

**Lead Piece**

**OUR ABSOLUTE DISRESPECT FOR RIVERS**

## The Central Role of Dams in Destroying our Rivers



There is no doubt that dams are the single biggest impediment in ensuring continuous freshwater flow in rivers. Most of India's

major, medium and minor rivers have been dammed several times, thus affecting the freshwater flows downstream from such dams, particularly in the non monsoon months. There is no legally mandatory norm in India that rivers must have freshwater flows and when a dam, diversion or hydropower project is taken up, they ensure that downstream rivers continues to have constant flow of freshwater.

**There is no doubt that dams are the single biggest impediment in ensuring continuous freshwater flow in rivers. Most of India's major, medium and minor rivers have been dammed several times, thus affecting the freshwater flows downstream from such dams, particularly in the non monsoon months. There is no legally mandatory norm in India that rivers must have freshwater flows and when a dam, diversion or hydropower project is taken up, they ensure that downstream rivers continues to have constant flow of freshwater.**

meters (BCM), 10 BCM and 20 BCM in the years 2010, 2025 and 2050, respectively. However, no basis is given for these figures, the report accepts, "Estimation of fresh

quantity of water needed for managing ecological standards for all water bodies including lakes and rivers on sustainable basis is not possible at present." Unfortunately, the Ministry of Water Resources of the government of India, which constituted this commission, took no further action to take up the issue of environmental flows for further studies and implementation.

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**Definition:** Environment Flows are defined as: "the flows required for the maintenance of the ecological integrity of the rivers and their associated ecosystems, and of the goods and services provided by them". The Govt of India working group report (June 2005, see below) only includes the low flows and flushing flows in its report in this regard. The working group adopted a methodology "wherein certain percentages of the annual flows are prescribed as minimum flows as well as flushing flows during the monsoon".

**1992** The Guidelines for sustainable water resources development and management from the Central Water Commission (CWC) of government of India in 1992 suggested that the minimum flow in the river should not be less than the average of 10 days minimum flow of the river in its natural state. Unfortunately, this did not have force of law and the CWC itself has not been adhering to these guidelines while giving techno economic clearance to irrigation and hydropower projects.

**Sept 1999:** In the report of the Govt of India's National Commission for Integrated Water Resources Development a provisional projection of the environmental needs has been given as 5 Billion cubic

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**May 29, 2001: WQAA created** The Govt of India constituted the Water Quality Assessment Authority (under the section 3 (1) (3) of the Environment Protection Act, 1986) with effect from May 29, 2001, through a notification published in the Gazette of India on June 22, 2001.

The authority was constituted "on the advice of Ministry of Water Resources". One of the terms of reference of this authority is, "To maintain minimum discharges for sustenance of aquatic life forms in riverine system." The authority was created for an initial period of three years. The 12 member committee had no non government members. The WQAA cell within the *Hydrology Project and Minor Irrigation Wing*, Ministry of Water Resources provides secretariat assistance to the authority. The WQAA has met at least five times (on 26.9.01, 14.5.03, 09.12.05, in July 2005 and the fifth meeting date not known), but it is not clear if it has taken any action about its TOR on ensuring minimum flows in the rivers, except setting up the working group, whose report WQAA has not accepted, see below.

It seems WQAA has completely failed in its mandate in this regard.

**May 2003** During the second meeting of the WQAA on May 14, 2003, the WQAA constituted a Working Group to advise the authority on the *minimum flows in the Rivers to conserve the ecosystem*<sup>1</sup>. The 9 member working group had just one non government member, namely Prof Brij Gopal of Jawaharlal Nehru University.

**2002: India's National Water Policy** The NWP states that, "minimum flow should be ensured in the perennial streams for maintaining ecology and social considerations". However, when we asked the Union Ministry of Water Resources (MWR) under RTI as to what the MWR has done to ensure continuous flow of freshwater in perennial rivers, the ministry essentially, by implication said they have done nothing. Their reply was, "Water Resources projects are planning, implemented and operated by the respective State governments." But most of the major water resources projects in states are funded through central grants. Through this and various

<sup>1</sup> TOR dated Sept 9, 2003, for constitution of the working group, signed by member secretary (WQAA & Commissioner (GW & MI), MWR).

other ways, centre could have played a role to ensure that the rivers continue to have freshwater flows.

