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Ekti Nadir Naam: The Name of a River

River Etymology, the study of the origin of river names is a fascinating subject which offers a peep into the lost culture, history and even geography of Indian subcontinent, as also the world. There must be solid work done on this subject in India, but it's not easily available in the public domain. Here we attempt an introduction to the intriguing features of colloquial and classical names of rivers in India, a very brief glimpse into the possible meaning of some names and some beautiful coincidences from far away places. We hope the readers can throw more light on some these issues.

Our identity as Indians is entwined with rivers. As we know, 'India' is derived from Indus, which originates from the Old Persian word Hinduš, which in turn comes from Sanskrit word Sindhu, the Indus River. In the Rigvedic Nadistuti Sukta, gender of Sindhu River is unclear, while all others are feminine. In Pashto dialect, Sindhu is Abaseen[ii], or Father River, it's also called as Sengge Chhu or Lion River, in Ladakh and Sengge Zangbo, again Lion River in Tibet[iii], both male.

One of the inspirations for this thought came from Ritwick Ghatak's movies based on rivers: from *Subarnarekha*, to *Padma* in Komal Gandhar to *Titash* in Titash Ekti Nadir Naam. A brilliant documentary on Ghatak by Anup Singh is also called as Ekti Nadir Naam: Name of a River[i].

Most rivers in India (including tribal names) are feminine. At the same time, we have several male rivers. The femininity and masculinity of river names is puzzling. The most celebrated male river is of course the Brahmaputra. As Dhiman Dasgupta puts it, even the parent river Yarlung Zangbo is male. So is one of its important tributaries: Lohit. West Bengal has many rivers with Vedic male names like Damodar, Rupnarayan, Barakar, Barakeshwar, Ajoy, Pagla, Jaipanda, Godadhari, Bhairav[iv]. Most of these are from south Bengal. This came up in an interesting facebook discussion in which friends like Parag Jyoti Saikia gave wonderful insights. Why such density of male rivers in southern West Bengal? Dhiman Dasgupta tells us that it may have something to do with the destructive nature of these rivers and the fury of their floods. We would be grateful for any other insights on this.

Dr. Dinesh Kumar Mishra, in his delightful introduction to Kakasaheb Kalelkar's seminal work on rivers Jeevan Leela, tells us about Sutlej: 'Shatadru' of the Vedic times...Shatadru meaning "of hundred ways", indicating the many paths Sutlej takes in her (his?) descent. Kakasaheb beautifully talks about these multifarious paths

as "Mukta Veni" or "Yukta Veni", literally translating into 'freeflowing hair' and 'braided hair' of a tumbling river!

In tribal traditions, we find some singular male rivers. Like Rongeet in Sikkim. The tale of Rongeet and Rongnue [v] (Teesta) is sung at Sikkimese weddings. It goes: Rongeet and Rongnue were legendary lovers who decided to descend down the plains after seeking blessings of Mt. Khanchendzonga. Rongeet was led by a bird and Rongnue by a serpent. Rongnue took serpent's meandering path and reached the plains first at Pesok to wait for Rongeet. Rongeet was misled by the spirited bird and flowed up and down, fell down at places and was late to arrive. According to the lore, being a male he was upset to see Rongnue already waiting at Pesok! It took a lot of persuasion from Rongnue/ Teesta to convince Rongeet that it was not his fault that he was late and she early.

River names are repeated at many places, sometimes thousands of kilometers away from each other. Some names like Yamuna may hold a meaning to the nature of the river. Some, like Chandrabhaga, may depict the form.

The story of Chandra and Bhaga [vi] to form Chandrabhaga (no not the one you know!) or Chenab in Lahaul Spiti, Himachal Pradesh is also strangely similar. It's said that Chandra, the daughter of Moon with her origin at Chandra Taal was in love with Bhaga, the son of Lord Sun, originating at the Suraj Taal. They decided to go upto Baralachala Pass and then come down from opposite directions to meet at Tandi and get married. Chandra easily meandered down to Tandi, while the path of Bhaga was not so easy. Chandra was worried not to find Bhaga and went back all the way to Keylong to find him. She saw him making his way arduously through a steep gorge. Finally they met at Tandi to form Chandrabhaga.

While some think that river names were repeated to cash in on the popularity of a bustling sacred place, others believe that names simply travelled with people as they moved. Some hold that ancient Vedic archive of river names or classical names was limited, which led to repetition.

Interestingly, there is a Chandrabhaga in West Bengal too near Birbhum, then there is a Chandrbhaga near Ahmedabad in Gujarat, one near the Konark Temple in Puri (also with an associated Sun God story) and the famous, worshipped Chandrabhaga in Pandharpur, on the banks which there is the Vitthal Temple. Dinesh Kumar Mishra tells us that there is a Chandrabhaga in Bihar too, now called as Chanaha. And the story of one name for many rivers does not end here.

Yamuna: The water pirate? According to Ramesh Athavale, it seems that a river which 'pirates' (such a harsh word for rivers!) water from another river is called Yamuna. Renowned Geologist Dr. K S Valdiya tells us about 3 such cases wherein a new channel has been formed, desiccating the older river/channel. In all these cases, the new pirate channel is called as "Yamuna". First example is branch of Chambal which led to diversion of water from ancient Saraswati, leading to its desiccation. In another example, before 1720's, Brahmaputra used to meet the Bay of Bengal through Meghana, without joining Ganga as it does now. Between 1720 & 1830 it abandoned this older path to meet Ganga through a new channel which was called Yamuna. In another case, Dhanasiri captured the headwaters of Kapili/ Kopili which flowed from Meghalaya to Assam and this "Pirate Channel" is again known as Yamuna. It may also be a coincidence that all these channels are Yamuna, but Sanskrit meaning of "Yama" is also a "twin".

Garuda Purana talks of **Vaitarni** as a river marking boundary of this and the netherworld and there's a Vaitarni (Baitarni) in Odisha. But Maharashtra has a Vaitarna/ Vaitarni too which originates in the Western Ghats of Nashik and flows down to the Arabian Sea. This Vaitarna originates just a few kilometers away from Godavari, but while the footsteps of Shiva are worshipped all over near Godavari's origin in Brahmagiri and her descent at Trimbakeshwar, Vaitarna does not have such luck.

We know **Godavari** originates in Nashik and goes on to become the longest river in the Peninsular India. But there is one more Godavari in Nepal. There is also an Indravati in Nepal. Indravati is Godavari's important tributary flowing through Chhattisgarh & Orissa.

Krishna in Maharashtra is affectionately called as Krishna Mai or Krishnai (Mother Krishna), and to be sure, there is a Krishnai in Meghalaya, which is a part of the Brahmaputra basin.

Gomti is a tributary of Ganga and there is Gumti in Tripura, flowing to Bangladesh, the river has Tripura's biggest and most infamous dam.

Iravati is the classical name of Ravi, one of the Punjab Rivers, but there is one more Iravati as well. Irrawaddy (Pali form of Iravati) is formed by the confluence of N'Mai and Mali Rivers of Myanmar (Burma) which originate from the Himalayan glaciers. While Ravi flows on into

The Free flowing Dibang River Image from Google Earth

Pakistan to meet Indus River, Irrawaddy flows into the Andaman Sea.

Some believe that at least in some cases, river names were replicated to cash on or to recreate the grandeur of original rivers. According to Indologist Saili Palande-Datar: "The myths are created around it to legitimize it and eventually you have your own sacred place to sustain trade, increase commerce and allied activities around it and attract religious pilgrims (tourists!)."

Dhiman Dasgupta maintains that people carried names with them as they moved. "Ancient Indic (read Vedic) people carried names along with them. The Saraswati and Sarayu (as mentioned in Ramayana) are in Afghanistan & Iran. Yamuna is the main goddess of Persia. There are many such examples of Etiology of names. In addition the inventory of names in Archaic times was extremely limited."

Vedic or classical Sanskrit names come in their lilting best in Karnataka. The state has rivers like Shalmala, Shambhavi, Netravathi, Kumardhara, Payaswini, Souparnika, Swarna, Arkavathy, Aghanashini, Kabini, Vedavathy, Kumudavathi, Sharavathy, Vrishabhavati, Ghataprabha, Malaprabha, etc. Melodious names indeed.

However, some view it differently. Saili says: "Sometimes, I feel that just as different females in Kalidasa's literature are named in creative classical way, they have done it with the rivers. I would, however, be interested in knowing the names of the rivers in tribal and remote areas, I guess that they would have more practical, every day name and quite apt as well. They might have some more natural sounding names. Even if a political domination is overthrown the hegemony of the mainstream vedic and puranic Hindu religion is too hard to resist."

Ganga is formed after Bhagirathi and Alaknanda merge in Uttarakhand, but when Ganga forms its delta, it again splits into Padma and Bhagirathi! Similarly, Godavari is formed by the confluence of a smaller Godavari and Gautami at Nashik but thousands of kilometers in the downstream, at the Godavari Delta, it diverges again into Godavari and Gautami.

In a conversation a friend [vii] who is a strong advocate for regional languages said: "The imposing intrusion of Sanskrit in most regions of India has played a significant role in river names, especially in the Hindu states – that is why you see similar names in Nepal but not in China."

Some colloquial names offer remarkable insights into the nature of rivers. For example, in Nashik we have a river called Waghadi. (Wagh is a Tiger in Marathi). The river is named such as it is very flashy. It floods suddenly in rainy season and pounces like a tiger on whoever that comes in its path. Mula basin in Pune has a river called Walki, which means the dry river.

Shastri basin in Ratnagiri has a tributary called Gadgadi (the Thundering one) because it carries bed load of boulders down with the floods, thundering down on its way. Bav Nadi again in Ratnagiri tells us about the huge and treacherous potholes (Bavs) in the river bed. Then there is the in-your-face Potfodi and Doifodi (Stomach and Head breaker!) again pointing out to the dangerous nature of these rivers. Mahesh Mhatre, Managing Editor of IBN Lokmat Channel tells of a river called Saitani in Gadchiroli, likened to the devil, due to her treacherous floods!

Gujarat has its share of classical Sabarmati and Rangmati and Rukmavati, but it also has a River called Bhukhi (The hungry one) and one called Utavali (impatient or restive)! Rajasthan's Alwar District has a river called 'Jahajwali' (One with the boats).

There would be many such examples in local dialects across the country, I could only draw a few from Maharashtra, do let us know if you know more from

your region. This nomenclature seems like an exploration into local geography and hydrology and is significant to document as such. We also have local dialect moulding classical names into endearing local connotations like Godaari for Godavari in Andhra and Poddha for Padma in Bangladesh or radical transformations like Charmavati into Chambal and Vetravati to Betwa.

Some regions have a specific word prefixed or suffixed for rivers. Dr. Latha Anantha says, "The term Aar or Puzha (both meaning river in Tamil and Malayalam) are tagged with the name of many rivers. Like Chalakudy Puzha, Periyar, Pandiyar, etc." Similarly, Chhu means a river in Bhutan, Sikkim and Tawang region, so tautologically when we say Nyamjangchhu River or Rathong Chhu River, we are saying river twice!

Nilim Dutta from Assam tells us that "Many of Assam's rivers, Brahmaputra's tributaries, starts with the word 'Di'….Dihing, Dibang, Dikhou, Dikrong etc. 'Di' is the Bodo word for 'Water' and the Bodos are considered the earliest settlers of the Brahmaputra Valley."

Then, there are some mostly coincidental wonders which happen along the way. Ganga is formed after Bhagirathi and Alaknanda merge in Uttarakhand, but when Ganga forms its delta, it again splits into Padma and Bhagirathi. Similarly, Godavari is formed by the confluence of a smaller Godavari and Gautami at Nashik but thousands of kilometers in the downstream, at the Godavari Delta, it diverges again into Godavari and Gautami. Yes, these are only river names, but the way they denote unity and continuity of the concept of river seems surreal.

A Russian folk tale tells us about a lost child who tells people to go find her mother, who, according to the little girl, is the most beautiful woman in the whole wide world. Many River-people have also thought of their own rivers as the mightiest ones in the world. Zambezi, Rio Grande, Mahanadi, Guadalquivir, Mississippi, Sindhu all tend to mean 'Great Rivers'. Volga in Sogdian language actually means a vein or a blood vessel.

Many river names denote a unique quality inherent to a river: that which is becoming rare day by day: its flow. Ancient Greek 'Tigris' is said to have evolved from original Sumerian Idigna which means "Running Waters" , Bosna [viii] likely from the Illyrian Bosona which means "flowing water", Waikato River in Maori also means "Flowing Waters", Rhine, from the archaic German Rhine, which in turn comes from Middle High German: Rin, means "to run or to flow". Same is the case with Reno River in Italy.

And Ganga means the same. As Ravi Chopra and even Union Minister for Water Resources Uma Bharti have said eloquently in their addresses, Ganga itself comes simply from *Gam Gachhti*: That which flows.

With more rivers dammed and less rivers flowing, running or even crawling, we may have to start looking for more apt river names…like Walki, the dry one perhaps?

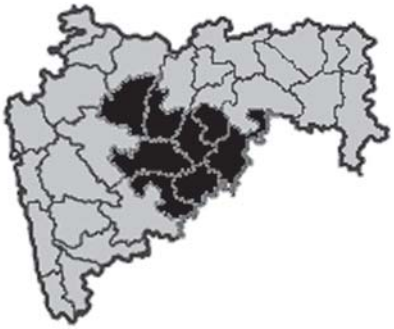
Parineeta Dandekar
(with inputs from Himanshu Thakkar)

Dry Chandrabhaga in Pandharpur ***Photo****: Author*

[i] https://www.youtube.com/watch?v=YRjNDsoswLM
[ii] http://cs.mcgill.ca/~rwest/wikispeedia/wpcd/wp/i/Indus_River.htm
[iii] http://en.wikipedia.org/wiki/Sênggê_Zangbo
[v] http://www.actsikkim.com/teesta.html
[vi] Bajpai, Lahaul and Spiti, a forbidden land in the Himalayas, Indus Publishing
[vii] Thanks Rohit Rao!
[viii] A major river in Bosnia-Herzegovina

Thirsty sugarcane in dry Marathwada means a loss of 2 m farmer livelihoods

Although Marathwada region in Maharashtra is no stranger to droughts, it's facing a singularly acute crisis this year. Kharif crops had failed in all of the 8139 Kharif villages in the region with yields less than 50% of government standards (paisewari). Rabi is under cloud too with all 396 villages assessed for production showing less than 50% yield. And yet, area under and production of water guzzler crop like Sugarcane is going up. In 2013-14, Marathwada grew over 2 lakh ha of sugarcane and is now crushing the cane in its 61 sugar factories using millions of litres water every day.



Location of Marathwada in Maharashtra Photo from Wikipedia

Does this make any social, economic or environmental sense? No.

But do we have options? It seems so. Let us see how.

Although area under sugarcane forms only 9.4% of the gross cultivated area of the state, it appropriates 71.4% of all irrigation water.

Rainfall which has traditionally played truant in Marathwada has been even harsher last year. The overall monsoon was 42% deficit (IMD) and in 4 of the 8 Marathwada districts (Nanded, Parbhani, Latur and Beed), rainfall has been lower than the epic drought of 2012 (SANDRP, 2013). What's more, in Parbhani the 2014 rainfall at 346.3 mm competes in scarcity with 1972 drought when rainfall was 341.8 mm. (http://www.mahaagri.gov.in/rainfall/index.asp) 1972 drought was the worst drought Maharashtra faced since independence.

Groundwater is currently in a precarious state with draft in nearly 250 villages exceeding recharge. Tanker and Borewell Mafia are flourishing in Marathwada. Reports state that more than 10,000 borewells are being sunk in Marathwada every moth, even as water levels plummet at 800 feet or deeper. (Agrowon, Feb 2015)

Marathwada region in Maharashtra is facing a singular water scarcity situation this year with 42% deficit rainfall and plummeting groundwater levels. The impact of this drought is made worse by unwise cropping pattern with an emphasis on sugarcane and neglect of traditional drought resistant crops like pulses, millets and oilseeds.

