost hikes. It nonchalantly reported illegalities like the on-going work without mandatory Forest and Environmental clearances.

One of the remarkable features of the dam scam and white paper has been that both issues were highlighted and pushed by the civil society and the media and also the CAG report. Parts of the Dam scam was unearthed after organizations like IAC (India Against Corruption), Shramik Mukti Sangathan, SANDRP , etc. which worked on individual projects, mainly of the Konkan Irrigation Development Corporation (KIDC), strung together evidence to understand the scope and scale of the scam. One of the eloquent voices in this group has been that of Ms Anjali Damaniya, now with the AAP (Aam Aadmi Party), who joined the dots across Maharashtra and collected a body of evidence which irrefutably indicated the massive corruption and problems in the WRD. Equally remarkable was Chief Engineer Vijay Pandhare’s unshaking stand against the functioning of his own department. Not surprisingly, he was deemed as being mentally imbalanced by the Ministers.

In this entire episode, Chief Minister of Maharashtra and his government succumbed to the pressures of vested interests in the pro dam lobby, losing a golden opportunity to purge the irrigation sector of its collective corruption.

The White paper was followed by the constitution of a Special investigation Team (SIT) in December 2012 under the chairpersonship of Dr. Madhav Chitale, to investigate the corruption charges and to recommend further action to the WRD. Unfortunately, not only did the constitution of the SIT interfere with taking the WRD into the court, the members, including Chitale, are all known for toeing the government line. Chitale is also known for his pro-dam stance. On top of this, the SIT refused to accept any evidence about the scam from anyone outside the WRD. This move was criticized by many, after which the SIT started accepting such submissions. However, many view the constitution only for

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3 http://articles.timesofindia.indiatimes.com/2012-09-24/mumbai/34061452_1_irrigation-projects-corrupt-officials-quality-control
http://www.mid-day.com/news/2012/oct/031012-Pune-Vijay-Pandhare-gets-cop-cover-for-city-visit.htm
Unfortunately, not only did the constitution of the SIT interfere with corruption cases in the courts, the members, including Chitale, are all known for toeing the government line. Chitale is also known for his pro-dam stance. On top of this, the SIT refused to accept evidence about the scam from anyone outside the WRD. This again shows how the Maharashtra government led by Chavan did not understand the issue and did not have the courage to provide transparent governance.

**Massive Drought:** Monsoon of 2012 had been poor in many regions across Maharashtra. End of 2012 itself saw severe water stress in many regions and increasing conflicts. The situation needed quick appraisal and strong, urgent measures. But the MWRRA (Maharashtra Water Resources Regulatory Authority), expressly constituted in 2005 to provide equitable water distribution in the state was busy holding meetings about water rates. By December 2012 live storages of many projects, including Ujani, touched zero. Months that followed saw one of the most severe droughts experienced by Maharashtra. This was dubbed as a drought worse that 1972 by political leaders, to underline the "natural disaster" and escape responsibility. However, SANDRP’s analysis proved that rainfall in 2012 had been more than that of 1972 in almost all of the 17 worse drought-affected districts in Maharashtra. This proved that 40 years after 1972 and after spending thousands of crores on dams and institutions, the impact of a drought less severe than that of 1972 was more severe, highlighting the mismanagement of water on a large scale.6

**Sugarcane concentrated in the worst drought hit regions** There were many reasons behind this situation, including inequitable water allocation, pollution, dam scam, etc. One of the major culprits was wide spread cultivation of water intensive sugarcane, promoted by the politicians and the government. The water use efficiency of Maharashtra’s cane farming is dismally low, as compared to other states like Uttar Pradesh.7 Solapur region, worse hit by drought has the maximum concentration of sugar factories (28) and maximum area under sugarcane. It also includes Union Agricultural Minister’s (Shri Sharad Pawar) constituency of Madha. Water required for cultivating sugarcane on 155 864 ha area under sugarcane in Solapur works out to be 2630 Million Cubic Meters (MCM).

This is 1.73 times the live storage capacity of Ujani Dam (Live Storage: 1517 MCM), the largest reservoir in Bima basin and third largest reservoir of Maharashtra. All this cane was crushed when drought was at its worst. In regions like Osmanabad, all of the cane over 50,000 ha was crushed when all of the dams in the region were at dead storage! The same drought-hit region was also going to host several new (mostly private) sugar factories. SANDRP’s analysis showed that rainfall in 2012 had been more than that of 1972 in almost all of the 17 worse drought-affected districts in Maharashtra. This proved that 40 years after 1972 and after spending thousands of crores on dams and institutions, the impact of a drought less severe than that of 1972 was more severe, highlighting the mismanagement on a large scale.