**June 2005** The Report of the Working Group on Water Resources for the 11<sup>th</sup> Five Year plan, dated Dec '06 says (page 22), "In 2004-05, the Ministry of Environment

and Forests appointed a committee headed by Member (RM), CWC to develop guidelines for determining the EFR (Environment Flows in Rivers). The committee submitted its report in 2005." The report submitted by the *Working Group to advise*

*WQAA on the Minimum flows in the rivers* to the Water Quality Assessment Authority (WQAA) in June 2005 was made available to SANDRP in September 2007, following an RTI application. In a response dated August 14, 2007, RC Sharma, Director (WP & P Coordination Directorate, CWC), informed, "The report has not yet been approved by WQAA." The latest status of the report is not known.

It is interesting to note that while the TOR of the working group was to advise the WQAA on the *minimum flows* in the rivers, the report of the working group title used the term *environmental flows*.

This is typical of the mixing up of the terms by the government in this regard. Some of the main recommendations of the working group are:

❖ **Himalayan rivers**  
Minimum flow to be not

less than 2.5% of 75% dependable annual flow, all flows expressed in cubic meters per second. One flushing flow during monsoon with peak not less than 250% of 75% dependable Annual Flow.

- ❖ **Other Rivers** Minimum flow in any ten daily period to be not less than observed ten daily flow with 99% exceedence. Where ten daily flow data is not available this may be taken as 0.5% of 75% dependable Annual Flow. One flushing flow during monsoon with peak not less than 600% of 75% dependable annual Flow.

It is clear that these recommendations are in violation of the CWC guidelines of 1992 mentioned above. Unfortunately, the WQAA and the MEF did not take up even these recommendations for implementation, over 7 years after the WQAA was set up, over 3.5 years after the report of the working group was submitted.

Let us look at how the minimum flow has been treated in some of the recent projects in India.

**Allain Duhangang** In case of this World Bank funded 192 MW hydropower project on tributaries of Beas river near Manali in Kulu district in Himachal Pradesh, the project authorities have designed to release just 150 liters per second (lps) water downstream from the Duhangan barrage, and the river is to be diverted to another stream, never to return to the original stream. An agitation has been going on against such a diversion. As an official study by the Foundation for Ecological Security, for the project noted, "Mountain streams having beds that would need to be saturated and rendered hydric by larger and constant flows, and be highly permeable towards subsurface flows in places, would not take these 150 lps very far".

**Cauvery Tribunal decision 2007** In February 2007 the Cauvery Tribunal gave its final award, in which it has made provision of 10 BCft (Billion Cubic Feet) for environmental protection out of the annual availability of 740 BCft. Karnataka has to release 192 BCft from Billigundulu, out of which 182 BCft is for Tamil Nadu and 10 BCft for environmental protection. This legally stipulated environmental flow is a welcome move, but it is not clear how this figure has been arrived at or how it will be enforced.

**Narmada: Gujarat demanded water for river in 1970s** While arguing before the Narmada Water Disputes Tribunal, Gujarat demanded that it also needs for water for the river downstream from the proposed dam site, besides for other purposes. It argued that water for the river is required for sustaining navigation, for the water needs of people staying on the banks of the river, for arresting salinity ingress and for fisheries. NWDT in its award provided 9 million acre feet of water to Gujarat and said that Gujarat can provide water for the downstream river from its share. However, Gujarat government has allocated NO water for the downstream areas and has plans to use up all the water in the command area. These plans were also endorsed by the World Bank, when it signed agreements to fund the project.