All precursors of a desperate situation we had witnessed just 2 years back are here again.

The Sugarcane connection As we pointed out earlier, Marathwada planted sugarcane on 230,530 ha in the monsoon and post monsoon of 2013, which is now being crushed in around 61 (yes, 61) sugar factories of the region. Current Sugarcane crushing cycle began in October 2014 and will last till around March 2015.

To grow 230,530 ha of sugarcane, Marathwada used 4322.4 MCM (Million Cubic Meters) or 4,322,400,000,000 Litres of water. This is nearly double of the Live storage capacity of the biggest dam in Marathwada: Jayakwadi (Live Storage 2171 MCM). This is assuming 187.5 lakh litres water per ha cane as per the Price Policy for Sugarcane Report of the Commission on Agricultural Costs and Prices, Ministry of Agriculture (2014-15).

In addition, crushing which takes place at the height of the drought will use 23.1 MCM more water.

SANDRP has been raising the issue of sugarcane in drought-prone region in Maharashtra since the 2012 drought. Agriculture and water resource policy has utterly failed in curbing the growth of the most water guzzling crop in the worst drought hit region in the most alarming drought year.

We need to keep in mind that the sugarcane, which is being crushed in current crushing season was not planted in 2014 when the monsoon was bad, but in the monsoon and post monsoon of 2013, when rains were very good. But this long harvesting cycle of sugarcane which locks the farmer & the state up in the cycle of irrigation at whatever costs in a terrible drought year has been highlighted before and has been put forth as one of the main reasons for advocacy for moving away from sugarcane in Solapur and Marathwada. But sugar factories are only increasing as is the area under cane.

The most common argument put forth against limiting and reducing area under sugarcane is that it supports about 3 million farmers in Maharashtra. Let us look at

how other regions and other farmers are suffering due to this sugarcane hegemony. The devotion to this crop is based on politics and power more than other considerations. All of this sugarcane is irrigated either by canals, or dam backwaters or wells in command or groundwater.

Now let us compare sugarcane with Pulses, whose production and gross cropped area in the country as well as Maharashtra is declining. As against sugar which contributes to "empty calories" without nutritional benefits, pulses form an important pillar of food security and are a primary and cheaper source of protein for a majority of population. Significantly, pulses enrich the soil through nitrogen fixing. Pulses occupy 16.8% Gross Cropped Area in the state and barely 9.4% area under pulses is irrigated. They claim only 3.4% Irrigation water in Maharashtra as against 71.9% by sugarcane, which is not a food grain. Incidentally, we spent about Rs. 9000 Crores in 2013-14 importing pulses from countries like Canada and Australia. (Ministry of Agriculture, 2014)

In fact, Prime Minister Modi during his address at the Indian Council for Agricultural Research (ICAR) said in 2014, "The poor get their requirement of protein from pulses. Take it as a challenge that in a few years there will be no need to bring edible oils and pulses from outside. This is a national challenge and it must be taken up as a priority."

Similarly, Oil Seeds occupy 15.2% of gross cropped area, but only 4% of this area is irrigated and they claim mere 1.3% irrigation water. The area under oilseeds like groundnuts is rapidly decreasing in Marathwada. In 1960-61, 10.01 lakh ha in Maharashtra were under groundnut cultivation, mostly in Solapur and Marathwada region. In 2011-12, this region has declined to 3.02 lakh ha, a near 70% decline. (Economic Survey Report of Maharashtra 2012-13)

The potential of 50% water given to sugarcane

Please note that the section below is looking at options and is aimed at underlining the stark contrast of growing a water guzzler in a drought-prone region which traditionally grew pulses and oil seeds. The figures given are more illustrative. The author appreciates that the real world calculations and practicalities are more complex. However, it terms of water policy, it is important to understand the potential that we are losing by hankering after sugarcane.

If we reduce the area under sugarcane in Marathwada by half or if all existing sugarcane is converted to drip (Government is advocating this) leading to 50% reduction in water use in sugarcane crop and no additional sugar industry or more sugarcane area is allowed, water saved by last year's area will be 4322.4/2= 2161.2 MCM.

Gangakhed sugar factory from Parbhani Marathwada which has crushed 7 Lakh Tonnes of cane till 21 Feb 2015. Parbhani has received a mere 346 mm rainfall this year, nearly equal to what it received during epic drought of 1972

Kelkar Committee (High Level Committee on Balanced Regional Development Issues in Maharashtra, October 2013) has done similar calculations in its report, but has reached different conclusions. According to the standard used by Kelkar Committee on Regional Imbalance, important pulse like Pigeon Pea (Tur) requires 10 lakh litres/ ha of irrigation to reach full potential of production at 1500 kg/ ha (as against half this yield, if not irrigated). Incidentally, Kelkar committee assumes water requirement of sugarcane at 250 lakh litres/ha, substantially higher than CACP report which puts it at 187.5 lakh litres/ha. We are using the lower figures used by CACP Report to be on the conservative side.

This means:

- Irrigating one ha of sugarcane is akin to irrigating 25 ha of pigeon pea, or more of groundnut.
- 2161.2 MCM water saved is enough to irrigate 21.6 lakh ha of pigeon pea (It's irrigating only 1.15 L ha of sugarcane now)
- This irrigation will result in production of 3.24 Million Tons of Pigeon Pea (@ 1500kg/ha) or other pulses and an income of about Rs 141,000 Million for the farmers, if we consider the MSP given to Pigeon Pea in 2012-13 at Rs 4350 per quintal. (Ministry of Agriculture)
- If we assume that this area was already under rainfed Tur with rainfed yield of 750 kg/ha, the net additional production possible with this irrigation is 1.6 Million Tons or additional income of Rs 70,500 million.
- This is also close to the target of increasing pulse production by 2 million tons of the National Food Security Mission. (http://www.nfsm.gov.in)

- Considering an average land holding of about 1 ha (Nabard), increased area under pulses can support 2.1 million farmers. (As against 1.15 Lakh farmers currently cultivating sugarcane)
- In 2013-14, we imported 3654 780 Tons of pulses, including Pigeon Pea and lost significant Foreign Exchange in the deal.
- Hypothetically, through efficient management only in Marathwada we can produce nearly 44.35% additional pulses that we are importing.
- The area under irrigated pulses may spill over Marathwada into adjacent regions like Vidarbha and Solapur, which are going through unique agriculture crisis.

What is true about Pigeon Pea (Tur) is also true for many other pulses, lentils and oilseeds, which we are importing currently. Contrast this with sugarcane, wherein we have not even considered the multiple occasions when the sugar industry had to be bailed out of crisis, funds had to be released for sugar factories to pay to farmers (in 2014 itself, Maharashtra sugar industries were to receive interest free loan of Rs 2200 Crores to pay arrears to farmers, we don't know how much of this amount reached farmers), the direct and indirect subsidies sugar factories get, like the current export subsidy on raw sugar export, etc.

Conclusion The discussion on pulses is not just conjecture. It is an estimate of the real options available to the state if it is serious about breaking its sugar shackles and benefiting more farmers rather than more sugar industry barons. We know that there are several variables in the calculations we have posed: lack of water distribution network and democratic institutions, low agricultural labour input for sugarcane, practicality of water transfers from sugar growing regions to elsewhere, groundwater ownership, dynamic market demand for pulses, volatile global prices, etc., however, apart from the problems related to water management, most other factors apply to sugarcane as well. In fact, as is demonstrated in Ujani command region, sugar industries are one reason for stagnating water distribution network. The earlier state government (Congress-NCP) was entrenched in sugar politics, with 13 of the 30 cabinet Ministers owning or controlling sugar factories. It could not take any progressive decision on sugarcane. But the current government should address this issue immediately. There is a very urgent need to put a cap on any further increase in sugarcane area, converting existing sugarcane area under drip (or better still, slowly phasing out the sugarcane over time from this region), providing viable options to current cane farmers and move water that is stuck in sugarcane to other productive and sustainable farming options which will benefit more farms and more farmers. As pointed out by ICRISAT, Vidarbha and Marathwada regions are more vulnerable to Climate Change impacts. The regions have already seen a rise in extreme weather events and unseasonable episodes. In such a situation, a more diverse cropping pattern is imperative. It makes economic, social and ecological sense. A bad drought year like now provides an opportunity to look for out of box solutions like these.

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This story was carried as a PAGE 1 Report in The Times of India (Pune) on the 3rd March 2015: http://epaperbeta.timesofindia.com/Article.aspx?eid=31814&articlexml=Cane-leaves-Marathwada-parched-Study-03032015001043*)*

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Can Marathwada afford to undertake Sugarcane Crushing in this terrible drought?

Since 2012, farmers in Maharashtra, especially in Marathwada and Vidarbha region of central and eastern Maharashtra are faced with unending mountains of crisis. What started as drought of 2012 went on in form of violent rains at places in 2013, hailstorms of February-March 2014, scanty monsoon in 2014 and unseasonal rains at places in November 2014, affecting lakhs of farmers. Agricultural production has suffered losses as impact of scanty rainfall has been compounded by absence of rains in critical time windows when soybean was filling and cotton bolls were forming. More than 8000 villages in Marathwada region which comprises of Aurangabad, Nanded, Parbhani, Latur, Beed, Hingoli, Jalna and Osmanabad have recorded crop losses of more than 50%.

The entire Winter Assembly of the newly formed Government seems to be clouded by discussions of drought package and increasing farmer suicides in Marathwada and Vidarbha. Since January 2014, more than 400 farmers have committed suicide in Marathwada region, and the pace is picking up worryingly since the past month. Hydrological, meteorological and agricultural droughts are becoming more pronounced in Marathwada.

In the long term, there is a need to reduce area under sugarcane and provide proper incentives, fair support price, forward and backward market linkages and support for initiatives like horticulture under drip (and there are several success stories from Marathwada on this), dairying, oil seed and pulses cultivation and processing, dryland farming and importantly, equitable and transparent water management involving all farmers in the region. (Read further at: https://sandrp.wordpress.com/2014/12/11/can-marathwada-afford-to-undertake-sugarcane-crushing-in-this-terrible-drought/)

Maharashtra scraps River Regulation Zone: Pandering to industry at the cost of Rivers and People

When Devendra Fadnavis of BJP became the Chief Minister of Maharashtra, one would have thought that the chronically polluted and encroached Nag Nadi from Nagpur, as also other rivers in the state may see better days. This was not just an optimistic hope. The same party's Government at the Centre was making all the correct noises about being concerned about rivers, it had launched the Namami Gange Program for rejuvenation of Ganga River and had changed the name of Ministry of Water Resources to Ministry of Water Resources, River Development and Ganga Rejuvenation.

The new BJP-led government in Maharashtra has scrapped the River Regulation Zone Regulation which functioned in coordination with various state departments for the past 15 years. The government has thus insured that even the existing weak protection to river banks and origins is removed. The move is strongly contested and already 2 PILS have been filed in the High Court against it.

Back in Maharashtra, state of rivers is deteriorating from bad to worse [i], with the highest polluted stretches in the country. In Nagpur, the hometown on Fadnavis, pollution and encroachment of Nag River [ii] had reached epic proportions.

At the same time, Maharshtra had a novel regulation to protect river banks and origins from hazardous industries. The River Regulation Zone (RRZ) Policy which was notified through a Government Resolution dated 15.07.2000, of the State of Maharashtra notified 20 rivers basins [iii]and sub basins for regulation. The Environment Department, in cooperation with Maharashtra Pollution Control Board, divided river basins into 4 zones/categories from A1 to A4 and each zone had specific regulations about siting industries and sewage from settlements on river banks. The zones were based on water quality.

Briefly, the zoning & regulation can be described as follows: (Source: http://mpcb.gov.in/consentmgt/riverdistance.php)

RRZ Policy is not Bad in Law as indicated by the CM in his statements as the RRZ was formulated under Section 5 of the Environment Protection Act , 1986 which gives powers to the Centre as well as states to regulate and prohibit certain activities.

The original Policy of year 2000 was modified through a Government Resolution (GR) 2009 wherein nonpolluting industries were allowed in No Development Zone and some activities like Hotels, Resorts, etc. were allowed in A1 stretch of the river. It laid guidelines about treating all domestic waste by local bodies and that the STPs should be located 100 mts away from the flood line, while solid waste management facility had to be sited 500 mts away from the flood line for municipal corporations.

The 2009 GR also set up an RRZ committee with Secretaries of Departments like Environment, Industry, Urban Development, Water Resources, Maharashtra Pollution Control Board, etc., with Director, Env Department as the Member Secretary. Maharashtra is the first (and only?) state in the country to have such a policy and this was seen as a progressive step in the otherwise depressing scene of water management in Maharashtra.

On 3rd February 2015, the Principal Secretary Ajoy Mehta signed a circular declaring that, "According to Cabinet meeting on 20th January, 2015 the River Regulation Policy of 2000, modified in 2009, now stands cancelled. It will not apply to either existing or new industries". A notice has reached the Maharashtra Pollution Control Board (MPCB) and it is now free to give permission for establishment of industries in rivers regulation zone [vi]. It is reported that MPCB will give permission after taking a simple affidavit from the industries to ensure zero discharge. The entire episode is a black mark for Maharashtra, its rivers and people.

The justifications for this act of the cabinet, as offered by Mr. Fadnavis, are entirely untenable. He has said different things at different times.

The RRZ Policy was "Bad in Law" [vii]: CM Fadnavis is reported to have said: "RRZ contravenes the national policy. It was a bad instrument as it doesn't mitigate pollution. National policy mitigates and also regulates. We can't have a policy which is against the constitution." [viii]

When SANDRP discussed this issue with the Environment Department, Government of Maharashtra, we were told that State wanted modifications in the policy as per requests by the Industries Department and sent the modifications to Law and Judicial Department. The Law and Judicial Department however came back saying that State cannot make any modifications in the Policy and the Policy

itself is bad in Law. The Industries Department immediately pounced on this point and lobbied for the cancellation of the policy. The Environment Department does not seem to have fought against this. This reasoning does not hold ground because:

- Firstly, the RRZ Policy was promulgated through a Government Resolution (Shasan Nirnay) by the State Government on 15.07.2000, evoking the Section 5 (Power to give Directions) of the Environment (Protection) Act 1986. Section 5 confers powers to Center to "issue directions in writing to any person, officer or any authority and such person, officer or authority shall be bound to comply with such directions. This includes power to direct: the closure, prohibition or regulation of any industry, operation or process". This power has been conferred to Maharashtra too, vide Notification No. S.O. 488(E) dated 17-5-88 published in the Gazette No. 255 dated 17-5-88. [ix] So the GR is not Bad in Law.

It is thus legal and within law for Maharashtra to pass a GR for "the closure, prohibition or regulation of any industry, operation or process". How can the govt. defend this act of cancellation of RRZ policy?

- Secondly, the RRZ Policy was being implemented for the betterment of environment since the past 15 years without any legal challenge from any quarter. It has not been opposed by either the Ministry of Environment or any Central Department or any of the industries. In fact, Env. Minister Prakash Javadekar feigned ignorance over the scrapping of this policy, promising to "look into it". Law and Judicial Department's opinion about a policy which worked towards protecting environment of the state cannot be taken as the last word, on the other hand, this raises strong suspicions.

Nonpolluting industries were hampered because of the RRZ [x]: SANDRP has analysed minutes of the meetings of the committee on RRZ Notification from June 2011 to September 2014. The perusal clearly shows that the committee has been lenient about nonpolluting industry allowing it to be set up after certain modifications. In any case, if at all the Government wanted to ease norms for non-polluting industries, it could have easily done so by modifying the RRZ Policy, without scrapping it. It is clear that the aim of the government was to scrap the River Regulation itself in the attempt to help some specific industries.

Durgapur Coalmine in Chandrapur (Photo: GreenPeace)

Specific Industries that gained from scrapping RRZ Policy:

- **Western Coal Fields, Wainganga:** In its meeting dated June 2013, the RRZ Committee noted that Coal mines are categorized as Red Category industries and should be located 8 kms away from river banks in A1 category river stretches, 2 kms away from river banks in A2 category and 500 mts away in A3 and A4 categories. It further rightly noted that currently most coal mines are on river banks and leading to issues like pollution, siltation, dumping, leading to flood like situation.