Most of the water of Ujani Dam in Solapur was diverted for sugarcane, without any checks from anyone. As it reached dead storage, drinking water to villages was affected. The High Court, while hearing a case filed by Prabhakar Deshmukh of Solapur ordered in April 2013 that dams upstream Ujani should release water immediately for the downstream Ujani Dam and other areas. The rationale behind water releases to Ujani has been questioned. Importantly, even in the village of Prabhakar Deshmukh, sugar industries continued to crush cane using huge quantity of water every day, even when he was on fast. The government has been completely ineffective in dealing with this issue.
One of the major culprits was widespread cultivation of water-intensive sugarcane, promoted by the politicians and the government. The water use efficiency of Maharashtra's cane farming is dismal low, as compared to other states like Uttar Pradesh. Solapur region, worse hit by drought, has the maximum concentration of sugar factories (28) and maximum area under sugarcane. It also includes Union Agricultural Minister's (Shri Sharad Pawar) constituency of Madha.

Marathwada was most severely hit by drought and was also at the receiving end of a complex upstream-downstream water conflict. After commissioning the massive Jayakwadi Dam near Aurangabad in this region, several (more than 11) dams have been built in the upstream Godavari Basin in Nashik and Ahmednagar Districts. These dams have reduced the water flow into Jayakwadi. In keeping with Section 11 and 12 of MWRRA, all dams within a basin should have approximately same percentage of water in October each year. However, in Godavari, upstream dams held up to 90% water, even when Jayakwadi was at Dead storage. Multiple cases were filed in Aurangabad bench of High Court which twice ordered release of water from upstream dams. How much water of it actually reached Jayakwadi remains an unanswered question.

Thus the year also saw complete ineffectiveness of MWRRA as an institution. It was shamed by the High Court. More than 13 posts, including the chairperson and expert members were not filled for several years and the authority was all together nonfunctional. Rules of the Act were not made 8 years after formulating the act. They were hastily made after HC orders and very significantly, tried to delete the same clauses which were significant for equitable water distribution. This again was and is being contested by civil society, especially in Marathwada. Now, the WRD has appointed a committee under the chairpersonship of Mr. Mendhegiri, Director WALMI, specifically tasked with making MWRRA “practicable”. Marathwada groups see this as a clear threat to Jayakwadi and have written to the government as well as Mendhegiri Committee. The road ahead seems long.

Drought of 2013 was not without bright sparks, though. Many villages joined to desilt their tanks and weirs, new watershed structures were erected. All this led to considerable storage in 2013 monsoons.

However, quick fix methods like Shirapur pattern which entail deepening and widening of streams and rivulets, was pushed indiscriminately for all, as was string of cement nallah bunds, but this again was contested for its impacts on groundwater and environment. It is now reported that Government has applied for a Rs 60,000 crores loan for drought proofing works, with support from the World Bank. Before such big ticket expenses, we need to check what happened to the thousands of crores spent on watershed management and specifically minor irrigation projects? Large number of minor irrigation projects are dysfunctional and poorly maintained, like their big counterparts. People’s participation in management is the key, but is entirely absent. The year 2013 also saw tragic death of five engineers of the WRD, while inspecting a flawed minor irrigation project, which caved in during the inspection.

Unviable LIS also violate laws At the same time, many Lift Irrigation Schemes (LIS) of Maharashtra applied for TOR clearance or Environmental clearances with the Ministry of Environment and Forests, Central Government. SANDRP was following this closely and were shocked to find that many projects which applied for clearances were already underway, some were nearly finished. All such work before clearance is in complete violation of the Environmental Protection Act 1986 and EIA Notification of Sept 2006. All of these projects: Lower Dnyan Ganga, Ar kacheri and Alweadi nalla, Shirpaur Lift Irrigation Scheme and Krishna Marathwada Lift Irrigation scheme were rejected clearance by the MoEF’s Expert Appraisal Committee on River Valley Projects after SANDRP wrote to the EAC about the violations. Though White paper stated Forest and Environmental clearances as hurdles to its work,
we see that projects do not wait for these processes and WRD pushes on with illegal works.