However, recently, in the 45<sup>th</sup> meeting of the Environment Sub Group of the Narmada Control Authority, it was decided that "minimum flow of 600 cusecs (cubic feet per second) towards environmental requirement for downstream areas has the endorsement of Environment Sub Group". Gujarat agreed to this stipulation only on the condition that this water "would not be accounted towards the utilizable flow of Namada River or reckoned against the use of Govt of Gujarat or any other state." The Narmada Control Authority in its

80<sup>th</sup> meeting on Aug 12, 2008 agreed to this<sup>2</sup>. This is tantamount to changing the NWDA award as Madhya Pradesh protested at the meeting, but it is not known if MP will protest against this decision.

On the lack of study of the downstream environment, the first paragraph from the chapter on this issue from the report of the Independent Review of the instituted by the World Bank is worth quoting in full<sup>3</sup>:

"From the Sardar Sarovar dam to the ocean, the Namada River runs for 180 kilometers through a rich lowland region which represents about 10% of its catchment area. In the course of our environmental review we sought information that described the ecology of this lower reach of the river, the estuary, and near shore region in the Gulf of Cambay. We hoped to find a description of the aquatic ecosystem, including parameters indicating the quality and quantity of water

and its seasonal changes, biological species, processes, and resource linkages. We looked forward to finding a systematic treatment of flow regimes and geomorphology. We expected to find systematic documentation of resource use, from drinking water to fisheries. We thought there would be documents establishing the kinds of physical, biological and socioeconomic changes to be expected as the Sardar Sarovar Projects are brought on stream and more and more of the natural flow is stored, used or diverted out of the river. We looked for a set of ameliorative measures that would be implemented to mitigate impacts. We thought these measures would be scheduled to begin with phased development of the Sardar Sarovar Projects. We hoped they would also be related to the cumulative effects of other developments on the Narmada further upstream, in particular the Namada Sagar Projects, and to the expansion of industrial activity in the downstream river basin in Gujarat itself.

**In all our expectations we have been disappointed.**" (Emphasis Added.)

**Uri** This 480 MW hydropower project on Jhelum in Jammu and Kashmir was funded with aid from Sweden, one of the most progressive countries on environmental issues. One would have hoped that this project would have stringent and well studied norms on environmental flows, with credible mechanisms in place to ensure their implementation. Unfortunately, that did not happen. See Annexure for the details.

**Tirthan River: the only example of protected river in India?** Tirthan river, (a tributary of Larji river, which in turn is a tributary of the Beas river) in Himachal Pradesh,

<sup>2</sup> Minutes of the 80<sup>th</sup> meeting of the Narmada Control Authority, page 14-15

<sup>3</sup> Page 277, Sardar Sarovar: The Report of the Independent Review, Resource Futures International Inc, Canada, 1992

is possibly the only river of India has been, by a government decision, protected from development of Hydropower project. The decision was taken by the state govt to protect this river basin in Kullu-Mandi districts, on May 31, 2004, in the interest of brown trout fish<sup>4</sup>. However, in 2007, when the Himachal Pradesh government started awarding some small hydro power projects in Upper Seraj (Jibhi-Hirab) Valley, the southwest part of the Tirthan valley, the decision was challenged by some of the local people in the High Court and the case is still going on.

**State-wise perennial riverine length in India** One of the parameters of ensuring sustainable existence of rivers in India would be to ensure that those rivers that are perennial, remain perennial when a dam, diversion or hydropower project is built on the river. According to the latest report from the Central Pollution Control Board<sup>5</sup>, the perennial riverine lengths in different states in India are as given in the table below. Of course it would be important to ensure that the rivers carry freshwater flow and not polluted waters.