But Coal Ministry and Western Coal Fields who have a project Penganga Opencast Mines on Penganga River, a tributary of Godavari, complained about this to the government. In response, a separate meeting of Environment Minister and high ranking officials was held and after prolonged negotiations, the distance of coal mines from river banks (not flood line) was agreed as just 250 mts in A2 stretch, down from original 2 kms. It was decided that no overburden debris should be dumped in 200 mts from riverbanks, a retaining wall should be built by proponents and that separate guiding principles for siting and management of coal mines would be worked on.

There are several reports of the devastation caused by Western Coalfields Limited to Vidarbha's rivers due to dumping overburden and mining even INSIDE river beds. The siltation from Western Coalfields has been held responsible for increased flood losses in Irai River, Chandrapur. Dr. Doodhpachare, environmental scientist from Chandrapur says, "WCL's overburden dumps are located virtually inside the river beds. The Mana and Lalpeth mines, especially, have dumped so much over-burden in the Irai river that the river-bed has risen by several metres." [xi] Wardha River is also chronically polluted due to pollution from mines. [xii]

Ash dumps of Eklahere Thermal Power Plant, Nashik (Photo by author)

Interestingly, in an interview, the CM specifically mentioned, "The decision (to scrap RRZ Policy) immediately enables coal production in Penganga mine upto 3 m ton relieving coal shortage for Mahagenco thermal plants". [xiii]

This would mean that Penganga Coal Mines are allowed to mine even within 250 mts of the river bank? This will not only destroy the river and affect people and future of the area, it will also be an invitation to fresh flood disasters. How is this beneficial for the people of Maharashtra?

Ultratek India Ltd: Kasardi River, Mumbai: In an intriguing case in September 2014, the distance of Ultratek Cement Company was measured as 200 mts from Kasardi River bank in Mumbai by MPCB, but 750 mts according to Water Resources Department. 750 mts distance just crossed the 'No Development Zone' for A 2 Stretch of river (Kasardi was A2 river). The RRZ Committee asked WRD to cross check their measurements and submit their inferences by the next meeting.

Amazingly, in the same month, the entire River Kasardi was taken off from the Notified Rivers list with no justification given! No doubt this eased Ultratek Cement's concerns. This was despite the fact that July 2014 RRZ Meeting minutes specifically note that "MWRRA has suggested not to take Kasardi off the notified rivers list."

The decision to denotify Kasardi was welcomed by industry owners of Taloja, a chronically polluted region, saying Kasardi was not perennial and that any restrictions on industries here will make industrialist shift their bases from here. The industry association has also aggressively denied charged of residents that untreated pollutants are entering Kasardi River.

Not only this, but Cement Industry has also been taken off from Red Category List industry as per MPCB and has been shifted to Green Category! [xiv]

Schneider India-Phase II, Chakan Pune It has been reported that one of the reasons behind scrapping the RRZ Policy was the issues with Schneider India Phase II at Chakan in Pune [xv]. However, as can be seem from the minutes of RRZ Committee meeting September 2014, the project lies in River Regulation Zone of the Bhama River and the clear position taken by the RRZ committee was

that the company has not even estimated its sewage and effluent generated, there is no Common Effluent Treatment Plant (CETP) in Chakan MIDC and that this industry (Phase I generates 93 cubic meters of waste water per day) falls in Red Category of industries (as per CPCB norms) and hence has to be located 2 kms away from high flood line of the river. The committee had then asked about the distance of the operational area from the High Flood Line of the river.

But it seems the committee asked too many questions. Other industries asked to modify their designs were Reliance Cement, Reliance Industries at Patalganga, Deepak Fertilizers, several housing projects from Pune with their STPs within flood line of Mula Mutha Rivers, etc. Significantly, it also allows Irrigation Department to set up a lavish Water Sports Complex on Gangapur Dam in Nashik. Gangapur Dam is a drinking water source of the city as well as an Important Bird Area.

In conclusion:

Maharashtra has some of the most polluted rivers in the country. The Maharashtra Pollution Control Board has been ineffective in controlling industrial or domestic pollution from reaching rivers/ water bodies and this has devastated not only ecosystems and river dependent livelihoods, but also the health and wellbeing of people residing in the downstream. [xvi] The MPCB does not have the capacity to monitor and control pollution from individual units or MIDCs. In such a situation, scrapping a regulating policy like RRZ which was instrumental in some regulation of at least some impacts on rivers from their origin to the sea, is seen as a shocking move, taken for the mindless pushing of some specific industries.

In doing so, the government has dismantled a system which had evolved over 15 years and is now relying upon affidavits that industries submit to MPCB. It is clearly inadequate way of curtailing pollution and has the potential to completely destroy Maharashtra's Rivers. Such affidavit system has a huge potential of furthering corruption. CM's statement that RRZ did not mitigate any pollution is baseless. [xvii] The decision to scrap RRZ policy will be strongly protested and is open to legal challenge. One hopes that the BJP-led government in Maharashtra is more concerned about the health and wellbeing of its common citizen and its rivers, rather than short sighted lobbying for some industries.

-Parineeta Dandekar

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[i] http://www.dnaindia.com/india/report-what-makes-maharashtra-and-gujarat-rivers-most-polluted-in-the-country-2002999

[ii] http://timesofindia.indiatimes.com/city/nagpur/Sewage-is-the-biggest-reason-for-Nag-River-pollution/articleshow/19335016.cms, http://www.downtoearth.org.in/content/one-river-two-origins

[iii] These Basins include Agrani River basin, Bomaby Island Basin, Ghataprabha River Basin, Konkan Coastal Basin, Krishna River Basin, Kundalika River Basin, Lower Bhima River Basin, Lower Godavari River Basin, Nag River Basin, Narmada River Basin, Nira River Basin, North and New Bombay Basin, Patalganga River Basin, Satpati Coastal Basin, Sukna River Basin, Tapi River Basin, Ulhas River Basin, Upper Bhima River Basin, and Wainganga, Wardha and Penganga Basins.

[iv] http://www.downtoearth.org.in/content/one-river-two-origins, http://www.downtoearth.org.in/content/bid-denotify-nag-rivers-upper-reaches-stalled

[v] https://sandrp.wordpress.com/2014/11/14/open-letter-to-devendra-fadnavis/

[vi] http://timesofindia.indiatimes.com/city/nagpur/MPCB-free-to-give-nod-to-industries-in-RRZ/articleshow/46180083.cms

[vii] http://articles.economictimes.indiatimes.com/2015-02-04/news/58796064_1_devendra-fadnavis-cm-fadnavis-plants

[viii] http://timesofindia.indiatimes.com/city/nagpur/Rivers-sacrificed-to-boost-Make-In-Maharashtra-policy/articleshow/45972389.cms

[ix] http://envfor.nic.in/legis/env/env1.html

[x] http://articles.economictimes.indiatimes.com/2015-02-04/news/58796064_1_devendra-fadnavis-cm-fadnavis-plants

[xi] http://www.downtoearth.org.in/content/maharashtra-allow-coal-mines-closer-rivers

[xii] http://timesofindia.indiatimes.com/city/nagpur/WCL-poisoning-Wardha-river-allege-green-activists/articleshow/45197183.cms

[xiii] http://articles.economictimes.indiatimes.com/2015-02-04/news/58796064_1_devendra-fadnavis-cm-fadnavis-plants

[xiv] http://timesofindia.indiatimes.com/city/nagpur/Rivers-sacrificed-to-boost-Make-In-Maharashtra-policy/articleshow/45972389.cms

[xv] http://www.afternoondc.in/city-news/danve-refutes-allegations-of-scrapping-rrz-law-for-private-company/article_130045, http://timesofindia.indiatimes.com/city/mumbai/River-policy-scrapped-to-help-industrialists/articleshow/45973774.cms

[xvi] http://www.punemirror.in/pune/civic/Ujani-dam-is-full-of-toxins-finds-survey/articleshow/36403388.cms

[xvii] http://timesofindia.indiatimes.com/city/nagpur/Rivers-sacrificed-to-boost-Make-In-Maharashtra-policy/articleshow/45972389.cms

MNRE's Draft Mission Statement on Small Hydro:

Address Social and Ecological Impacts of Small Hydel Projects

On the 3rd March 2015, SANDRP and partner organizations and individuals from across the country sent a joint submission to the Ministry of New and Renewable Energy (MNRE) about the Draft Mission Statement on Small Hydel Projects[1]. Although the Mission has some noteworthy and positive aspects, it entirely ignores the environment and social impacts of the Small Hydel Sector. In face of increasing protests and impacts of the sector on communities and ecosystems, such negligence on part of the MNRE (as well as the MoEF&CC) is irresponsible and insensitive. Excerpts from the submission are given below. (Full Submission can be seen at: https://sandrp.wordpress.com/2015/02/16/draft-mission-on-small-hydro-projects-encouraging-investment-ignoring-impacts/)

Respected Secretary and Office Bearers at the MNRE,

This is the first time that the Small Hydro sector has a dedicated Mission to further its development. The Mission is complimented by a 'Scheme for Small Hydro'[2] for the 12th Plan period which provides generous support to state owned SHPs and indirect boost to private sector SHPs.

Some welcome aspects There are some welcome aspects in the Draft Mission document as several hydel projects associated with dams as well as older SHPs are in state of disrepair and their revival (the mission says this one of its objectives) would mean optimal use of existing infrastructure where social, environmental and economic costs have been paid. This process may also increase the generation from existing projects and also throw up the need to decommission unviable projects. For example, the 15 MW Gumti hydropower project will come under SHP sector since its installed capacity is less than 15 MW and hydropower is the only objective of the project. The project in Tripura with 30 m high and 103 m long dam submerged 4634 ha of land & displaced some 40 000 people. The project is generating far below even the 15 MW of installed capacity and promise at the time of clearance. A credible evaluation of existing SHPs can throw up the conclusion that projects like Gumti reservoir should be decommissioned.

The Mission objective in this context is (para 3.2(III)): "Evaluation of all existing Government sector small hydro projects with a view to Renovate, Modernize and uprate (RMU) them, if required, to improve efficiency and add capacity where ever possible". The question is why should this be restricted only to government sector?

- ***The mission should also try to assess the possibility of adding hydro component to existing large dams in India***. Out of some 5100 large dams, some 97% have no hydro component. Since in these projects all the costs have already been paid, it may be good idea to explore the possibility of adding hydro component.
- ***The Mission needs to find ways to incentivise and promote community owned and operated micro hydro projects since they have the potential of providing electricity to those that do not have access to it and also provide local employment opportunity***. Indeed it is only the micro hydro projects that can achieve what the mission wants to achieve: "The projects have potential to meet power requirements of remote and isolated areas."

The mission says (para 1.2) "New technologies of hydro kinetic turbines are opening avenues to setup small size power projects using flowing velocities of flowing water in rivers and canals." This too is welcome. Use of Hydro kinetic turbines to generate power from flowing water without building any dams needs to be explored.

Overt emphasis on pushing Private Sector: The Mission depicts that its main aim is to help the private sector through statements like: *"National Mission of Small Hydro is essentially to address difficulties being faced by the private developers."* & *"A major part of capacity addition and exploitation of SHP potential in future can only come from private sector projects."*

- ***This emphasis on solving the problems of private SHP sector has meant that the Mission has missed some of major issues of SHPs sector in the country.*** This can lead to ineffective implementation on field because of non-acknowledgement of major key issues including impact of projects on communities and environment.
- ***<u>One of the major issues overlooked by the Mission is the impact of Small Hydro Projects on communities, ecosystems and rivers</u>.*** According to EIA Notification 2006, SHPs do not require environment appraisal and do not have to undergo any Environment Impact Assessments (EIA), Public Hearings or Environment clearance process. The sector is ungoverned from environment and social perspective or even from techno-economic perspective.

However, SHPs have significant, measurable and serious impacts which have been documented over the years by communities, NGOs, government-appointed bodies and even Courts of law.

- ***The Mission entirely ignores this and makes serious, erroneous statements in this regard. The***

Mission should have had a more fact based, holistic, inclusive, sustainable and conscious approach to SHP development.

- ***Mission assumes SHPs involve no dams!*** The Mission makes statements like *"There is no storage of water and no dam is constructed in these projects and hence there are no displacements of habitation." "Small hydro projects are normally run-of-river and no dam is constructed. These projects do not encounter the issues associated with large scale hydro projects of deforestation, resettlement and rehabilitation"*
- ***This is factually wrong and shocking because nearly all SHPs, especially those above 1 MW, entail dams, many of which are large dams[3] and the MNRE officials ought to be aware of this fact!***

Even small projects like 3 MW Beedalli Project in Karnataka which is in the buffer zone of Pushpagiri Wildlife Sanctuary entails a dam, head race tunnel, tail race tunnel, surge shaft, powerhouse and evacuation lines etc. 24.75 MW Thangarbalu SHP on Krishna River in Karnataka envisages a 22 m high dam on Krishna River[4]. Fraudulently clubbed Perla & Shemburi Projects in Bantwal, Mangalore have a dam over 18 meters in height.[5]

The claim that the SHPs have no storage is also factually wrong and in contradiction with another objective of the mission (para 2.3 (ix)): "It can be an excellent source of power generation to meet peak demands". If the project does not have dam or storage, how can it generate peaking power? In fact, the mission should first make an assessment of how much power the existing SHPs generate and how much of it is as peaking power and how much potential they have of generating peaking power. Even the projects that have some storage and can generate peaking power, have no incentive today to do so.

- ***Mission assumes SHPs have no impacts:*** The Mission paints the entire SHP sector with a green brush & states that it is environmental friendly with no impacts. ***This is clearly wrong***.

Several of the SHPs from this unregulated sector have had impacts on livelihoods, forests, wildlife corridors, protected areas, disasters and local communities throughout the country. SANDRP and many other have been writing about these consistently to MNRE and MoEFCC, urging them to regulate the sector. In November 2013, 47 experts including dignitaries like Dr. Ramaswamy Iyer, Former Secretary Water Resources, EAS Sarma, Former Secretary, Ministry of Power, Dr. Ullas Karanth, Former member, Forest Advisory Committee, MoEF, etc., had written specifically to MNRE to address the impacts of Small Hydel Projects[6].

- ***Due to unaddressed impacts, SHPs have been facing not only stiff local resistance, but large number of official expert committees as well as Courts of Law have pointed out that these projects have significant impacts and need to be assessed and regulated.***
- ***Affidavit by Ministry of Environment and Forests, December 2014:*** The Ministry stated in an affidavit before the Hon. Supreme Court in December 2014: "All HEPs (big or small) have environmental and social impacts during their construction & op-

Single large dam for Perla and Shemburi SHP in Karnataka (Photo by Parineeta Dandekar)

erational phases." It has also stated that it is planning to bring SHPs under the purview of EIA Notification, looking at their impacts.

- The Expert Committee Report on Uttarakhand Disaster chaired by Dr. Ravi Chopra (April 2014) (the committee was appointed following orders of Hon. Supreme Court of India on Aug 13, 2013) has also highlighted the damages wrought by small hydro projects.
- ***Siang Basin Study/ Cumulative Impact Assessment Study***[7] has recommended inclusion of SHPs in EIA Notification 2006 to address and mitigation their impacts.
- ***70 SHPs in Karnataka***[8],[9] have been under the scanner following orders of Karnataka High Court which upheld Elephant Task Force's recommendation about impacts of SHPs on Elephant habitats and directed Karnataka Government to review clearances of all such projects affecting elephant habitats, bringing at least 70 SHPs under scanner, 40 in Hassan district, the rest in Mandya, Chamarajanagar and Uttara Kannada districts.
- ***Karnataka HC no to SHPs in W Ghats***[10] In Feb 2013, the Karnataka High Court banned SHPs in Western Ghats, following a petition filed by Western Ghats Forum.
- ***Uttarakhand*** Uttarakhand had earlier cancelled as many as 56 SHPs due to irregularities.
- ***Both of the Western Ghats reports*** (first one headed by Prof. Madhav Gadgil and another headed by Dr Kasturirangan) have asked for regulation of SHPs, looking at their ecological and social impacts.
- ***Bhagirathi ESA*** In the notified Bhagirathi ESA in Uttarakhand, the MoEF itself has implied that Hydro projects only of below 2 MW installed capacity can be taken up.