2013 Monsoon 2013 monsoon (June-Sept) has been satisfactory for most of the state: Vidarbha got 1360.4 mm (43% above average) rainfall, Madhya Maharashtra got 880.1 mm (21% above average) rainfall, Konkan got 3502.6 mm (20% above average) rainfall and Marathwada got 747.3 mm (9% above average) rainfall. Thus Vidarbha, already stressed by water diversions for thermal power plants and farmers plight, faced severe floods this year. Standing crops of cotton and soyabean were destroyed and the impacts of soil erosion continue. Same is the case with Dhule and Jalgaon districts. Operation of Dams has been held responsible for compounding the flood losses in places like Wardha and Chandrapur. Compensation announced to the farmers is meager, with some receiving checks for single digit amounts.

The Krishna Water Disputes Tribunal announced its final verdict in November 2013, disallowing Maharashtra to make any further interbasin transfers, especially through the Krishna Marathwada Lift Irrigation project. The work on this project is already progressed to considerable extent. Mostly, this again will be money down the drain. The project also applied for environment clearance, but was denied that following SANDRP submission that work has already progressed before the clearance.

Western Ghats 2013 also saw a huge upheaval and public discourse surrounding the Western Ghats, following the Western Ghats Expert Ecology Panel (WGEEP) Report by Prof. Madhav Gadgil and the problematic Kasturirangan Committee report, mainly to dilute WGEEP recommendations. The affidavit submitted by Principal Secretary Maharashtra on the WGEEP report is extremely flawed. Even when SANDRP and other organizations highlighted the gross violations in KIDC irrigation projects, the Forest and Irrigation department continued to ignore that.

The affidavit says that interbasin water transfers in Western Ghats are necessary in Maharashtra for the water security of the drought affected region in the Deccan plateau, but ironically, all the current water transfers of more than 2000 MCM annually though Koyana HEP and TATA HEPs is transferring water FROM this very drought hit region TO the water surplus region of Konkan! And this was not checked even when the 2012-13 drought was at its peak and organizations like SANDRP raised this issue during the drought.

The dithering ways of Congress government at the centre and state are epitomised in a recent event of appointing Veerapa Moily, a completely unsuitable candidate, as the Union Environment Minister. One of the first persons Mr. Moily met after becoming the Minister of Environment was Mr. Prithviraj Chavan, along with Kerala CM, with the CMs advocating putting a hold on the ESAs in Western Ghats recommended by the Kasturirangan committee and Mr. Moily promptly obliging. In earlier meetings, which I attended, Mr. Chavan intentionally depicted WGEEP report in incorrect light. This may have something to do with entrenched interests another congress MLA, Narayan Rane, in mining and destructive activities in the Western Ghats of Maharashtra.

Looking at Rahul Gandhi's absolutely incorrect depiction of Environment and Environmental clearances as hurdles at the FICCI meet, it looks like the whole of the congress establishment has just not got the message from the AAP episode in Delhi that the people want clean, participatory and responsive governance and not just growth at any cost. The Congress establishment seems to have no clue about the dependence of the poor on the environmental resources.

Dams around Mumbai, in the Western Ghats 2013 saw frenzied activity by the Mumbai Metropolitan Regional Development Authority (MMRDA) and Municipal Corporation of Greater Mumbai (MCGM) to push more and more drinking water supply dams in the tribal areas of Western Ghats MMR region. Around 12 dams are now in various stages of completion, construction and planning for the MMR Urban areas. They will to-

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The urban water scenario in Maharashtra is seriously problematic at the moment. Many urban areas are in a hurry to build new dams as the only option to their increasing water supply, but are not ready to harvest rain, or to treat and reuse any sewage they generate or to revive their rivers and other local water sources or achieve any participatory governance.

As the year 2013 closes, Chief Minister, Union Agriculture Minister and all the dignitaries so very linked with sugar sector again came together at the Vasantdada Sugar Institute’s Annual General Meeting in December 2013. The same leaders had met at the same forum in March 2013 in the middle of the drought, when the Union Agriculture Minister had said that from next year flow irrigation to sugarcane will be stopped and drip will be made compulsory. But just after 9 months from the “worse drought in 40 years”, these promises seem to have been forgotten. The same Minister did not even mention drip in his December 2013 address.

In conclusion 2013 ends in India on a historical note, with the Aam Admi Party taking over the reins of the government in Delhi, riding to power on the promise of clean, corruption free, pro-people and hence pro-environment governance. The key operative term here is democratic governance.

In Maharashtra, Chief Minister Prithviraj Chavan assumed office on a similar promise of clean governance, but the CM and his government has completely lost any right to this claim. Political opposition has also completely failed here. In the dam scam or any other episode described here, neither the BJP, nor the Shiv Sena nor any other party could play an effective pro-people role.