**Perennial Riverine lengths in India**

| State                                   | Km Perennial Riverine length |
|---|------------------------------|
| Jammu and Kashmir                       | 2290                         |
| Himachal Pradesh                        | 1094                         |
| Punjab                                  | 1071                         |
| Haryana                                 | 348                          |
| Uttar Pradesh (including Uttarakhand)   | 5618                         |
| Rajasthan                               | 841                          |
| Madhya Pradesh (including Chhattisgarh) | 6090                         |
| Bihar (including Jharkhand)             | 2525                         |
| West Bengal                             | 1163                         |
| Orissa                                  | 2250                         |
| Andhra Pradesh                          | 4017                         |
| Maharashtra                             | 4612                         |
| Gujarat                                 | 1155                         |
| Karnataka                               | 2868                         |
| Kerala                                  | 1407                         |
| Tamil Nadu                              | 2028                         |
| Assam                                   | 2042                         |
| Meghalaya                               | 556                          |
| Manipur                                 | 758                          |
| Arunachal Pradesh                       | 706                          |
| Sikkim                                  | 753                          |
| Nagaland                                | 502                          |
| Mizoram                                 | 234                          |
| Goa                                     | 65                           |
| Delhi                                   | 48                           |

**Recent studies** The International Water Management Institute has been doing several studies and estimations of environment flow requirements in India, including their papers of 2006 and 2007. However, some IWMI papers have also been saying that excessive groundwater use, rainwater harvesting and watershed development in the upstream catchments also have impacts on the downstream river flows and also availability of water at the downstream reservoirs. In fact some of the IWMI authors have been advocating restrictions on such upstream uses so that downstream reservoirs are filled. Such advocacies go against the rights of the people in the upstream areas and can have dangerous and unacceptable implications of giving priority to existing big reservoirs over decentralized and local water systems.

**Sweden Policy for free flowing rivers** Sweden has had a long history of agitations against large hydropower projects. That agitation, ultimately, led to the Swedish govt declaring in its Natural Resources Act of 1987 that explicitly prohibits construction of new hydropower dams on "those rivers that had been designated for protection in the Physical Plan for Sweden, including the last four large free flowing rivers: The Torne, Kalix, Pite and Vindel rivers. In fact, not only is construction of dams in new sites prohibited, but so is enlargement of existing dams that can cause negative environmental effects. For most of the streams and rivers that are out of bounds for hydro exploitations, this protection extends to both the mainstream and all the tributaries, writes Ann Danaiya Usher<sup>6</sup>.

**Decommissioning of dams for River Restoration** Many countries in the world, including US, Spain, France have decommissioned hundreds of dams over the years. In the United States alone, the WCD report said, a total of 467 dams were removed by the year 2000, of which at least 28 were large dams. Among the many reasons for taking up dam removal, restoration of the river was an important objective. In each case a study was done that established that it was economically more beneficial to remove the dam rather than let it continue to exist. This shows that if right value is given to the flowing rivers and the benefits it gives, many of the dams may not be taken up or in case even after the dams are built, rivers would continue to flow.

**State of India's Rivers** Indians are supposed to have great cultural, religious value for rivers. Rivers have prominent place in the scriptures, prayers and rituals of almost all religions, particularly in Hindu, Sikh, among others. People actually worship rivers, but think of nothing about throwing all kinds of filth into that worshipped body. They seem to imagine that the rivers have the power to purify all the filth that we can throw

<sup>4</sup> See <http://himachalpr.gov.in/cabinetdes1.htm> and <http://www.tribuneindia.com/2007/20070415/himachal.htm#4>, for example.

<sup>5</sup> "Status of Water Quality in India- 2007"- CPCB, July 2008

<sup>6</sup> *Dams as Aid: A political anatomy of Nordic development Thinking*, Routledge, 1997, p 29

into the river. That assumption is grossly wrong, of course.

The state of Indian rivers is one of the worst in the world, and is deteriorating further with every passing day.

Is that a Paradox?

In a sense it is. Because in the same country, the governments, most politicians, bureaucrats and construction engineers believe that water flowing in rivers to sea is a waste. So it is true that Indian state is as much responsible for the state of India's rivers and one can in fact identify many acts of commissions and omissions by the governments in India that has lead to this situation. However, the fact that we people allowed this state of affairs to happen, continue and reach today's situation, makes us equally responsible.

But first, what is the state of India's rivers?