Indicative Range of Impacts of SHP

- ***Submergence of forests and important habitats*** Projects like 24.75 MW Kukke I in Dakshin Kannada can submerge a massive 388 hectares, including extremely bio-diverse forests, plantations and houses. This is being strongly opposed by local communities.
- ***Increased Disasters***: The Small Hydel sector is an inherently unregulated with no fixed operating rules and verifiable procedures. Disasters due to sudden water releases due to small Hydel Projects have been documented. 24.75 MW Perla MHP and 24.75 MW Shemburi MHP in Karnataka which led to floods resulting in death of youths in the downstream, 8 MW Gangani MHP in Uttarakhand which resulted in flood induced damage to the villages during Aug 2012 Uttarkashi floods and June 2013 Uttarakhand Floods. Despite this, the Mission blithely states: "Small hydro projects can also be helpful in mobilizing resources and save life in case of emergency in remote areas." This is entirely contradictory to what is observed on ground. Just in second week of March 2015, a 2 MW Saal-2 Hydropower project was submerged in landslide in Chamba district in Himachal Pradesh.
- ***Addressing local Power Requirements?*** The Mission states: "The projects can address power requirement of local areas and avoid long transmission losses." However, except micro hydel projects, all of the MW-scale projects are GRID connected and evacuate power directly into the grid and have no role to play in the power security of the region where electricity is generated. On the other hand, examples are rife from all over, including from Western Ghats of Karnataka where ***grid connected SHPs have lead only to impacts without any benefits to the affected population.***
- ***Dangerous Recommendations:*** In Phase I the Mission aims to put in place a policy framework to attract investments. One of the objectives would be to set up institutional mechanism in each state, to reduce time required in completing statutory procedures including environment related clearances. It states, "The procedure for obtaining clearances required for SHP projects would be made online and MNRE should support the States to get this implemented." This suggests further dilution of even the meagre regulation under various acts. Also, all the information related to the projects should be in public domain and consent of the gram sabhas in the project area should be a must before clearing any project.
- ***Lessons from Karnataka:*** If we study existing SHPs and potential for future SHPs development in various states, it is clear Karnataka has the highest potential in the entire country at 4141 MW, approximately 21% of the entire SHP potential of 19,749 MW. The state also has maximum installed SHP capacity at 1,026 MW, more than 26% of the total installed capacity of the country at 3938 MW. Such state offers excellent place to learn lessons related to impacts of SHPS and as well as problems facing the sector.
- Although the Karnataka state saw a rush in SHP development, it also saw frauds from SHP developers, court orders curtailing SHPs in biodiversity rich regions, expert committees singling out SHPS for increasing Man-Animal Conflicts and strong local protests against the sector in many places.

- New SHP development in Western Ghats region is now stalled and it had been stalled in the district of Uttar Kannada due to sheer public pressure before that. In fact, Subramanya Declaration of August 2012 signed by experts, scientists, local leaders, religious leaders and affected communities has actually asked for stalling Small Hydel Projects in Karnataka pending review and appraisal.
- ***The Mission can gain valuable insights from this experience, which can help the SHP sector, as well as make the decisions democratic, informed and accountable.***

Similar is the case of **Himachal Pradesh** which has second highest potential of SHP development after Karnataka at 2397 MW and an installed capacity of 638.9 MW, also second highest in the country. In Himachal, several local protests are taking places against even smaller projects like 4.5 MW Hul Project because of their impacts on water mills, drinking water sources, irrigation canals, etc.[11]

- ***In conclusion:*** **The SHP Mission cannot wish away the problems of the SHP sector in a bid to encourage private sector investment. Neglecting the impacts of several projects on communities and ecosystems has been one of the reasons affecting growth of the sector.**
- Steps envisaged by MNRE to further dilute the need for statutory clearances for the sector will be disastrous. ***MNRE should be as concerned about communities and ecosystem as it is concerned about private investment***. World over, impacts of SHP are being assessed, addressed and regulated, as they should be. Even in India, several official committees, civil society reports and court orders have recognised the impacts of these sectors. The government needs to recognise and accept this reality and come forward with necessary policies and regulations in this regard.
- The SHP sector will benefit and not lose through a participatory, democratic and transparent regulating mechanism which assesses impacts of the projects on ecology and communities, suggests measures and includes local communities on board in decision making, monitoring & mitigation measures undertaken.
- An expert and objective third party assessment has the potential of gauging issues prior to initiating projects and can equip the developers better in addressing them.

The Mission was expected to understand various issues and sectors which affected and which are affected by SHP development, it was also expected to recommend regulation for this sector for its own benefit and for those who are impacted by the sector. Unfortunately, all of this is missing in the Mission statement. ***Without accepting these realities, the mission will not help SHP sector.***

We hope the final Mission statement acknowledges the impacts and recommends a system to address these and also recommends for inclusion of grid connected SHP sector (MW projects) under EIA Notification 2006.

We await your responses to the points raised above. Please do let us know how the MNRE considers our comments.

[Dr. Sharachchandra Lele, ATREE, Bangalore, **K. Ramnarayan**, Uttarakhand Save the Rivers Campaign, Uttarakhand, **Malika Virdi** , Himal Prakriti, Uttarakhand, **Panduranga Hegde,** Appiko Movement/ Save Western Ghat Movement, Sirsi, Karnataka, **Dr. Latha Anantha**, River Research Centre, Kerala, **Dunu Roy**, New Delhi, **Samir Mehta,** River Basin Friends, and, International Rivers, Mumbai, **A.K. Malhotra** – and other Trustees of SAI (Save Animals Initiative) Sanctuary Trust, Karnataka, **B. Bhaskar Acharya**, Researcher, Bangalore, **Tarun Nair**, Researcher, Bangalore, **Dr. Mark Baker**, Scholar and Researcher, Uttarakhand, **Gopakumar Menon**, Managing Trustee, The Nityata Foundation, Bangalore, **Sankar Ray**, Senior Journalist, Kolkata, **Dr Rajesh B**, Member of Kumaradhara Parisara Sumrakshana Samitthi, Hosmata, Puttur taluk DK Karnataka, **Parineeta Dandekar** and **Himanshu Thakkar** SANDRP]

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1 http://mnre.gov.in/file-manager/UserFiles/Draft-national-mission-on-SHP.pdf

2 http://mnre.gov.in/schemes/grid-connected/small-hydro/scheme-3/

3 Higher than 15 meters from deepest foundation, as per National and international definition of large dams

4 https://sandrp.wordpress.com/2013/11/30/another-hydro-fraud-two-small-projects-on-paper-one-large-project-on-site/

5 http://www.indiawaterportal.org/articles/1-dam-2-projects-many-fools

6 https://sandrp.wordpress.com/2013/11/11/address-impacts-of-small-hydel-projects/

7 https://sandrp.wordpress.com/2014/02/18/cumulative-impact-assessment-study-of-siang-basin-in-arunachal-needs-urgent-improvement/

8 http://timesofindia.indiatimes.com/city/bengaluru/Over-70-mini-hydel-projects-under-scanner/articleshow/23846415.cms

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10 http://timesofindia.indiatimes.com/home/environment/developmental-issues/Review-projects-in-forests-Karnataka-Elephant-Task-Force/articleshow/17287605.cms

11 http://www.himdhara.org/wp-content/uploads/2012/03/Note-on-Hull.pdf

CAG Reports: What ails Irrigation in Karnataka?

Himanshu Upadhyaya (himanshugreen@gmail.com)

What ails irrigation in India is probably a frequently asked question. It was asked in an illustrative article in Economic and Political Weekly in mid 1960s. We are told many times that two aspects that often make the planned benefits of irrigation go haywire, namely time over runs and (hence) costs escalation. However, their repeated use to explain missed irrigation targets could be misplaced. The correct diagnosis of what ails India's irrigation might be found in questioning the norms and decision making process of such projects, if these projects are indeed the best options and who pays when they do not deliver.

In recently tabled two CAG audit reports[1], a performance review of numerous irrigation projects by three irrigation corporations – namely Krishna Bhagya Jal Nigam Ltd (KBJNL), Karnataka Neeravari Nigam Ltd (KNNL) and Cauvery Neeravari Nigam Ltd (CNNL) & an audit of Command Area Development Projects – point out that deficiencies that plagued these projects ranged from faulty survey and design, erroneous estimates, irregularities in tendering, violations infested land acquisition processes and tardy execution of works. Audit scrutiny of records revealed that in many works proper surveys and investigations were not carried out. Audit found some cost estimates to be inflated as there were errors in adoption of item rates and taxes. Audit also noticed that a crucial strategic blunder that led to irrigation potential not being created despite headworks – i.e. dam wall and storage standing in place – was non-synchronisation of different components and chainages. Audit review also noticed instances where the works underwent major changes after the contracts were awarded. Audit scrutiny also revealed non-compliance of statutes, contractual terms and conditions resulting in undue benefits to contractors and extra financial implications.

Performance review of Command Area Development activities covering the period of 2009-14 showed that a gap of 4.10 lakh hectares existed between irrigation potential created and utilized, as of March 2014[2], due to non-construction of field irrigation channels. Audit scrutiny had revealed that field irrigation channels were constructed only in an area of 2.25 lakh hectares (i.e. 30 percent of target) against cumulative target of covering 7.48 lakh hectares for the period 2009-14. Close examination of records also suggested that in 16 projects, 2.71 lakh hectares land did not get irrigation benefits, despite field irrigation channels being in place. This led to an estimated crop loss worth Rs 915.45 crores per annum. Performance audit of CAD also noticed that the objective of Participatory Irrigation Management (PIM) to ensure farmers' participation in irrigation management and maintenance of command area, remained unfulfilled, as the water management was not being carried out by the water users' cooperative societies.

Transparency in Public Procurement: Repeat, systematic violations with impunity

Audit scrutiny pointed out that despite having passed a legislation with a view to ensure transparency in public procurement of goods and services by streamlining the procedure in inviting, processing and acceptance of tenders, the provision of the act were not complied with. Audit had noticed that as per rule 17 of Karnataka Transparency in Public Procurement Act (1999), the Tender Inviting Authority shall ensure minimum bidding time of 30 days for works costing upto Rs 2 crore and 60 days for works costing above Rs 2 crore. The statute clearly stated that any reduction in this time frame had to be specifically authorized by an authority superior to the tender inviting authority with reasons to be recorded in writing. During audit scrutiny it was observed that:

- CNNL had allowed less than 60 days (for works costing over Rs 2 crore) in respect of 30 works. In respect of other 4 works, CNNL had sought approval for reduction of bidding time under section 17 (2) of the Karnataka Transparency in Public Procurement Rules. However, the reasons for such a reduction of time were not kept on record.
- In KBJNL, the stipulated period of 60 days was not provided for 8 works and in respect of other 3 works, the stipulated period of 30 days was not provided.
- In KNNL, the stipulated period of 60 days was not allowed in respect of all the selected works.
- Further, audit scrutiny also revealed that none of the companies had adopted the Standard Tender Document as prescribed by the Government of Karnataka.

The first issue that arises is that there is specific reason for assigning these time periods, these are being overturned in practice. Secondly, why do these agencies keep repeating the violations of these norms? Is it simply urgency every time as they claim or is this indication of deeper malaise? When we connect this with the continued gap in achievement of irrigation targets, it raises the question if there is much deeper & bigger corruption? Do we need more transparent, accountable, participatory governance norms? Unfortunately the CAG reports or the following actions do not go into these questions.

Sonthi Barrage of KBJNL (Photo fromm kbjnl.com)

Responding to these audit observations, Karnataka government stated in a reply dated November 2014 that "due to urgency of work, the time limit prescribed could not be adhered to and this had approval of highest authorities". The CAG audit report after quoting this reply states that "the reply is not acceptable as approval of higher authorities had not been obtained for the short term tender". Should CAG have gone beyond stating the obvious?

Audit scrutiny also pointed out at two instances in projects by KNNL where process of acquisition of land was taken up after the works were awarded. KNNL had prepared the estimates for the construction of minor canal under Kamatagi distributary in December 2005 and went ahead with inviting tenders in January 2006 and awarded the work contract in the same month to a contractor with the stipulation to finish the work in four months. However, the land acquisition for this project was not initiated and audit scrutiny revealed that even the Section 4 (1) and 6 (1) notifications under the Land Acquisition Act were issues in April 2006/September 2009 and August 2007/ May 2010 respectively. The land compensation award to land owners was issued only in July 2009/ June 2010. In another instance, the work contact was awarded even as the authorities were aware that compensation under land acquisition act was not granted to landowners.

Now what is the reply that state government submits? CAG audit report tells us that in a reply dated November 2014, state government argued that "the situation was unavoidable as there were delays in payment of compensation to land owners". Having got such a lame duck reply on record, CAG audit goes on to re-iterate that "the reply is not acceptable as notifications for acquisition of land were issued after awarding the work". Should CAG not have named the responsible officers and should it not have recommended suitable action against them?

So having noticed these issues that plague irrigation projects, CAG of India recommends that the Government institute a mechanism of the tender issuing authority certifying that acquisition of required land, payment of compensation of obtaining of forest/ environment clearances have been completed before issuing the tender. There is also a question if the Auditor's recommendations should suggest measures in rules and procedures so that no agency is able to keep repeating offences and get away with it.

Will state government respond to this recommendation positively? For answer to this worrisome question, we must wait for yet another performance review of irrigation projects in Karnataka. CAG auditors scrutinizing irrigation and hydropower projects in Karnataka may have come a long way since that performance review of Gerusoppa Dam, which this author had terms as exposing cracks in CAG's scanner[3]. But how long will recommendations by CAG auditors be ignored without any consequences for those responsible and how long the civil society, media and judiciary not take up these issues to make the government accountable remain some moot questions.

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[1] http://www.saiindia.gov.in/english/home/Our_Products/Audit_Report/Government_Wise/state_audit/recent_reports/Karnataka/2014/Report_9/chap_2.pdf and http://www.saiindia.gov.in/english/home/Our_Products/Audit_Report/Government_Wise/state_audit/recent_reports/Karnataka/2014/Report_8/Chap_2.pdf

[2] At the end of March 2009, this gap was 5.65 lakh hectares.

[3] http://indiatogether.org/cagmisses-government

NGT Orders MAILY SE NIRMAL YAMUNA – WILL THIS LEAD TO A REJUVENATED YAMUNA?

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The National Green Tribunal (NGT) in a landmark judgment pronounced on 13 January 2015, has set an ambitious road map for a rejuvenated river Yamuna by 2017. Naming it as "Maily se Nirmal Yamuna rejuvenation project, 2017" the green court in the judgment spread over almost 100 pages has detailed steps necessary to achieve what all previous efforts have miserably failed.

Let us see how the adjudication spread over some 3 years played itself out and what is there in it to provide a sense of hope that once implemented it could actually not only help rejuvenate perhaps the most threatened river in the country, but also set a road map and principles for similar rejuvenational efforts on other similarly placed rivers in the country and beyond.

It was in February 2012, that an application (6 of 2012: Manoj Misra Vs Union of India and others) was filed at the NGT. It detailed the Yamuna story at length and highlighted how a natural water body in its flood plain in NCTD (National Capital Territory of Delhi) was being knowingly buried under construction debris and municipal solid waste. The application invoked section 14 & 15 of the NGT Act, 2010 that provides an opportunity to an applicant to raise an issue of public importance where substantial question relating to environment is involved and to seek its restitution.

The prayer was to direct the respondents to immediately stop any further encroachment and dumping of solid waste in the river bed; removal within a fixed time frame of all debris and other solid waste dumped in the river bed and to restore the natural water body to its former self.