Thus, as far as current political set up in the state is concerned, the writing is clearly on the wall. Rural poor who do not receive irrigation, farmers whose water is stolen by industries, urban poor and the middle class who do not get assured water despite the city spending thousands of crores on water supply projects, rivers which are drying up, they all need alternatives and pro-people governance.

Parineeta Dandekar

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Notice to hydel firm over damage to Uttarakhand town In a landmark move, the National Green Tribunal (NGT) on January 9, 2014 has issued notice to the Alaknanda Hydropower Company Limited (AHPLC). The case was filed on January 2, 2014 by the Srinagar Bandh Aapda Sangharsh Samiti, an organisation for the affected residents of Srinagar, Pauri district, and Matu Jansangthan, an organisation that works on dam related issues. They demanded compensation for the damage of assets that AHPLC’s 330 MW Srinagar Hydroelectric Project allegedly caused during the June 2013 deluge and that filled much of Srinagar with muck, silt, and debris. The next date of hearing is Feb 6, 2014. This is the first ever case filed in any court for the compensations for the loss of people’s assets due to environmental damage by such projects.

Prem Ballabh Kala, vice-president of the Srinagar Bandh Aapda Sangharsh Samiti, said: “We want AHPLC [a subsidiary of the infrastructure developer GVK] to compensate the residents of Srinagar for the damage caused by the hydropower project during the deluge, and restore the area.” The members of the two organisations and the residents of Srinagar blamed the dam authorities for much of the disaster in the area. They said the dam authorities deposited the muck from the dam construction site into the Alaknanda river bed.

Vimal Bhai, convenor of the Matu Jansangthan, said: “We want AHPLC [a subsidiary of the infrastructure developer GVK] to compensate the residents of Srinagar for the damage caused by the hydropower project during the deluge, and restore the area.” The members of the two organisations and the residents of Srinagar blamed the dam authorities for much of the disaster in the area. They said the dam authorities deposited the muck from the dam construction site into the Alaknanda river bed.

Prem Ballabh Kala, vice-president of the Srinagar Bandh Aapda Sangharsh Samiti, said: “On June 16 and 17, the flow of the Alaknanda river increased but the dam authorities did not open the flood gates until a massive artificial lake was created due to the accumulated water. Then the sudden release of water from the dam flooded the downstream areas and filled much of Srinagar with the muck and debris that were flushed out from dumping sites of the project.” (MATU PR 130114, The Hindu 270114)

EAC upholds SANDRP submission on violations in Krishna Marathwada LIS The Expert Appraisal Committee (River Valley Projects) of the Union Ministry of Environment and Forests was to discuss Krishna Marathwada Lift Irrigation Scheme (LIS) from Maharashtra for Environment Clearance (EC) in its 70th meeting in December 2013. Shockingly, Maharashtra has several LIS functioning which do not have EC. Maharashtra has also initiated and built some dams without EC and in some instances, where SANDRP has pointed this out, work on the dams was stopped on the directions of MoEF (e.g. Alewadi, Ar Kacheri, Lower Dnyan Ganga all in Vidarbha). In this case too, the Godavari Marathwada Irrigation Development Corporation (GMIDC) has already started construction of the Krishna Marathwada Lift Irrigation Project several years ago. Work on more than 5 dams involved in the project is at various stages of clearance, canals and distribution systems are also underway without EC, in violation of EIA Notification 2006 and Environment Protection Act 1986.

Krishna Marathwada LIS envisages diversion of water from Krishna basin to Ujani Dam and from Ujani to Godavari Basin. However, the recent final verdict of Krishna Water Disputes Award Tribunal restricts Maharashtra from any interbasin transfer of water from Krishna basin. Hence, Krishna Marathwada scheme will not be acceptable under this tribunal as it transfers water from Krishna to Godavari basin, via Ujani. If there are no waters available for transfer from Krishna basin to Ujani dam, then the scheme is entirely unviable as waters of Ujani Dam have been allocated many times over for several illegal and irregular LIS, catering mainly to sugarcane which is an entirely unsustainable crop in this drought prone region.

The 70th EAC meeting upheld points raised by SANDRP’s submission stating, amongst other points, that as work has started, this is a case of violation. The project has not received EC. Let us hope that Maharashtra learns from these embarrassing verdicts, which seem to have become a norm. We also hope that EAC and MoEF take a firm action against such violations, which they have refused to take so far, despite providing proofs and information.