The water quality management in India is performed under the provision of Water Pollution Act of 1974. The basic objective of this Act is to maintain and restore the wholesomeness of Rivers by prevention and control of pollution. However, the Act does not define the level of wholesomeness to be maintained or restored in rivers of the country. The Central Pollution Control Board (CPCB) had declared in 1985 that no river in plains area of India has water that can be used for drinking water directly. The report of the National Commission for Integrated Water Resources Development noted that almost 80% of the river stretches in India fall in class C or lower, signifying that the water can be used neither for drinking, nor for bathing. The situation there after has been only deteriorating with increase in population, urbanization, industrialization, damming of rivers and increased consumptive use of water. The climate change impacts is making things worse. The latest report from the CPCB, namely, *Status of Water Quality in India 2007*, published in July 2008 shows, even with the limited data and non serious analysis that it gives, that indeed, more stretches of the rivers falling in the same status.

In this regard, following paragraph from a study<sup>7</sup> on *Environmental Compliance and Enforcement in India: Rapid Assessment* by OECD in Dec 2006 provides useful overview: "India's rivers and streams suffer from high levels of pollution from waste generated primarily from, industrial processes and municipal activities. Untreated sewage and non-industrial wastes account for four times as much pollution as industrial effluents. While it is estimated that 75 percent of the wastewater generated is from municipal sources, industrial waste from large and medium-sized plants contributes to over 50 percent of the total pollution loads. In major cities, less than five percent of the total waste is collected and less than 25 percent of this treated."

More significantly, India has no policy that rivers must have freshwater. Read that sentence twice, it is quite important. Thus, when a dam, a hydropower project or any other diversion structure is built on a river, the project need not allow any water for the river, for the social or ecological uses in the downstream stretches. The only state in India that has a clear policy on this is in Himachal Pradesh. In Sept 2005, the HP govt came out with a notification that said that all (existing, under construction and planned) hydro projects should release at least 15% of the minimum observed flow in the river, at all times. This was far from adequate, since to preserve the rivers for its social and environmental flows, much larger flows are required, but this was certainly a step in the right direction. That notification was challenged in the Himachal Pradesh High Court by a Govt of India body, the NHPC limited and by the Punjab State Electricity Board. PSEB is from the downstream state, which won't suffer if no downstream flows are released. The challenge in the High Court in fact said, among other things, that no law of India requires that rivers should have freshwater flows.

And guess who supported the challenge in the High Court?

Govt of India's Ministry of Environment and Forests (MEF).

India's federal ministry that is supposed to be guardian of environment, including rivers, one supposes. It is supposed to have policy for preservation of rivers, since rivers are also one of the largest repositories of biodiversity. But MEF has no policy for the rivers to have freshwater flow at all times. But when one of the states comes out with a policy for river flows, that ministry supports the challenge to that step!!

However, lately, while giving clearances for run of the river hydropower projects, the MEF has started stipulating that certain minimum flow must be allowed in the rivers at all times. However, the stipulated flows are ad hoc and inconsistent, and at the most 10% of the observed minimum flow in the river on which the project is proposed. This is completely unacceptable. Even more importantly, there is no credible mechanism to ensure that indeed the stipulated flows are released at all times. For example, in case of the NHPC's recently commissioned 510 MW Teesta V hydropower project on Teesta River in Sikkim, the stipulation was that the project will ensure release of 1 cubic meter per second at all times. When we asked MEF through an application under the RTI (the Right to Information Act) as to who is ensuring this flow, the answer was amusing: "A regular monitoring is being done by the project itself". In fact the regional office of the MEF visited the project just once a year, that too with full prior information to the project authorities! So the agency that stipulates the norm for freshwater flow has neither the capacity, nor the will, it

<sup>7</sup> <http://www.oecd.org/dataoecd/39/27/37838061.pdf>

seems, to ensure that its stipulations are implemented. What is then the use of such stipulations?