The said application was made after a sustained petitioning to various authorities including the Lt Governor of Delhi had failed to elicit any worthwhile action on the ground.

Later in October 2013 another application (300 of 2013: Manoj Misra & Madhu Bhaduri Vs Union of India and others) was filed against ongoing concretisation and covering of a storm water drain (Kushak drain) in south Delhi and government plans to cover portion of another storm water drain (Shahdara link drain) in east Delhi to raise a commercial establishment in the name of Dilli Haat. It had been highlighted in the petition that the storm water drains are a natural product of the city's topography and essential to a safe and secure city in absence of which the vulnerability of the city to urban flooding during high rainfall events would get worse. It had also been asserted that what are today termed the storm water drains were originally the seasonal tributaries of river Yamuna that originated from and linked the Delhi ridge with the city's life line river. The risks involved with concretisation and covering of these drains and the advantages of keeping them open and green had also been highlighted.

It is to the credit of the NGT as an institution and the relevant government agencies as willing implementers of its (NGT) directions that almost 50,000 tonnes of construction debris and other MSW (municipal solid waste) was actually removed from the river bed in a period of some 6 months.

It is also a measure of ingenuity on the part of the NGT bench (headed by Justice Swatanter Kumar) when it clubbed the two petitions observing their seminal links and importance in the restoration and rejuvenation of the river Yamuna, an issue that has plagued the authorities for over two decades without any notable success despite more than Rs 1500 crores having been spent to 'clean' it under the Yamuna Action Plans.

So, it is little wonder that the NGT in its single judgment (in the two applications) dated 13 January 2015 has first given itself (page 39) in affirmative the challenge to the query "***would it ever be possible to clean river Yamuna and restore its wholesomeness"?*** and then has given not only an ambitious name to its order but highlighted the importance and urgency of the matter in following words (para 94):

"We are not oblivious of the herculean task which will be required in carrying out the '*Maily se Nirmal Yamuna*' Revitalisation Project, 2017, but we are of the firm view that any further deferment in taking stern and serious steps for preventing and controlling pollution of river Yamuna, is bound to expose Delhi and its residents to grave environmental disasters."

The **PRINCIPAL COMMITTEE** constituted by the NGT to oversee the implementation of the judgment comprises Special Secretary (Ministry of Environment, Forests & Climate Change – MoEF in short); Joint Secretary (Ministry of Water Resources, River Development & Ganga Rejuvenation – MoWR for short); Chief Secretary (Government of NCTD); Vice Chairman, Delhi Development Authoriy (DDA); Commissioners of all three Municipal Corporations of Delhi (MCD); Commissioner (Delhi Jal Board - DJB); Secretary (Department of Irrigation and Flood Control, GNCTD); Concerned Secretaries of government of Haryana, Uttar Pradesh, Himachal Pradesh and Uttarakhand; Prof. Brij Gopal (formerly with Jawaharlal Nehru University), Prof. CR Babu (Delhi University), Prof. AK Gosain (IIT – Indian Institute of Technology -, Delhi) and Prof. AA Kazmi (IIT, Roorkie).

The Principal Committee has been mandated to report progress to the NGT on a quarterly basis.

The judgment while accepting in their entirety - expert reports dated 19th April 2014 (on restoration and beautification of river Yamuna flood plain in NCT of Delhi); 2nd August 2014 (river Yamuna) and 13th October 2014 (drainage system in Delhi and DJB action plan on sewerage in the city) as submitted by the expert committees co-chaired by the Additional Secretary (MoEF) and the Vice Chairman, DDA - has outlined a 28 point action plan. The said action plan to be implemented by various agencies and overseen by a NGT constituted "Principal Committee" could be summarised as under:

a) Provision of environmental flow in Yamuna, downstream of the barrage on river Yamuna at Hathnikund (some 200 km upstream of Delhi)

- CS (Chief Secretary) of NCTD and Haryana to meet the Principal Committee to agree on the Environmental flow in the river Yamuna
- A committee headed by Secretary, MoEFCC to consult with CS of UKH, HP, UP, and Haryana and decide in the matter

b) Restoration of Yamuna flood plains (River Zone) in NCR of Delhi

- Definition and delineation of River Zone in NCR (National Capital Region) in accordance with the report of the expert committee dated 19 April 2014.
- Identification, listing (of all constructions in the River zone) and removal of encroachments and unauthorised construction from the river Zone in accordance with the report of the expert committee dated 19 April 2014
- Formation of a Yamuna flood plains Restoration plan including controlled dredging in parts
- Prohibition of agricultural farming for another 2.5 years (till Yamuna is rejuvenated) in flood plain in Delhi and restricted floriculture and silviculture in the river Zone
- Removal of remaining debris from the flood plains
- Implementation of penal provisions for throwing waste (Rs 5,000 fine) and dumping of MSW (municipal solid waste) and debris (Rs 50,000 fine) into river Zone (as well as the drains) set by the NGT on the basis of Polluter Pays Principle
- Raising of special ghats /sites on the river bank where puja samagri etc could be safely disposed.

c) Restoration of storm water drainage system in Delhi

- Dismantling of construction on drains where less than 85% work has been done, after taking due approval from the NGT
- Cleaning drains & keeping them free of obstruction & prevention of any dumping of MSW in them
- Tracing of missing 44 natural drains in the city
- Controlled dredging of drains
- Identification of sites where dredged material from river Zone and from the drains shall be deposited before their safe disposal

d) Implementation of the Delhi Jal Board (DJB) plan of 13 October 2014 for ensuring cessation of sewage flow into the storm water drains

- Installation of additional STPs, CETPs and making existing ones functional
- Recycle and reuse of treated sewage and industrial effluents in the city so that no sewage enters the drains
- Maintenance of STPs and CETPs
- Fly ash to be safely disposed from within river Zone
- Baseline of river pollution to be set by the DJB, CPCB (Central Pollution Control Board) and DPCC (Delhi Pollution Control Committee)

TIME LINES DIRECTED BY THE NGT

- All relevant agencies to prepare and submit their respective ACTION PLANS to the Principal Committee within 4 weeks of the judgment
- All existing 23 STPs to become fully functional within 2 months of the judgment
- Action Plan for the new 33 STPs to be in place within 3 months of the judgment
- All remaining debris / MSW in the river zone to be removed in 4 months of the judgment
- Cleaning including dredging of all drains within 4 months of the judgment
- CS of HP, UK, NCTD, Haryana and UP to meet within 4 weeks the Secretary of MoEF and MoWR to prepare an immediate action plan required to ensure proper environmental flow in river Yamuna throughout the year.
- All three MCDs to submit within 3 months a report on the missing 44 drains to the Principal Committee
- Sites where sludge from select dredging of river and drains shall be deposited before disposal to be identified by NCTD and nearby states within 3 months of the judgment

While the judgment is most welcome. It has perhaps for the first time extended the reach of the urban stretch of a major river to include the city's storm water drains, and integrated actions for their respective restorations. The judgment shall prove a landmark and go down in history if it can also ensure the long eluded rejuvenation of river Yamuna by keeping to its professed timelines for action/s.

Is the new AAP government in NCT of Delhi listening? Is the Union Government, its agencies and the MCD bodies and neighbouring states ruled by it willing to cooperate? Will Media, Civil Society and NGT ensure that these steps are indeed implemented? A lot will depend on answers to these questions.

On March 2, 2015, NGT, after hearing the parties, issued fresh directions for implementation of the order and made it clear to all concerned how serious it is in the matter.

Early Spring Rains bring Climate Disaster for farmers in India

It was bit of a shock to get up on VERY wet Sunday on March 1, 2015, having slept past midnight the previous night with a dry weather. When I checked by inbox, the message from Manoj Misra of Yamuna Jiye Abhiyaan was waiting to provid a link to Accuweather.com site[1] and also satellite image from India Meteorology Department (IMD) site[2]. It looked ominous: "A potent storm will drop unusually far south as March begins, blasting India and Pakistan with heavy thunderstorms, flooding rain and burying mountain snow." Northwestern India and Northern Pakistan were to face the maximum impact, but the impacts were to reach far down south right upto Karnataka. As the site said it was a rare event: "It is rare for widespread substantial rain such as this elsewhere across northern and central India". In fact another accuweather page[3] provided detailed forecast for the Asian spring movements and predicted early and wet spring for the Himalayas with rounds of rain and snow.

The Northern most parts of Jammu & Kashmir, Himachal Pradesh, Uttarakhand and neighbouring Nepal and Pakistan could risk heavy snowfall that could also trigger avalanches. In fact another webpage of the same site[4] warned that 230 people had lost lives avalanches & floods in Afghanistan (numbers could rise and rescue operations were still underway) when this event passed that country. That added fear, considering that Kargil in J & K, which was on the path, had the landslide dam in Zanskar Valley[5] that could be now at greater risk of burst, besides creating more such landslides, avalanches and floods.

Sure enough, the news of damages started pouring in from North India and further south even from Maharashtra.

Farm Damages in North India: According to a report in *the Hindustan Times*[6], on an average, untimely rains on Feb 28-March 1, have caused 10-20% damage to standing crops like wheat, mustard and gram. Some fruits like mango, cashew, orange and grapes have been affected quoting Dr N Chattopadhyay, deputy director general, agricultural meteorology division, Pune. He said most parts of Punjab, Delhi, Haryana, Maharashtra and Madhya Pradesh, in addition to Northern Indian states of Jammu and Kashmir, Uttarakhand, Himachal Pradesh were affected.

Damages to river bed cultivation Due to the untimely heavy rains, rivers in North India are carrying huge flows. For example, Yamuna River was carrying peak of 87364 cusecs at least during 3 hours during the midnight between March 2-3, 2015[7], this is likely to affect seasonal riverbed cultivation (called प्लेज locally) in thousands of ha of land. The Haryana Irrigation Department closes the release of water to Eastern and Western Yamuna canal when inflow at Hathnikund barrage go above 70000 cusecs (this was 60 000 cusecs earlier) to save the flow of silt and boulders brought by the flooded river into the canals. This increases the releases into the river downstream from the barrage.

Such high flows in all likelihood will cover entire active river course flooding away the tender melon saplings. Freshly irrigated wheat crops in floodplain areas along River Yamuna received severe damages due to excess of rain water. "Floodplain crops do not require much of water and moderately dry ground suits them better", Sharafat Ali, a local farmer told SANDRP. All the riverbed farming will get damaged totally said Iqbal a local farmer from Ramra, a village of Shamli district located on the bank of River Yamuna. Such a situation could also be prevailing on Yamuna riverbed downstream from Delhi and other river beds.

MAHARASHTRA A report in The Times of India says[8] crop loss in Maharashtra due to the unseasonal rains in Feb 28 and March 1 is Rs 1000 crores and in Yavatmal alone in Vidrabha (Mah), 17000 ha of land have seen such damages. It says: "Officials said wheat, jowar and chickpea crops were hit by the heavy rain, as were fruit plantations, including mango orchards, vineyards and pomegranate fields. In some cases, harvested crops and seeds were also destroyed."

Just a year ago, farmers in the state bore the brunt of strong hailstorms, as SANDRP had reported[9]. In 2014 monsoon, 90 lakh farmers were hit by one of the most widespread droughts witnessed in the state, one which devastated the kharif crop.

Another report in the same paper says[10] 5000 farmers have been affected in Nashik dist alone in Maharashtra due to unseasonal rains.

The Economic Survey for current year made public last week gave an interesting bit of news: "NABARD has sanctioned a pilot project of Rs 21 crore on climate change adaptation in Maharashtra to develop knowledge, strategies, and approaches that will enable vulnerable communities to adapt to the impending impacts of climate change." The Maharashtra farmers indeed need such a project and help in this season, the way they have faced the climate induced droughts, hailstorms and unseasonal rains now and in the past, but there is no information what is the status of this pilot project. As we noted earlier, the Maharashtra State Action Plan on Climate Change being done by TERI is yet to be finalised.

Scientists see direct link of this with Climate Change A paper by scientists[11] of Pune based Indian Institute of Tropical Meteorology says: "The climate of

the Western-Himalayan (WH) region is sensitively dependent on precipitation during the winter and early spring months (December-to-April, DJFMA) produced largely by synoptic weather-systems known as "Western Disturbances" (WD[12]), which originate from the Mediterranean region and propagate eastward as troughs and cyclonic lows embedded in the sub-tropical westerlies." The paper specifically says that "Our analysis suggests that pronounced warming trends over the Tibetan Plateau in recent decades, arising due to the elevation dependency of the climatic warming signal…" is responsible for this. The direct link of increased winter and early spring rainfall and snowfall with the climate change has been accepted by scientists.

Climate Scientists in any case have been saying that in every unusual weather event now, the climate footprint is undeniable. And we have been seeing large numbers, to illustrate just the two this season:

- The unseasonal rains of 56.8 mm on March 1, 2015 makes it the wettest day in 100 years for Delhi.[13]
- In Dec 2014, Pune city received the highest monthly rainfall since 1942[14].

Will Parliament take this up? It was good go see that the Members of Parliament have already raised the issue of such damages on Monday, March 2, 2015[15], seeking special package for the farmers who suffered damages. However, there is no recognition that those affected are climate change victims, nor is there any attempt at providing justice to them for the impacts they are suffering for no fault of theirs. The governments or the UN agencies or IPCC or other bodies, no-one, it seems is interested in taking any step to acknowledge this reality.

Union Finance Minister Arun Jaitley, while presenting the annual budget for current in Parliament on July 10, 2014 said: "Climate change is a reality which all of us have to face together. Agriculture as an activity is most prone to the vagaries of climate change. To meet this challenge, I propose to establish a "National Adaptation Fund" for climate change. As an initial sum an amount of Rs 100 crore will be transferred to the Fund." That was a rather belated initiative amounting to tokenism, it seemed considering the scale of the problem. Worryingly, as the year for which this was meant comes to a close later this month, the Union Budget provided the status of this minimalist initiative: It is still work in progress with scheme still being formulated, financial sanction has not even been given.

We hope the members of Parliament will raise this issue in Parliament with necessary vigor and force in the interest of the suffering farmers and other communities to not only ask the government to provide justice to these climate victims but also demand Indian government to ask justice for these victims at international forum.

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With inputs from Bhim Singh Rawat
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1 http://www.accuweather.com/en/weather-news/rare-march-rain-storms-to-targ-1/43009940

2 A few hours latter Facebook scan told me that Anand Sharma, Director of Uttarakhand IMD office in Dehradun had already provided forecast of this, but I had not checked it.

3 http://www.accuweather.com/en/weather-news/accuweather-asia-spring-2015-weather-forecast/42669642

4 http://www.accuweather.com/en/weather-news/slow-moving-storm-to-bring-flo/42794229

5 https://sandrp.wordpress.com/2015/02/01/landslide-dam-blocks-zanskar-river-tributary-threatens-valley/ and further two updates.

6 http://www.hindustantimes.com/india-news/untimely-rains-ruin-wheat-mustard-and-gram-crops/article1-1322395.aspx

7 Information from Haryana Irrigation Department managing Hathnikund Barrage on Yamuna River.

8 http://epaperbeta.timesofindia.com/Article.aspx?eid=31814&articlexml=Erratic-rains-cause-crop-loss-of-Rs-1000cr-03032015009044

9 https://sandrp.wordpress.com/2014/03/11/maharashtra-farmers-face-impacts-of-hailstorms-and-states-inaction-plan-on-climate-change/

10 http://epaperbeta.timesofindia.com/Article.aspx?eid=31814&articlexml=Nearly-5000-farmers-hit-in-Nashik-dist-alone-03032015009038

11 See abstract here: http://link.springer.com/article/10.1007%2Fs00382-014-2166-9, full paper needs paid access. Authors of the paper titled Changes in western disturbances over the Western Himalayas in a warming environment are: R. K. Madhura, R. Krishnan, J. V. Revadekar, M. Mujumdar, B. N. Goswami, the paper has been published in Climate Dynamics in February 2015, Volume 44, Issue 3-4, pp 1157-1168

12 A low pressure system originating over the eastern Mediterranean sea and moves eastward.

13 http://timesofindia.indiatimes.com/City/Delhi/Delhi-gets-wettest-March-day-in-100-years-as-freak-storm-blows-over/articleshow/46436363.cms

14 http://indianexpress.com/article/cities/mumbai/winter-rain-decoded-by-iitm-researchers/99/

15 http://timesofindia.indiatimes.com/india/Unseasonal-heavy-rains-flatten-crops-in-north/articleshow/46438089.cms

India Budget 2015: No hope for rivers, environment, farmers or sustainable water resources development

Union Finance Minister Arun Jaitley's Maiden Full year budget presented to the Parliament on Feb 28, 2015 invited a lot of hype. Let us see what his statement of account for the 2015-16 has in store for rivers, environment, Himalayas, farmers, Climate Victims or sustainable water resources development.