Mini Projects, Mega Violations: The case of Perla Shemburi SHPs 24.75 MW Perla and Shemburi mini hydel projects of Greenko in Bantwal, Dakshin Kannada across the Nethravathi seem to be an epitome of the extent of violations that can happen in mini hydel projects. The two projects are a single 49.50 MW large hydro project across Nethravathi. In keeping with its scale, it has had major impacts on the upstream and downstream communities. However, the project has been split into two 24.75 MW components and has fooled the Karnataka Renewable Energy Development Limited (KREDL), the Union Ministry of Environment and Forests (MoEF), the Union Ministry of New and Renewable Energy (MNRE) and the United Nations Framework Convention on Climate Change (UNFCCC) as well. The UNFCCC has issued separate carbon credits twice for this single project! It has also ignored the severe impacts on the upstream which include inundation of agricultural lands and downstream, which include erratic water releases. Farmers from the upstream had filed a case against this project. In the downstream, the project has been blamed for as many as 11 deaths due to sudden water releases.

Now in addition to these blatant violations, the project is increasing the height of its dam, compounds its...
impacts. If this was not enough, it is also building ONE MORE hydel project immediately downstream the existing structure, which will further skew the downstream hydrograph and make the river more dangerous than it already is. Blasting the river bed for this project has led to serious damage to the houses nearby. Locals are protesting, but are helpless as no authority seems to have the conviction to take action against Greenko.

SANDRP has sent several submissions against this project to the KREDL, MoEF and MNRE, without any response from these authorities. Karnataka has several such examples including Maruthi Gen Projects in Sakaleshpur and Basavanna and Mouneswar projects in Gulbarga.

Mini hydel projects below 25 MW are exempt from EIA Notification 2006. This itself is unjustified. This has also led to many proponents fraudulently splitting their projects on paper to escape Environmental Clearance process and avail subsidies and carbon credits from MNRE and UNFCCC respectively. In a submission initiated by SANDRP, more than 50 experts and eminent personalities have urged the MoEF to bring Mini Hydel Projects in the ambit of EIA Notification. We have so far received no response from the MoEF.

**Illegal Public Hearing of Lower Siang HEP Called Off** The public hearing for the 2700 MW Lower Siang hydropower project was called off as the public hearing was organized violating the norms. The public hearing was supposed to be held on 31st of January 2014. The public hearing was organized in three districts of the state, West Siang, East Siang and Upper Siang on the same day. This was major violation of the statutory norms since there are a number of local persons/clans/local communities whose land would be directly affected by the Lower Siang project cutting across district boundaries and they would not have been able to participate in all the public hearings if it was organized on the same day. The distance from affected villages to the public hearing venues was also a major issue since Pasighat, the venue for public hearing in East Siang district was more than 100 km away from 11 directly affected villages. It is important to note that the public hearing venue Pasighat was nowhere listed as an affected village/area/circle in the EIA/EMP and Social Impact Assessment report of the project. Besides, another statutory requirement is that Siang river basin cumulative impact assessment study should be made public before public hearing, but it is yet to be completed. Six local groups including Forum for Siang Dialogue, Siang Peoples’ Forum, Sirit Siyom Banggo Dam Affected Peoples’ Forum, Siang Bachao Andolan and Nyiko Bachao Forum had written a detailed letter to Ministry of Environment and Forests, Expert Appraisal Committee and Arunachal Pradesh State Pollution Control Board (APSPCB) pointing out these issues. The letter is available in our blog – [http://sandrp.wordpress.com/2014/01/23/local-groups-asked-moef-to-cancel-illegal-public-hearing-of-lower-siang/](http://sandrp.wordpress.com/2014/01/23/local-groups-asked-moef-to-cancel-illegal-public-hearing-of-lower-siang/).


**Kalai II public hearing marred by violence** With serious violation of the norms and amidst intimidation of the local people and violence during the proceedings, the statutory Public hearing for 1200 MW Kalai II HEP was held on January 18, 2014 at Hawaii in Anjaw district in Arunachal Pradesh. The public hearing process was marred by violation of norms right from the beginning because Kalai II HEP had no valid Scoping (TOR) clearance. The 1200 MW Kalai II project was granted Scoping (ToR) clearance on 9-12-2009 by the Ministry of Environment & Forests (MoEF). As per MoEF Office Memorandum (OM) dated 22-3-2010 the validity of Scoping (ToR) clearances granted for carrying out pre-construction activities is four years and therefore the clearance for Kalai II has expired on 8-12-2013. SANDRP had sent a letter to Arunachal Pradesh State Pollution Control Board (APSPCB) on January 15th 2014 which is available at [http://sandrp.wordpress.com/2014/01/15/letter-to-apspcb-public-hearing-for-kalai-ii-hep-to-be-held-violating-the-norms/](http://sandrp.wordpress.com/2014/01/15/letter-to-apspcb-public-hearing-for-kalai-ii-hep-to-be-held-violating-the-norms/).