Even more recently, while giving clearance for a projects involving pumping water from the Chambal River for providing drinking water to 926 villages and 4 towns of Karauli and Sawai Madhopur districts in Rajasthan, the Supreme Court stipulated that flow of minimum of 4.78 cusecs (cubic feet per second) of water will be maintained at all times, downstream from the pumping point. This was the minimum observed flow in the river in the last twenty years. So now the river will possibly have no more than that amount (*if* that norm is adhered to, this time there is a monitoring committee involving forest department) for most of the non monsoon months, in most of the years. The once in 20 years minimum observed flow would be the norm now. And what impact this will have on the river, the downstream biodiversity and so on is not even assessed; it is assumed, without any study, that this once in 20 years flow should be sufficient for all those *purposed* downstream!!

That takes us to the basic question. Why have freshwater flows in river? Is water flowing in the river waste, as the pro big dam proponents have us believe? This brief note does not have space to elaborate on usefulness of

freshwater flowing in rivers. Briefly, it is helpful for social, including cultural and religious needs, fisheries, groundwater recharge, biodiversity, pollution dilution, stopping salinity ingress, navigation and so on. In fact the first criterion for a healthy river is to have freshwater flowing in the rivers at all times.

Fortunately, in recent years, there is increasing awareness and agitations to ensure that we indeed have some healthy rivers. Such agitations can be seen for Bhagirathi, Ganga, Yamuna, Damodar, Chalakudy, Alaknanda, Narmada, Brahmaputra, Arwari, among other rivers. While there have been some successes in some of these campaigns, unfortunately, these campaigns have not yet yielded effective policy wide results.

**If one interacts with the official agencies, if we read the official reports and communications, including the working group reported cited above, they all see flows in the rivers only as a COST, and they do not seem to see the benefits of freshwater in the river at all. The biggest hindrance to freshwater flow in the river is this mindset and this mindset will have to be changed if the rivers are going to have any hope of freshwater flow in them.**

**That takes us to the basic question. Why have freshwater flows in river? Is water flowing in the river waste, as the pro big dam proponents have us believe? Briefly, it is helpful for social, including cultural and religious needs, fisheries, groundwater recharge, biodiversity, pollution dilution, stopping salinity ingress, navigation and so on.**

One of the main reasons for this is the total apathy of the governments on this issue. Governments in India still consider freshwater flowing in the river as a resource to be completely exhausted. It took a letter from UPA Chairperson Mrs Sonia Gandhi, no less, recently to make the Union Ministry of Water Resources to initiate a study of the impacts of hydro projects on the Ganga River. The government's pollution control architecture is a den for corruption, where there is no role for the local people, transparency or accountability. Under the circumstances, all its current initiatives, including the proposed National Ganga River Water Authority are going to remain ineffective and suspect since they do

not touch the core problems.

**Mindset that sees flows in rivers as only costs, no benefits** If one interacts with the official agencies, if we read the official reports and communications, including the working group reported cited above, they all see flows in the rivers only as a COST, and they do not

seem to see the benefits of freshwater in the river at all. Secondly, they keep throwing the increasing demand, needs for cities, agriculture, power generation, industries etc, giving an impression that if we want freshwater in rivers, none of this is possible, in fact no development is possible. Thirdly, due to this mindset, the cost of stopping freshwater flow in the rivers

does not even enter the cost benefit or environment impact assessments at any stage of planning or decision making process. The biggest hindrance to freshwater flow in the river is this mindset and this mindset will have to be changed if the rivers are going to have any hope of freshwater flow in them.

**WCD on how EFR can help** The report of the World Commission on Dams has noted that Environment flow releases (EFR) can help minimize the impact of large dams on the river downstream from the dams<sup>8</sup>:

"At least twenty nine countries seek to minimize ecosystem impacts from large dams by using the EFR to

<sup>8</sup> *Dams and Development: A New Framework for Decision-Making*, The Report of the World Commission Dams, Nov 2000, p 81

meet predetermined ecosystem maintenance objectives. The practice of EFRs began as a commitment to ensuring a 'minimum flow' in the river (often arbitrarily fixed at 10% of the mean annual runoff). It has since grown to include a definition of ecosystem requirements and a planned flow release programme, which may vary annually or seasonally, to meet downstream needs for both the environment and people. The level of EFR required is determined by the need to maintain particular ecosystem components downstream, often with reference to national legislation. The countries that use this method have recognized that a short term reduction in financial returns from a project often leads to improved long term sustainability and attainment of broader societal objectives for a healthier environment. Still, this represents a re-distribution of the benefits of a dam project and thus existing beneficiaries such as irrigators and operators of hydropower facilities may resist EFRs."