If we go by the Finance Minister's speech alone, there are limited references to these subjects in the speech. Unlike his speech on July 10, 2014, while presenting the Budget for the 2014-15[1], Mr Jaitley's speech this time[2] avoided controversial references like the ones to Inter linking of rivers, Renuka Dam, River front development, Statue of Unity and so on.

- His speech did refer to the government's Clean Ganga Fund, but he was only referring to tax rebate scheme for contributions to the program: "100% deduction for contributions, other than by way of CSR contributions".
- His budget also had provision of "Rs. 4,173 crore for Water Resources and Namami Gange".
- In agriculture, one significant statement was: "The Pradhanmantri Gram Sinchai Yojana is aimed at irrigating the field of every farmer and improving water use efficiency to provide `Per Drop More Crop'. I am allocating Rs 5,300 crore to support micro-irrigation, watershed development and the Pradhan Mantri Krishi Sinchai Yojana." But the scheme announced last year is yet to see implementation, raising doubts how serious the government is.

At Macro level, the Plan Budget of the Government of India is hugely reduced from Rs. 5,75,000 Cr in 2014-15 to Rs. 4,65,277 Cr in 2015-16. Let us see what the Budget, Economic Survey and related documents say on some key issues of our concern.

Ganga: The government has been claiming that they want to Rejuvenate Ganga. We have yet to see any credible action on this front. The budget allocates Rs 2100 Cr to *Namami Gange* (Integrated Ganga Conservation Mission) for 2015-16, slightly up from Rs 2037 Cr allocated in 2014-15 budget. The trouble is the government has no road map for rejuvenating the Ganga River, only some business as usual urban and industrial effluents control proposals. But such proposals have been going on for 30 years without any impact and the new proposals are likely to meet the same fate since they signify no break from the past. The money for this scheme is coming from clean energy cess, but is not clear if that is the best use of that money, the clean energy cess fund should not be used for such business as usual projects, but for some really people centered efforts that help those who suffer the impacts of climate change, since such climate change victims are getting no help currently.

The Economic Survey made a strange claim in this regard: "The country has witnessed the introduction of landmark environmental measures for conservation of rivers…." Where are these landmark measures for conservations of rivers?

In this context, let us see the status of the promises made in Budget 2014-15, as given in the Budget document this year. It is clear from these documents that the schemes are still work in progress, meaning far from implementation.

Promise on Namami Gange in Budget 2014-15 "I propose to set up Integrated Ganga Conservation Mission called "Namami Gange" and set aside a sum of Rs 2,037 crores for this purpose." [Nodal Ministry/Department: Ministry of Water Resources, River Development & Ganga Rejuvenation]

STATUS: Rs 2037 crore has been allocated for this subject. The scheme has been appraised by EFC[3] in its meeting held on 30th December, 2014. Cabinet note is being finalised. **Work in progress**

Promise of Development of Riverfront "I propose to set aside a sum of Rs 100 crore for Ghat development and beautification of river front at Kedarnath, Haridwar, Kanpur, Varanasi, Allahabad, Patna and Delhi in the current financial year." [Nodal Ministry/Department: Ministry of Water Resources, River Development & Ganga Rejuvenation]

STATUS The scheme has been appraised by the EFC in its meeting held on 30th December, 2014. Cabinet note is under preparation. **Work in progress**

MoEF&CC allocation down The FM noted in his budget speech: "environmental degradation hurts the poor more than others", and yet the allocation for Union Ministry of Environment, Forests & Climate Change is down 15% to Rs 1681.6 crores in 2015-16 compared with the amount budgeted for the current fiscal year[4].

Leo Saldhana says this is sign of things to come: "Recently following an interaction with senior officials of the Central Pollution Control Board, one of the officers quipped that the budget for the entire CPCB was equal to the cost of a Delhi Metro pillar: Rs. 50 crores. He wasn't exactly right. Perhaps it's the cost of two Metro pillars. But we get the point."

MoWR,RD&GR down The allocation for Union Ministry of Water Resources, River Development and Ganga

Rejuvenation is down to Rs 4232.43 crores, comprinsing of Rs 3607 Cr Planned and Rs 625 Cr non plan Budget. This is down from Rs 13237 Cr Planned and Rs 600 Cr non planned budget for 2014-15, a total reduction of Rs 9630 Cr. Part of this reduction is supposed to be taken care of by the implementation of the 14th Finance Commission recommendations for greater devolution to states, but it is not clear how it can substitute the schemes like the Accelerated Irrigation Benefits Programme or the National Projects Scheme that were granting funds to specific projects.

Farmers get raw deal FM reiterated: "Our commitment to farmers runs deep." However, the budget does not have a lot to show that commitment. For beginners, Agriculture Ministry's budget has been reduced by 14.34% compared to the revised estimates. Further, the allocation for the Department of Animal Husbandry, Dairying and Fisheries is reduced by Rs. 683 Cr.

The Economic Survey, rightly expressed concern about non sustainability of present cropping pattern: "Concerns have been raised for quite some time about non-sustainability of the present cropping pattern and use of water resources. The following initiatives announced in Budget 2014- 15 have brought the issue of sustainability and climate adaptation to the forefront:

- The Pradhan Mantri Krishi Sinchayee Yojana with allocation of Rs 1000 crore.
- Neeranchal, a new programme with an initial outlay of Rs 2142 crore in 2014 to give additional impetus to watershed development in the country,
- The National Adaptation Fund for Climate Change, with an initial sum of Rs 100 crore."

However, the steps the Survey or the Budget has listed are far from sufficient to address non sustainability of water use in agriculture. There is nothing here or elsewhere in the budget to reflect that the government is serious on this, most importantly steps required to discourage water intensive crops like sugarcane, paddy, wheat, among others in water scarce areas of Punjab, Haryana, Maharashtra and Karnataka. Export of sugar from UP is also tantamount to export of water from Ganga, when government has no road map for Ganga rejuvenation in spite of all the statements and symbolisms that the government has indulged in.

Pradhan Mantri Krishi Sinchai Yojana This new programme of the Modi government under Ministry of Agriculture aimed at ensuring access to water to every farm (*Har khet ko pani*) has been allocated Rs 5300 crores (a possibility of increasing this by Rs 3000 Cr has been mentioned if FM is able to achieve targeted mobilization) including allocation for watershed programme and Rs 1800 crores for the micro irrigation. As against that, the allocation for Rashtriya Krishi Vikas Yojana has seen a huge cut from Rs 9954 crores Budget allocation in 2014-15 to Rs 4500 crores in 2015-16.

However, this PMKSY scheme was floated in Budget 2014-15, the scheme is far from beginning implementation, as is clear from Budget documents:

Promise in Budget 2014-15: "I propose to set aside a sum of Rs 1,000 crore for this purpose." [Nodal Ministry/Department: Department of Agriculture & Cooperation]

STATUS: Concept Note, Expenditure Finance Committee (EFC) Note and draft Guidelines of PMKSY have been circulated to all concerned Ministries/Departments. **Work in progress**

Another noteworthy scheme of the NDA government, namely *Neeranchal* or watershed development is also yet to reach implementation stage:

Promise in Budget 2014-15: "To give an added impetus to watershed development in the country, I propose to start a new programme called "Neeranchal" with an initial outlay of Rs 2,142 crores in the current financial year." [Nodal Ministry/Department: Department of Land Resources]

STATUS: A Cabinet Note seeking approval of Cabinet has been submitted on 29.10.2014. **Work in progress**

Failure of Big Irrigation Projects The Economic Survey notes, "Under the AIBP, Rs 67,195.47 Cr of central loan assistance (CLA)/grant has been released up to 31 December 2014. An irrigation potential of 85.03 lakh ha is reported to have been created under the AIBP by states from major / medium /minor irrigation projects till March 2013." But the survey may well have compared this claim of irrigation potential created with actual irrigation figures and it would have realized how hollow these claims are. It is uncritical acceptance of such claims that is leading to scams like the Maharashtra Irrigation Scam. In spite of CAG reports repeatedly warning about such scams in other states including Andhra Pradesh, Orissa, Madhya Pradesh and Gujarat, there is no reality check. Economic Survey itself notes that there is no reduction in gap between the Gross Cropped Area and Gross Irrigated Area since the first Five Year Plan, see the graph from Economic Survey.

Organic Farming A new scheme called *Paramparagat Krishi Vikas Yojana* for organic farming launched by the agriculture ministry has been allocated Rs 300 Cr.

However, the promise of Organic Food scheme announced last year is to be implemented as can be seen from the status given in the Budget document this year.

Promise in Budget 2014-15 - North Eastern States

Organic Food "To facilitate this, I propose to provide a sum of Rs 100 crore for this purpose in the current financial year." [Nodal Ministry/Department: Ministry of Development of North Eastern Region]

STATUS: Draft EFC/SFC Memo along with Concept Note for implementation of the scheme is being finalized. **Work in progress**

Renewable Energy The Economic survey said: "Supplementary guidelines were issued under the existing 'Solar Pumping Programme for Irrigation and Drinking Water' scheme to solarize the targeted one lakh such pumps throughout the country during the current year." Promoting solar pumps is fine, but guidelines should be clear that new pumps should not come up in groundwater deficit areas and if at all, new solar pumps should genuinely replace the conventional pumps and not add to the groundwater overdraft.

Hydro Generation down It is good to see that the Economic Survey acknowledges hydro generation is down: "The negative growth in hydro generation in 2014-15 (Apr Dec 2014-15 period has seen decrease in generation from hydropower projects by 3.64% compared to same period in 2013-14) is mainly due to poor monsoon." However, the hydro generation this year is less than that last year in spite of increased installed capacity, not only because of poor monsoon, but also for a number of other reasons including lack of proper maintenance, siltation, accidents optimistic assumptions and over development. If there is a credible analysis of what is going on in this sector over the last two decades, the reality would come to light. It is high time such a commission is set up.

Clean Energy Cess One interesting announcement related to environment in the speech was about coal cess: "The effective rate of Clean Energy Cess is being increased from Rs 100 per tonne to Rs 200 per tonne." The Economic Survey estimates estimates that the cess on coal of Rs 100 a tonne is equivalent to a carbon tax of $1 a tonne of CO2.[5]

Urbanisation threatens water flare ups The Economic Survey aptly warns: "India is at the threshold of an urban flare-up. The population of Indian cities will increase from 340 million in 2008 to 590 million by 2030… As population increases, demand for every key service will increase five to sevenfold. These trends, combined with the current challenges of poverty eradication, food and energy security, urban waste management, and water scarcity, will put further pressure on our limited resources…"

Another statement in Economic Survey is noteworthy: "A large fraction of subsidies allocated to water utilities are spent on subsidising private taps when 60 percent of poor households get their water from public taps."

But there is no solution to this dichotomy in the Survey, Budget or the government. The Government is pushing for more Big Dams and river linking projects for urban areas, rather than going for rain water harvesting, sewage treatment and recycle and demand side measurements.

Here let us see the status of key promise made in the last budget, the budget document shows that the promise is still at discussion stage.

Promise of Urban Renewal in Budget 2014-15 "While developing housing and other infrastructure, both physical and economic, which can have local variations, four fundamental activities must underpin such development. These are provision of safe drinking water and sewerage management, use of recycled water for growing organic fruits and vegetable, solid waste management and digital connectivity. It is the vision of this Government that at least five hundred (500) such habitations must be provided support, while harnessing private capital and expertise through PPPs, to renew their infrastructure and services in the next ten years." [Nodal Ministry/Department: Ministry of Urban Development]

STATUS: EFC Note is being finalized for obtaining comments of the concerned Ministries/Departments. **Work in progress**

Climate Action Plan: Missions being redesigned? The Economic Survey gave this news: "India is now… redesigning the National Water Mission and National Mission on Sustainable Agriculture." This is welcome provided the reformulation happens in transparent and consultative way, involving the gram sabhas.

The Survey gave another bit of interesting news: "NABARD has sanctioned a pilot project of Rs 21 crore on climate change adaptation in Maharashtra to develop knowledge, strategies, and approaches that will enable vulnerable communities to adapt to the impending impacts of climate change." The Maharashtra farmers indeed need such a project, the way they have faced the climate induced droughts, hailstorms and unseasonal rains, but there is no information what is the status of this pilot project. As we noted earlier, the State Action Plan on Climate Change being done by TERI is yet to be finalised.

Status of 2014-15 Budget promises exposes the government Among the Budget documents, there is an interesting document[6] that provides the status now of the promises made in the previous, that is 2014-15 Budget. Let us see the status of some key promises from our perspective, status of some others have already been given above. What we can see these is that in most cases, the Promise is yet to be realized.

1. PROMISE: "The Prime Minister has a vision of developing 'one hundred Smart Cities', as satellite towns

of larger cities and by modernizing the existing mid-sized cities. To provide the necessary focus to this critical activity, I have provided a sum of Rs 7,060 crore in the current fiscal." [Nodal Ministry/Department: Ministry of Urban Development]

STATUS: The Concept Note on Contours of Smart City Scheme after consultations with all the stakeholders was revised on 03.12.2014. The document was uploaded on the website (www.indiansmartcities.in) for inviting further comments before it is finalized. **Work in progress**

2. **Promise on Agriculture and Climate Change** "Climate change is a reality which all of us have to face together. Agriculture as an activity is most prone to the vagaries of climate change. To meet this challenge, I propose to establish a "National Adaptation Fund" for climate change. As an initial sum an amount of Rs 100 crore will be transferred to the Fund." [Nodal Ministry/ Department: Ministry of Environment & Forests & Climate Change, Department of Agricultural Research & Education]

STATUS: Draft EFC Memo for "National Adaption Fund" has been circulated. SFC proposal for NAF for Climate Risk in Agriculture amounting to ` 100 crore has been formulated and is in advanced stage of processing. **Work in progress**

3. **Conservation of Himalayas "**There is a great need to increase the capacity in the country for Himalayan Studies. I propose to set up a National Centre for Himalayan Studies in Uttarakhand with an initial outlay of Rs 100 crore." [Nodal Ministry/Department: Ministry of Environment, Forests & Climate Change]

STATUS: The SFC meeting is awaited. **Work in progress**

Welcome, Mr PM, but actions? Prime Minister Shri Narendra Modi said in Parliament on Feb 27, 2015, in reply to the President address to the Joint Session of Parliament: "एक तरफ हम किसान की बात बहुत करते हैं लेकिन किसान को मुसीबतों से बाहर निकालने के लिए हम कोई रास्ते खोजेंगे कि नहीं खोजेंगे? कई उपाय हैं। जैसे हम एक काम लेकर के निकले हैं Pre dropo-moe Crop। हमारे देश में पानी की कमी है, सारी दुनिया पानी की कमी से जूझने वाली है। क्या सरकारों की जिम्मेवारी नहीं है कि आने वाली 30–40 सालों में भविष्य को देखकर के कुछ बातों को करें, कि हम तात्कालिक लाभ के लिए ही करेंगे? हो सकता है राजनीतिक लाभ हो जाएगा लेकिन राष्ट्रनीति– उस तराजू में वो बात बैठेगी नहीं।" (English translation: "On the one hand we talk a lot in the name of farmers, but will we find some ways for solving farmers problem or not? There are many ways. For example, we have started work on Per Drop More Crop. There is water scarcity in our country; whole world is going to face water scarcity. Is it not responsibility of the governments we do things keeping in mind the 30-40 year future, or will we work only for immediate profits? May be you will get political benefit that way, but that cannot fit into the scheme of national policy.")