The EIA and EMP reports prepared by WAPCOS for Kalai II did not fulfill a very large number of the TOR (Terms of Reference) that the EIA-EMP was to cover as per the TOR clearance given for the project on 9.12.2009. A detailed analysis of TOR noncompliance in the EIA-EMP is available at [http://sandrp.wordpress.com/2014/01/15/eia-emp-of-kalai-ii-hydropower-project-doesnt-comply-with-its-terms-of-reference/](http://sandrp.wordpress.com/2014/01/15/eia-emp-of-kalai-ii-hydropower-project-doesnt-comply-with-its-terms-of-reference/). The EIA study prepared by WAPCOS for Kalai II is incomplete, inadequate and shoddy and does not at all qualify to be called an EIA study. A detailed critique of the EIA-EMP is available at [http://sandrp.wordpress.com/2014/01/15/critique-of-the-eia-emp-kalai-ii-hep/](http://sandrp.wordpress.com/2014/01/15/critique-of-the-eia-emp-kalai-ii-hep/).

The public hearing on other hand was marked by intimidation of the affected people who wanted to raise questions and speak up and people getting beaten up by the police and others. In fact the public hearing was taken over by the local MLA with a six hour long speech and stretching it beyond midnight, apparently to manipulate the minutes of the public hearing. A press note from the local organizations has been uploaded in our blog which is available at [http://sandrp.wordpress.com/2014/01/20/kalai-ii-public-hearing-held-by-suppressing-the-public/](http://sandrp.wordpress.com/2014/01/20/kalai-ii-public-hearing-held-by-suppressing-the-public/).

**Tato II Considered for the 6th time for Forest Clear-**
ance The 700 MW Tato II project on Siyom River in West Siang district of Arunachal Pradesh was considered for 6th time by FAC in its meeting held on January 16-17, 2014. The project constructed by M/s Tato Hydro Power Private Limited involves diversion of 313.88 ha forest land. The project was first considered by FAC on 30-31 May, 2011. This project was considered at a time when it had not met the recommendations made by the FAC itself. It was surprising to find that even though Tato II project was considered five times before for forest clearance, the project lacked in basic necessary information and reporting each time. The situation is the same this time as well since the interim findings of the Cumulative Impact assessment Study was not submitted, as required in last FAC meeting when it was considered. It is also important to note that such interim findings cannot be accepted as a substitute for a Cumulative Impact Assessment Study. On the other hand, Tato II is trying to get the forest clearance by claiming to be the ‘first project’ in the Siyom river basin. But this is not true since Middle Siang (Siyom) project of 1000 MW had already been given environment clearance by the MoEF and the ministry claims that, this project is currently under construction. The factsheet of the project stated when the project came to FAC for the fifth time that there was meeting between the Minister of Environment and Forest and Minister Minister (I/c) for Power where issue of grant of forest clearance to Tato-II HEP was discussed. But a meeting between two ministers cannot become the shortcut to get clearances ignoring ecological and social criteria.

US Congress Opposes Financial Support for Large Dams In a landmark decision US Congress has instructed the US government to oppose the construction of large dams through international financial institutions, and called for justice for the victim of human rights abuses as a result of their projects. If the World Bank and other international financial institutions ignore the position of the US executive directors, the Congress should redirect its financial contributions to institutions that are more willing and better equipped to support clean local energy solutions. This came at a time when the World Bank is eager to get itself back in the business of large dam construction around the world and other financiers are following its wake.

The new instructions were sponsored by Senator Patrick Leahy, and are part of the Consolidated Appropriations Act, the budget compromise which was approved by the US Senate and House in the second week of January 2014. In the section on multilateral financial institutions, the act says “The Secretary of the Treasury shall instruct the United States executive director of each international financial institution that it is the policy of the United States to oppose any loan, grant, strategy or policy of such institution to support the construction of any large hydroelectric dam (as defined in “Dams and Development: A New Framework for Decision-Making,” World Commission on Dams (November 2000)).”

Under the new mandate, the US executive directors will have to object to dam projects such as Inga 3 on the Congo, Dasu on the Indus, Adjarala in Togo, Amaila Falls in the rainforest of Guyana, and the dams in the Nam Ngiep and Sekong river basins in Laos.