Prime Minister's statement, coming a day before the Budget is significant and welcome. But where is the action, in the budget that sees water use in longer term and farmer oriented perspective? In fact the Modi cabinet decided in the week of Budget, to continue with the subsidy at the rate of Rs 4 per kg for export of 1.4 million ton of raw sugar. That subsidy of whopping Rs 560 crores is actually subsidy for export of water from drought prone area (when the exported sugar comes from Maharashtra or Karnataka) or from Ganga basin (when it comes from Uttar Pradesh) or at the cost of groundwater mining (when it comes from Punjab and Haryana). Same is the case with paddy/ rice & wheat export from Punjab and Haryana. Even if this is argued as necessary in immediate prevailing situation, where is the long term plan to get out of this situation?

It is clear that the budget 2015-16 is not inspiring confidence that any action keeping the long term interests of farmers, water resources, rivers, Himalayas, Climate Victims or environment is on the horizon.

Himanshu Thakkar

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1 See for comment on 2014-15 budget: https://sandrp.wordpress.com/2014/07/10/rivers-and-water-in-union-budget-2014-15/ and https://sandrp.wordpress.com/2014/07/11/good-bad-and-ugly-our-green-take-on-the-union-budget-2014-15/

2 http://indiabudget.nic.in/ub2015-16/bs/bs.doc

3 Expenditure Finance Committee, only after this committee decides can the funds be allocated to any specific activity.

4 http://www.livemint.com/Politics/4nHSOvIAzn2dqvqHJSR19O/Budget-2015-Jaitley-cuts-allocation-to-environment-ministry.html

5 http://www.business-standard.com/article/opinion/sunita-narain-decoding-the-budget-s-carbon-tax-115030100803_1.html

6 http://indiabudget.nic.in/ub2015-16/impbud/impbud.pdf

HYDRO POWER

Three NHPC power stations shut in a blow to disinvestment plans NHPC is going downhill in many sense of the term, including its power generation, finances, it will register loss this year compared to profit of Rs 2772 crores in 2011-12. (Mint 080115)

Athirappilly project renews biodiversity debate The debate over the possible biodiversity impact of the Athirappilly hydroelectric project has resumed with the Environmental Appraisal Committee (EAC) of the Ministry of Environment all set to consider the project proposal mooted by the Kerala State Electricity Board (KSEB). (The Hindu 210115)

Hydel project in Arunachal, Tourism objects to Environment

Very sad to see Environment Minister's unapologetic stand about Demwe Lower which will have ecological, social, economic and cultural impacts. Especially on Parshuramkund region. (Indian Express 160115)

HIMACHAL : Transformer blast and fire at 120 MW Sanjay Bhaba HEP The freshly reconditioned transformer of the underground 120 MW Sanjay Hydro power project at Bhawa Nagar in Kinnaur was destroyed in a fire, forcing its shut down for indefinite period. Four operators located 250 m inside a tunnel, were taken to a nearby health centre after they complained of asphyxia. The fire broke out after a blast in the bush of the transformer around 3 am. The transformer contains 20,000 litre oil and the blast occurred due to "suspected snag", cause not known. (The Tribune, 230115)

UTTARAKHAND SC misled by MoEF on 6 hydro projects Contrary to MoEF submission of Dec 2014 on aggravated destruction caused by hydropower projects during 2013 deluge in Uttarakhand, Supreme Court directed the environment ministry to form a committee for looking into deficiencies, if any, in awarding licences to six hydropower projects in Uttarakhand. On 30 December, the ministry formed the four-member panel to look into the issue and submit a report within four weeks. The committee includeed Indian Institute of Technology (Kanpur) professor Vinod Tare, biodiversity expert V.B. Mathur of the Wildlife Institute of India, Brijesh Sikka, an expert from the environmental engineering field, and a hydrologist from the ministry of water resources. The MoEF filed an affidavit on the report in Feb 2015 that was misleading since MoEF neither submitted full report, nor it included the critical comments of the 4 member committee report. (Mint, 080115, others)

DAMS

Centre approves 3 waterways in Himachal Pradesh The Centre has approved three waterways in Himachal to be operated in the Chamera lake in Chamba district, the Pong lake in Kangra district and the Gobind Sagar lake in Bilaspur district. Minister for Transport, Food and Civil Supplies and Technical Education GS Bali said a project report for operating the waterways would be prepared by the Waterways Authorities of India. The idea was to operate big ships in the lakes that could carry cargo as well as passengers. The ships were likely to be purchased with the assistance from the Union Government, the minister said. All three lakes are dam based reservoirs with hydropower and irrigation components and with levels hugely fluctuating across the year, and a lot of fisherfolk depending on fisheries on each of the reservoirs. It is not clear how all these different activities will be possible along with navigation. (The Tribune, 130115)

INTER-LINKING OF RIVERS

Rajasthan to enact river inter-linking law Rajasthan Govt., is all set to enact 'Rajasthan River Basin and Water Resources Act-2014'. Under this act, work related to Inter-linking of rivers and formation of River Basin and Water Grid will be taken up. Also, the State will constitute empowered Rajasthan River Basin and Water Resources Planning Authority (RBWRPA). Water Resources Council (WRC) will also be formed with Chief Minister as its President and Chair Person of RBWRP as Vice-President. WRC will monitor the enactment of the law and formation of authority process. The bill draft has been uploaded on department's official website by Water Resource Department, Rajasthan but public comments were invited only for 15 days. SANDRP wrote to the WRD for extending the deadline and also providing more informed participation, but there is no response from the department. (Dainik Bhaskar, 150115)

MONSOON

Twin monsoon failure in India for the first time in a decade According to data from the India Meteorological Department, the country as a whole received an average rainfall of 85.2 mm during October 1 to December 31, 33 per cent below the "normal" long period average of 127.2 mm for this period. With any shortfall above 10 per cent at all-India level, the monsoon is termed as "deficient". This is the first time since 2004 that rainfall deficiency has been recorded in both south-west and north-east monsoon seasons. In 2009, the south-west monsoon had failed with an almost 23 per cent nationwide deficit. It was, nevertheless, partly compensated by a surplus north-east monsoon. This time round, even that has not happened. India's kharif harvest suffered a setback due to a deficient regular monsoon. It was hoped that this would be somewhat offset by a better rabi crop that is normally sown from November. But since even the north-east monsoon turned out to be poor, rabi crop plantings have also got affected, raising the possibility of India's farm sector posting negative growth for 2014-15 — the first time in five years.

Deviation from normal
All-India average area-weighted rainfall

Year	SW Monsoon	NE Monsoon
2010	**2.2**	**21.3**
2011	**1.4**	**-48.3**
2012	**-7.6**	**-20.9**
2013	**5.6**	**17.5**
2014	**-12.3**	**-33.0**

(Indian Express, 030115)

India-America monsoon forecast agreement The Indian and American governments have agreed for the need to scale up their cooperation in helping India accurately forecast monsoon rainfall, essential for the country's agriculture and economic growth. As per the joint statement, U.S.-India agreed to continue collaboration in hydrology, water studies and monsoon modelling. Indo-US Climate Fellowship launching plans are also underway to facilitate human capacity building. US has already assisted India in the development of 'Coupled Forecasting Version-2' to predict seasonal rainfall. The model is being used by Pune based Indian Institute of Tropical Meteorology for past 3-4 years. (Business Standard 260115)

AGRICULTURE

Badwani farmers Irrigate with traditional technique A group of 13 farmers have been successfully farming 125 acres of farmland in water scarce and drought prone region of Badwani, Madhya Pradesh. Centuries old traditional ***'Paat'*** irrigation system is the reason behind cultivation of Rabi crops as well fruits and vegetables in Kharif season of Aawali villagers, 26 km away from Badwani district head quarters. They also practice water rotation to irrigate their crops. Water from a distance of 5-6 km is directed into small channels through uneven hill surface to reach the Aawali village. Native people know the entire system as ***'Paat'***. The remotest ***'Paati'*** block gets its name from this very ***'Paat'*** irrigation method, in which, no fuel and machine operated pumps are used. Most of the famers in the area rely heavily on monsoon and find it very difficult to harvest a single crop due to water scarcity in hilly terrain. (*Jansatta* 120115)

High levels of chemicals killing soil's micro-nutrients, affecting human body About 75 % of the cultivable land in the country has been adversely affected by excessive use of chemical fertilisers and pesticides. Commissioner in the Union Ministry of Agriculture Dr JS Sandhu said 114 million ha of cultivable land out of total 142 million ha had high levels of toxins. (The Tribune 220115)

Punjab Paddy Cultivation, Worries Modi Govt The cropping pattern in Punjab, particularly the cultivation of water-intensive paddy, is under the Centre's scrutiny at the highest level. At a recent meeting of the Council on Climate Change, Prime Minister Narendra Modi in the presence of senior ministers raised concerns over paddy cultivation in Punjab. Agreeing with the PM, Uma Bharti, Union Minister for Water Resource said cultivation of paddy has caused damage to groundwater level in Punjab, leading to land degradation. She will also convene a meeting with Punjab and Rajasthan CMs to resolve water issues between the two states since Rajasthan has been complaining to Centre on high level of chemical pollution in Indira Gandhi Canal. (The Tribune 22 0115)

HC slams Agricultural Ministry over 'vague' pesticide report The Delhi High Court has slammed the Ministry of Agriculture and Cooperation for placing a "vague" report on its website regarding the extent of pesticides in fruits and vegetables. A bench of Chief Justice G Rohini and Justice Rajiv Sahai Endlaw directed the ministry to file a detailed report regarding the steps taken by it to regulate use of pesticides in vegetables and fruits. It also directed Delhi government to file an affidavit with regard to lapses pointed out in the report. (Times of India 080115)

INTER-STATE WATER DISPUTES Bhakra Benefit sharing dispute in SC The Supreme Court has suggested that Punjab and Haryana compensate Himachal Pradesh in the form of cash and additional supply of electricity for implementing its judgment delivered on September 27, 2011 on the share of each state in the power generated by Bhakra Beas Management Board projects. The apex court said the cash-electricity compensation could be in the ratio of 50-50. HP wanted the calculation of the cash component on the basis of Bokaro Thermal Power Station rates which Punjab was charging from HP at present. Other alternative rates suggested by the Centre were not acceptable to HP. On July 16, 2013, the Centre had told the SC that Punjab and Haryana would have to pay a compensation of Rs 1,497.39 crore to HP in the ratio of 58:42. HP had claimed a compensation of Rs 4,249 crore.

The Centre had calculated the compensation on SC's directive in the 2011 judgement in HP's original suit filed in 1996 seeking a higher share of electricity from these power projects. Subsequently, Punjab and Haryana told the SC that they did not owe Rs 1,497.39 crore to HP as calculated by the Centre. Rather, it was HP which owed them Rs 1,611.88 crore, representing its share in the construction cost of these projects, funds for which were raised by them through loans on interest, they said. Haryana also rejected Centre's alternative suggestion that instead of paying the amount in cash, Himachal could be compensated by additional allocation of power over the next 30 years**.**

On January 17, 2015, the Centre has informed the Supreme Court that it was unable to persuade Punjab, Haryana and Himachal Pradesh to arrive at an amicable solution to the dispute over their entitlements and liabilities in the Bhakra Beas Management Board power projects. The next date for detailed arguments is March 25 2015. Appearing for Punjab, senior advocate Rajeev Dhavan said his client was agreeable to sharing its dues to Himachal Pradesh in the form of cash and power supply in the ratio of 50-50 as suggested by the Bench. However, this could be done only after finalising each state's share in the construction cost, interest on loans, operation and maintenance of the hydel power projects. Haryana supported this contention. Dhavan said the SC had, in its September 27, 2011 judgement, not only fixed Himachal's share in the electricity – generated by the Bhakra Nangal project with retrospective effect from November 1, 1966 and Beas power stations from their date of commissioning –but also acknowledged the mountain state's liabilities arsing from the outgo under various heads which were being met only by Punjab and Haryana. (The Tribune 170115, 180115)

Punjab-Haryana battle over the SYL Canal The Haryana Government has decided to file a suit in the Supreme Court to declare the Punjab Termination of Agreements Act passed by the Punjab Assembly null and void. Besides, Haryana will seek early hearing of the Presidential Reference by the apex court. On August 13, 2003, Haryana filed an execution application following the apex court issued orders on June 4, 2004for completion of the remaining portion of SYL Canal in Punjab by the Government of India through its agencies. However, on July 12, 2004, the Punjab Assembly passed the Punjab Termination of Agreements Act, 2004, annulling all inter-state agreements signed by Punjab on sharing Ravi and Beas waters. The Government of India, on July 22, 2004, sought the SC's opinion on the validity of the Termination of Agreements Act through a Presidential Reference under Section 143 of the Constitution. (The Tribune 290115)

MP refuses Chambal Canal maintenance share to Rajasthan Madhya Pradesh has accused Rajasthan for not discharging 3900 cusec of waters as per agreement between them. The shortfall has handicapped Irrigation Department, MP, to ensure water supply at the tail-ends for Rabi crops. Fearing the farmers' wrath, MP Govt. has decided to stop payment of Rs. 6 Crore of its share for the maintenance of the canal. Such step has been taken for the first time and NC Kori SE, Irrigation Department, Yamuna Kachar has sent a detailed report to State Administration. (Dainik Bhaskar150115)

GROUNDWATER **CGWA puts Groundwater Extraction NOC Online** The Centre will launch an online system in January 2015 to issue no objection certificate (NOC) to industries, local bodies and domestic users for extraction of ground water. The online system will work on the basis of updated data on ground water level and prescribed recharge activities. The Central Water Commission in collaboration with National Remote Sensing Centre of ISRO has also launched a national project to create such a database comprising details of surface as well as ground water. (The Times of India 160115)

URBAN WATER **USTDA MoU to Develop Ajmer, Allahabad and Visakhapatnam as Smart Cities** India and US have signed a memorandum of understanding to develop smart cities in Ajmer, Allahabad and Visakhapatnam. The MoUs was signed between the respective state governments of Uttar Pradesh, Rajasthan and Andhra Pradesh and the United States Trade and Development Agency (USTDA). USTDA will contribute funding for necessary feasibility studies and pilots, study tours, workshops/ trainings and other projects. It will also fund advisory services to support the development of smart cities. (The Hindustan Times, 2660115)

Birds back at Hauz-e-Shamsi after ASI cleans up reservoir The Archaeological Survey of India-protected historical reservoir Hauz-e-Shamsi at the Qutub Complex in Mehrauli is seeing a pleasant arrival of Himalayan water bird common moorhen, popularly known as Jal Murgi, and local ducks are swimming in its waters these days. Distinctly, the arrival of these water birds has to do with Hauz-e-Shamsi's cleanliness since these birds flock only in clean water. The 35,000-sq m Hauz-e-Shamsi was built by Illtutmish in the year 1230. According to legend, he saw a vision of the Prophet Muhammad asking him build a reservoir in the area. (The Hindu 190115)

DPCC clueless about illegal water packaging units in Delhi The list of water packaging units across India with BIS licence in 2014 shows 64 such units in Delhi. However, responding to an RTI application filed by environmentalist Vikrant Tongad, DPCC (Delhi Pollution Control Committee) revealed that the Committee does not have the data on such units even as it goes on to claim in another response that it is the agency that acts against units operating without consent under the Air and the Water Act. Unsatisfied with the RTI reply, Vikrant approached the Lieutenant-Governor complaining about DPCC for not having any data on the matter. He also sought inquiry against various mineral water supplying agencies and packaged water units running without consent and extracting groundwater even as many areas in Delhi have been notified as over-exploited. (The Hindu 230115)