The budget act also takes action to support the victims of human rights abuses in development projects. It instructs the US government to “seek to ensure that each such institution responds to the findings and recommendations of its accountability mechanisms by providing just compensation and other appropriate redress to individuals and communities that suffer violations of human rights, including forced displacement, resulting from any loan, grant, strategy or policy of such institution.” More specifically, Congress asked for regular updates about measures undertaken by the World Bank and the Inter-American Development Bank (IADB) to ensure reparations for the survivors of the massacres carried out under the Chixoy dam project in Guatemala.

The language in the new Congressional act is a breakthrough for healthy rivers and the rights of river-based communities. But still there are some, serious problems in the global energy policy of the US government and Congress. The US government plans to increase its support for large hydropower dams in Africa such as the Inga 3 Dam through USAID and the new Power Africa initiative at the same time as Congress is asking it to oppose such projects in international financial institutions. The US should not fund projects bilaterally that would reject on the multilateral level. (“US Congress Takes Landmark Decision for Rivers and Rights” by Peter Bosshard, International Rivers)

Jeera Irrigation Project Water resource department of Odisha state has proposed a medium irrigation project on Jeera River, which is a tributary to Mahanadi River, at village Duanpali; block Bhatli, in Barghar District of Odisha. This project was considered for environment clearance in the 70th meeting of EAC (Expert Appraisal Committee on River Valley Projects) held on December 10th 2013 where EAC returned it to Odisha government since the project had no valid TOR (Terms of Reference) clearance. The TOR validity of the project expired on 30.09.2012 and no extension of TOR validity was taken. On the other hand the EIA (Environmental Impact Assessment) study of the project was more or less prepared by the project proponent without engaging a consultant with QCI (Quality Council of India) accreditation, which is mandatory. This is a clear violation of the EIA norms. On the other hand, the necessity of this irrigation scheme also needs to be questioned since a proposal for transfer of water from Hirakud reservoir to the areas which this project aims to benefit is...
already on paper. But that has not become a reality as large amount of water from the Hirakud project goes to the thermal power projects, for which there was no allocation. The EIA report of Jeera project makes no mention of this earlier plan. The EIA study on the other hand nowhere mentioned about any detailed survey done on ground to lay the canals. On the basis of a shoddy report a public hearing was also held and only those statements which praised and welcomed the project in the public hearing are mentioned in the public hearing minutes. SANDRP had done a detailed critique of this proposal elaborating the above issues and sent to EAC.

**Yettinahole Diversion Project: Open letter to Moily**

We are surprised to know about your support to the foundation stone laying ceremony of Yettinahole (Netravathi) Diversion Project. Dr. Moily, our assessments based on local interactions, site visits, study of the Project report (the DPR for the project is still not ready) indicate that the project involves eight dams inside the Western Ghats, Forest diversion of more than 100 ha inside the Western Ghats eco-sensitive region, water diversion without any ecological studies, 378 MW of power for pumping, a canal of 233 kms length, 1200 ha submergence near Devanahyadurga including submergence of 2 villages and 600 ha forest land. The foundation stone laying ceremony is supposed to take place on the 31st January 2014 at Muddenahalli, Chikkaballapur, which also happens to be your constituency. It is clear why you chose Chikkaballapur to lay the foundation stone, and not Sakaleshpur, from where the water will be diverted, or Dakshin Kannada, which will face most of the impacts of the project, looking at the strong local resistance in these places.

Local opposition to the project is increasing. Just in the last two weeks, there have been attempts to a stop trains agitation, numerous dharnas, hunger strikes, letters in opposition and a satyagraha in Netravathi River, to oppose this project. Despite this growing discontent, you, as an MLA from Chikkaballapur and the Union Environment Minister, or the Karnataka Government did not feel the need to initiate a dialogue with the people of this region. Has the government learnt no lessons from Delhi as to what happens when local voices are ignored and unheeded? Why have the Karnataka Government or the Union Ministry of Environment and Forests, which you now head, not thought it necessary to assess and address the serious ecological impacts of this project? Why have you supported the fraudulent tactics of this project to escape environmental clearance? As a Minister of Environment and Forests it is your duty to see that projects with significant impacts on ecology and dependent communities are assessed. Why are you escaping that duty?

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**Good News for RIVERS & FISH: Dam Removal & Cancellations in Vietnam, Spain and US**

**Spain:** In a positive development for rivers in Spain, roughly 350 dams have been demolished from 1999 to reduce the risk of flooding and to protect salmonid and other critically endangered species. There are 1,300 large dams and 11,000 small dams in Spain and these welcoming strides to restore rivers was the result of the tireless efforts of groups like Rios con Vida. The changes in water policy of Spain in the last 15 years also played a crucial role in initiating river restoration in the country. On the other hand, following a European Union directive, more than 7,000 water usage licenses have been cancelled in Spain’s North basin and 60 small dams have been removed.

**Vietnam:** In order to protect the Cat Tien National Park, one of the largest biosphere reserves in the world, Vietnamese government has cancelled the plans to build two hydropower projects which would have jeopardized the biosphere reserve. Earlier in 2013 the Prime Minister Nguyen Tan Dung called for a national review of all hydropower projects to increase dam safety. This was prompted by fears that Song Tranh 2 hydropower complex was not seismically sound. Villagers living near the project have experienced seismic tremors for two years. Another project, Krei 2 Dam in the country’s Central Highlands, collapsed in June 2013. Investigations revealed that the dam was not constructed in accordance with its approved design.

In May 2013, the Vietnamese government scrapped plans to build 338 hydropower plants because the projects failed to meet environmental standards. According to the Deputy Prime Minister, more than 67 other hydropower projects have been suspended or cancelled since then.

**United States of America** The largest run of Chinook salmon in decades swam up the Elwha River this fall into stretches that were formerly blocked by the Elwha Dam, according to officials with the Olympic National Park. The Elwha Dam came down in 2012. Removal of a second dam, the 210-foot tall Glines Canyon Dam, resumed last month after the year’s delay to solve some technical problems. Removal of the Glines Dam is scheduled to be completed in 2014.

Large numbers of chinook salmon spawning has also been witnessed in the stretches of the Rouge, another Pacific Northwest river where two dams were removed. Three years after Gold Ray Dam and its antiquated fish ladder came down, state fisheries biologists counted 111 identifiable redds created by spawning chinook – almost three times what was found there three years ago. Upstream of the former site of Savage Rapidas Dam, removed in 2009, the count was 186 redds, more than twice the number counted in the same stretch of three years ago. (Source: World Rivers Review, Dec 2013)
Short film on June 2013 Uttarakhand Flood disaster

Flood Ravage and the Dams of Uttarakhand


In June 2013 Uttarakhand state in North India faced its worst flood disaster in recorded history. During the disaster and after, both electronic and print media, in English and local languages played an important role in highlighting how it was a manmade disaster in several senses, including the climate change perspective, the perspective on callous administration with zero disaster preparedness or response and also the perspective that focused on the role of haphazard, unregulated and unscientific infrastructure building in fragile and vulnerable ecology of the Himalayan Hill state in Ganga River Basin. The building of huge road network, tourism infrastructure and hydropower projects, neglecting the disaster vulnerabilities of the ground was generally talked about.

This short film tries to give an idea of the role played by existing and under construction hydropower projects in the Uttarakhand disaster. The film contains information, photos, maps, video, google images and voices of the affected areas and people in the context of hydropower projects. It contains photos of the dams and tunnels of the hydropower projects before and after the disaster. It provides some first hand accounts of the impacts of hydropower projects suffered by the people. While climate change had a role in providing first trigger for the disaster, the role played by the blasting, tunneling, damming and deforestation caused by the hydropower projects cannot be ignored.

Many concerned organisations had collectively written to the authorities to investigate the role of the hydropower projects in Uttarakhand disaster. However, it was the Supreme Court order of Aug 13, 2013 that clinched the matter, leading now to the constitution of a committee headed by Dr Ravi Chopra, member of National Ganga River Basin Management Authority (the NGBRA is headed by the Prime Minister of India). While some concerns about this committee remain, it is hoped that since it is appointed following the orders of the Apex court, it will be able to perform its role independently, keeping mind the concerns of the people, environment and future generations and get to the bottom of this issue.

We hope this short film will be useful to all concerned including the media, various arms of the governments in Himalayan region, academic institutions, judiciary, non government organisations and most importantly, the communities who have suffered in the disaster and who are struggling against the onslaught and impacts of massive hydropower projects being developed all across the Himalayan region. We hope the film helps contribute in our collective efforts so that when such event strikes again (climate scientists are telling us that more such disasters are likely all across the Himalayas with greater frequency and intensity in changing climate), the contribution of hydropower projects are minimized or avoided.

DVD copies of the film are available from: Marthand Bindana marthand.bindana@gmail.com and SANDRP ht.sandrp@gmail.com. Comments on the film and contributions towards costs of this film are welcome. Please also help us take the film to wider groups of concerned people.