RIVERS

NGT directs MoEF over minerals mining on "ad-hoc basis" National Green Tribunal (NGT) has directed MoEF to come up with a "comprehensive" notification relating to "all minor mineral activity on the riverbed or otherwise, to avoid unnecessary confusion, ambiguities and practical difficulties in the implementation of the environmental laws". The NGT bench, headed by tribunal chairperson justice Swatanter Kumar, also said that, in the meanwhile, "no state shall permit sand mining or minor mineral extraction on riverbed" without the concerned person obtaining environmental clearance. The tribunal directed the secretary of the MoEF to hold a meeting with the governments of Rajasthan, Himachal Pradesh and Karnataka to bring complete uniformity in the process. (Mint 190115)

Two M'rashtra revenue staffs, critically injured by Sand Mafia During their surprise visit to check illegal sand mining, B N Khedkar circle officer and R B Sanap Tilathi of Revenue Department, Beed district were brutally beaten up by unidentified assailants. Both have sustained severe injuries and have been admitted to Beed civil hospital. Late in the evening, they had seized a truck carting sand from a river. Around 11 pm a group of unidentified persons equipped with iron rods and sticks approached the venue and attacked the officials. (The Times of India 120115)

NARMADA: Petition against illegal sand mining in Narmada Raju Yadav a resident of Jabalpur has filed a PIL in High Court of Madhaya Pradesh complaining violation of Hon'ble Supreme Court directions. Hearing the petition the bench of Chief Justice A. M. Khanwilkar and Justice C. V. Sirpurkar ordered District Collector and Superintend of Police to submit a report on action taken by them against illegal sand mining. As per the PIL, illegal sand mining by three Companies is playing havoc with Narmada eco-system. (Dainik Bhaskar, 070115)

GANGA: SC to monitor Ganga Cleaning Seeking details about govt. ambitious Ganga Cleaning plan, Supreme Court showed its interest in monitoring the progress. "If you take river water samples at Haridwar, you should be able to say we can reduce pollution within three months or so. You complete the first stretch and take up the next 100 km. If you start cleaning the entire 2,500 km river at same time, there will be no progress" the bench said. (The Economic Times 150115)

Clean Ganga Mission to Take up Dolphin Survey A comprehensive survey will be undertaken in February to assess the population of dolphins in the Ganga River as part of the Clean Ganga Mission. All the concerned states — Uttarakhand, Uttar Pradesh, Bihar, and West Bengal — have agreed to participate in the census exercise (Jharkhand, the other state through which the Ganga flows, does not have dolphins). The survey will be repeated in three years to throw a more reliable number. Dolphin conservation has not figured in earlier attempts to clean the river — the Ganga Action Plan phase-I and phase-II were more focused on sewage treatment — though it was being

run as a separate programme. The dolphin was also named the 'National Aquatic Animal' of India in 2009. In the Ganga, excessive siltation has reduced the depth. A number of barrages and hydropower projects have interrupted the flow of water. In addition, the destruction of floodplains has affected the population of small fish which form the main diet of dolphins. (The Indian Express 040115)

NGT issues notice to Centre on plea over loss of Ganga biodiversity At a time, when road transport minister Nitin Gadkari has announced plans to dredge Ganga to make it navigable for ships carrying cargo and passengers apart from creating waterfronts along the river, The National Green Tribunal (NGT) issued a notice to the Centre on a petition filed by environmental activists seeking compensation for loss of livelihood of fishermen and biodiversity because of excessive withdrawal of water from Ganga by Farraka Barrage project and loss of cultural value of the national river. Admitting the petition, the NGT has sought the response of several government bodies, including the Inland Waterway Authority of India, a Central body responsible to make Ganga navigable. The petitioners held construction of hydraulic structures on the Farraka Barrage in West Bengal responsible for decrease of Hilsa, prawns and other migratory species in Ganga. He also claimed that apart from abstraction of water by barrages at Kanpur, Narora and Bijnore in Uttar Pradesh and Pasulok and Bhimgoda barrages in Uttarakhand, dredgers and ships of the Inland Waterways Authority of India have caused disturbance to fish habitats. The petitioners have also sought compensation for the loss of biodiversity, salinity intrusion and land erosion in Sunderbans area. (The Hindustan Times 180115)

UP questions Ganga riverfront development Cornering NDA govt. on ' Namami Ganga' project, UP govt. has advised Centre to focus on real and root causes ailing River Ganga and not merely pursue riverfront development. A report prepared for the first time by none other than Irrigation Department, Uttar Pradesh reveals new facts and crosschecks, 'Namami Ganga'. The report unfolds its key finding for a Clean Ganga as trapping of all the drains into master drain, application of treated water for irrigation and treated sewage as manure in farming, creation of pollution index, preparation of separate plans for each of the tributaries and change in irrigation method for farming etc.

The report also says, 40,000 km long drains (not cleaned for past 50 years) are spewing highly toxic urban and industrial waste directly into1300 km stretch of River Ganga. As per the report, all major tributaries of Ganga have been severely polluted and show very high level of BOD. Varanasi Alone discharges 200 million litres of untreated sewage in Ganga causing higher presence of faecal coliform bacteria where PM himself is pushing river-front beautification programme. (The Times of India 040115)

"How many years you need more for Ganga cleaning " SC asks Centre Government Lashing out at Govt.'s failure to clean River Ganga, Supreme Court has questioned whether the government would be able to complete the task within this term or it needs other term to clean the holy river. The Bench headed by Justice T S Thakur observed that during last 30 years nothing substantial has happened to purify the river. Appearing for the Government, solicitor general Ranjit Kumar assured the Court that government is committed to clean the Ganga within its present tenure. He also informed the court that Government is working on 81 new Sewerage Treatment Plants of which 24 are operational and 31 are under construction. Disclosing government efforts, he further stated that Centre is targeting 118 towns located on river bank targeting to achieve total sanitation and creation of waste water treatment and solid waste management facilities. (The Times of India 150115)

YAMUNA : DPCC has no information on Wazirpur industries polluting River Yamuna The Delhi Pollution Control Committee (DPCC) in an RTI reply filed by Environmental Activist Vikrant Tongad, has said it does not have any information on the total number of industries in the Wazirpur Industrial Area, which is said to be discharging untreated waste into sewers joining the Yamuna. To another question on industries that need to install effluent treatment plants, but have not done so, the DPCC again did not have any information. It also did not have list of names of industries, which are flouting pollution control norms. On the questions regarding complaints received by the DPCC against pollution being caused by units in Wazirpur over the past two years, DPCC responded as having no compilation of such data available. (The Hindu, 030115)

MoEF asks UP to protect Yamuna Wetland Reacting to representation made by environmentalist Vikrant Tongad, The Ministry of Environment, Forest and Climate Change has written to the Uttar Pradesh government to take necessary action for conservation and management of Yamuna wetland in Greater Noida. A letter from the MoEF has been sent to the Principal Secretary, Department of Forests of the U.P. government. The Yamuna wetland is situated in Greater Noida and is home to rare birds and also Sarus Crane, the state bird of UP. The wetland comes under the notified area of Yamuna Expressway Industrial Development Authority. The master plan 2013 proposes development in this area and work is being carried out for a road that passes through the wetland. (The Hindu, 050115)

SOUTH ASIA

Embankments are sinking Bangladesh's islands Bangladesh's estuarine islands are sinking, and ironically, this could be due to embankments built to protect them from tidal erosion. Some islands have sunk by as much as 1.5 metres in the last 50 years, says a study published recently in the journal Nature Climate Change. The over 50 large islands in southwest Bangladesh, once forested but now primarily rice growing, were embanked in the 1960s and 1970s to protect them against tidal and storm-surge inundation. But these earthen embankments, while buffering them against floods, have also prevented the deposition of sediment that helps maintain an elevation in this area. Interestingly, while these islands in the Ganges–Brahmaputra river delta are fast submerging, putting millions of inhabitants at risk of flooding, the neighbouring Sundarbans mangroves are stable from their natural shield of vegetation, the paper adds. Researchers found that the mean elevation of Polder-32 is 1.15 metres lower than Sundarbans. However it is possible to recover some of the lost ground, say the authors adding that "controlled breaching of embankments" can restore elevation and relieve environmental problems. "The silver lining for Bangladesh and the delta system remains the one billion tons of river sediment that may be effectively dispersed onto the landscape to alleviate elevation deficits. (The Hindu 080115)

WORLD

Brazil in the middle of rainy season, experiencing worst drought in history Brazil is experiencing its worst drought since the 1930s as water supplies run dry in the three most heavily-populated states of the country. It is supposed to be the middle of the rainy season, but rains have failed to materialize in the dry south-east, where farms, industry and even energy supplies are being decimated by shortages. Brazil is under the threat of a severe energy crisis this year as a prolonged drought has depleted key reservoirs that supply water for hydroelectric power generation.

Endowed with the Amazon and other mighty rivers, an array of huge dams and one-eighth of the world's fresh water, Brazil is sometimes called the "Saudi Arabia of water," so rich in the coveted resource that some liken it to living above a sea of oil. But in Brazil's largest and wealthiest city, a more dystopian situation is unfolding: the taps are starting to run dry. As southeast Brazil grapples with its worst drought in nearly a century, a problem worsened by polluted rivers, deforestation and population growth, the largest reservoir system serving São Paulo is near depletion. Many residents are already enduring sporadic water cut-offs, some going days without it. Officials say that drastic rationing may be needed, with water service provided only two days a week. Behind closed doors, the views are grimmer. In a meeting recorded secretly and leaked to the local news media, Paulo Massato, a senior official at São Paulo's water utility, said that residents might have to be warned to flee because "there's not enough water, there won't be water to bathe, to clean" homes.

Marússia Whately, a water specialist at Instituto Socioambiental, a Brazilian environmental group said that because of environmental degradation and political cowardice, millions of people in São Paulo are now wondering when the water will run out. Experts say the origins of the crisis go beyond the recent drought to include an array of interconnected factors: the city's surging population growth in the 20th century; a chronically leaky system that spills vast amounts of water before it can reach homes; notorious pollution in the Tietê and Pinheiros rivers traversing the city (their aroma can induce nausea in passers-by); and the destruction of surrounding forests and wetlands that have historically soaked up rain and released it into reservoirs. Geraldo Alckmin, the Governor of São Paulo State, said this month: "When it rains, it rains too much, and when there's drought, it's way too dry." More than 30 per cent of the city's treated water is estimated to be lost to leaks and pilfering. Márcia Oliani, the finance manager of an art gallery who endured six days without water in her apartment said "I'd like to take them out and set fire to them. They completely failed to warn us and have just continued to lie about this throughout." (The Times of India 250115, The Hindu 180215)

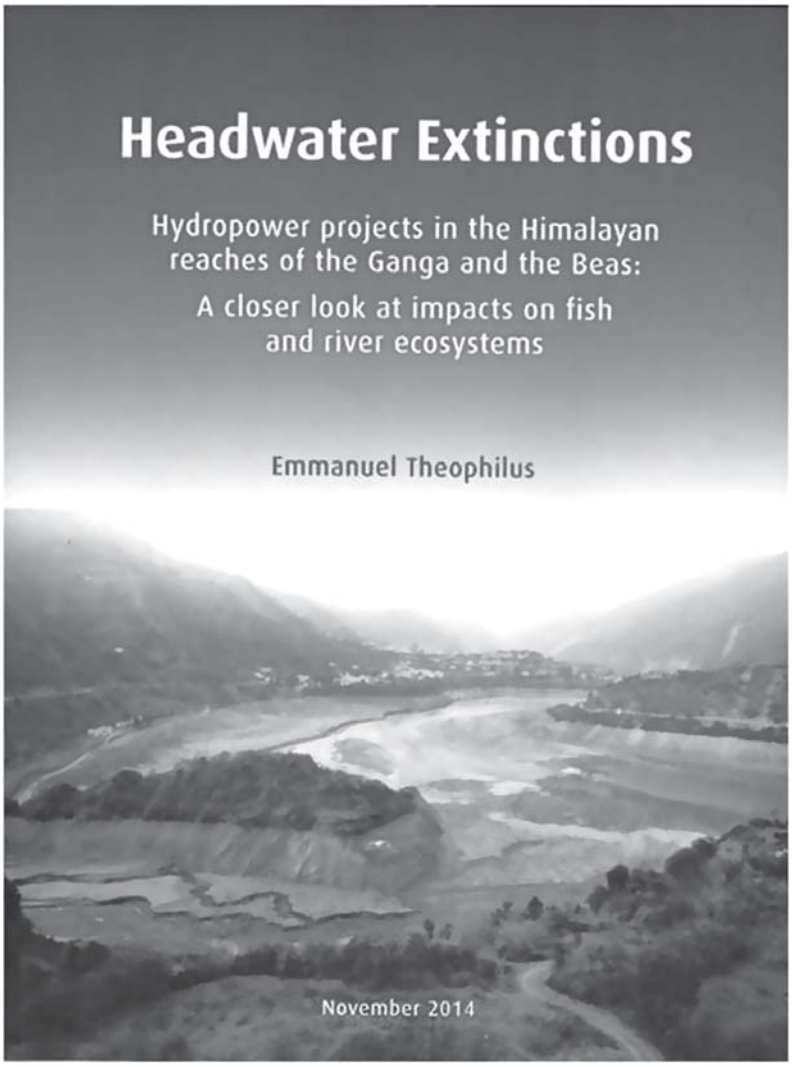
ENVIRONMENT

India could not use 5,591 million units of electricity due to lack of transmission network A note from Indian Energy Exchange (IEE) estimates that during last fiscal year 5,591 million units of electricity could not be cleared due to lack of adequate transmission network. These 5,591 million units make up 13% of the 42,428 million units power shortage in the previous year. (Mint 270115)

Tribal Affairs and Environment Ministry on logger head over FRA The environment ministry and tribal affairs ministry are locked in a fight over forest rights and two months into the confrontation, no side is showing any sign of giving in to the other. The bone of contention is environment minister Prakash Javadekar's bid to ease rules under the Forest Rights Act to enable faster clearance of projects — a move tribal affairs minister Jual Oram, who is a tribal from Odisha, is against. The MoEF is now planning to seek legal opinion on whether it can change the rules without the tribal ministry's consent. (The Hindustan Times 16 0115)

New Publication from SANDRP!

Headwater Extinctions – Impacts of hydropower projects on fish and river ecosystems in Upper Ganga and Beas basins



"I can't help see a few things here, as perhaps you do? Bluntly put, I see slush funds being dangled to a whole range of possible collaborators. The kindest term I can find for them is 'brokers'."

SANDRP has just published a new report: "Headwater Extinctions- Hydropower projects in the Himalayan reaches of the Ganga and the Beas: A closer look at impacts on fish and river ecosystems", authored by Emmanuel Theophilus, which was released at the India Rivers Week held during Nov 24-27, 2014. Headwater Extinctions deals with impacts of hydropower projects in Beas basin in Himachal Pradesh and Alaknanda-Bhagirathi basins in Uttarakhand on river ecosystem and its components, mainly fish. While the harrowing impacts of hydropower projects on local livelihoods and social systems are being realized gradually, we are yet unclear about the extent of impacts of these so-called green projects have on fish and aquatic biodiversity.

The author Emmanuel Theophilus is based in the Dhauliganga Valley and is an avid mountaineer, storyteller, ecologist and our ally. He has extensively travelled the two valleys, talked with locals and has analysed the EIAs and EMPS of the projects. We are very glad to publish the report as a first of the hopefully many steps to be taken to understand and address this important issue.

Dr Prakash Nautiyal, well known freshwater fish expert from HNB Garhwal University, Uttarakhand says about the report: "It is indeed excellent, many more pages can be written on the beautiful portrayal. I am flagging some concerns, in context of the whole issue." His reflections on the report has been published on SANDRP blog, see: https://sandrp.wordpress.com/.

Soft copy of the report is available at: http://sandrp.in/Headwater_extinctions221114.pdf. Please write to us if you need hard copies at ht.sandrp@gmail.com. Suggested contribution is 200 Rs.

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