So the increasing number of campaigns is good news. Bad news is that it is going to take a lot of efforts before we see change.

**The increasing number of campaigns to save India's rivers is good news. Bad news is that it is going to take a lot of efforts before we see change in the state of India's rivers.**

aquatic impact assessment study. IFR recommended releases of 5 – 10 m<sup>3</sup>/s in its report dated September 1995." (emphasis added.)

- Page 3-7: "It appears that the energy production estimates have not been revised to take account of the flow in the fish pass and compensation releases."
- Page 2-17: "Detrimental impacts on the aquatic ecosystem were foreseen but were not ascribed any value."
- Page 2-17 "It appears that the Department of Fisheries of J&K was not involved." And "It is noted that no minimum flow was stipulated." And "Thus in terms of compensation flow for the Jhelum bypassed channel, from the toe of Uri barrage to the tailwater discharge portal, engineering provision is made for a maximum release of about 6 m<sup>3</sup>/s through the fish pass and lure water conduit. Any additional release would require opening a spillway gate. **In this 2005 review, no daily records of fish pass and lure water flows have been seen.**" (Emphasis added.)

[www.sandrp.in](http://www.sandrp.in) (This is a background paper prepared for the workshop on Environmental flows being held in Bangalore on Jan 3-4, 2009 by RRC, Svaraj and SANDRP)

#### Annexure

#### **URI Hydro Project on Jhelum River in Kashmir NO Downstream flows:**

The project mandated 6 cumecs of flow downstream from the diversion, mainly through the fish pass but there is no basis for such a figure. Moreover this minimum flow has not been ensured.

The following quotes from the review<sup>9</sup> (by Swedish International Development Cooperation Agency, since SIDA provided large proportion of the funds for the project) in 2005 of the project performance are revealing:

- Page 3-50: "At a general level, some maintain that the minimum flow release into the 11 km long bypassed channel should not be less than the minimum recorded flow (36 m<sup>3</sup>/s in 1956). It was reported before construction took place that constant release of this flow rate would make the project unviable (Sida, 1989)."

- Page 3-41: "Responsibility for determining compensation flow rates at Uri barrage for the 11 km bypassed channel – **usually the principal issue in any barrage or dam project environmental management plan** – was divided. Reading of POE and Monitoring Team reports indicates that **neither NHPC nor the POE<sup>10</sup> would accept releases of minimum flows recommended** by the Institute of Freshwater Research which had been commissioned by Sida to carry out an

If Jhelum received minimum flow of 36 cumecs in recorded past, than minimum downstream flow of that quantity in addition to the required for irrigation, drinking water, groundwater recharge for the downstream stretch should have been maintained. That was not done. Even the recommended 6 cumecs flow through fish pass has not been maintained.

This is deplorable state of affairs and shows that NHPC and SIDA failed to ensure this minimum monitoring of the water flow in the 11 km stretch of Jhelum River dried up due to the URI project. This also reflects very poorly on NHPC and SIDA.

Additional recommendation in the SIDA report on evaluation of URI HEP after the consultation<sup>11</sup>:

**"Recording fish pass and compensation flows and making such records available:** When supporting projects which abstract water and thereby reduce downstream river flows, special attention should be given in project design and during operation to making engineering and instrumentation provision for measuring all discharges which comprise compensation flows. Also, encouragement should be given to the owner to maintain these records and make them available to the public so that all interested stakeholders, may have continuous quantitative records of the component flows which make up the total downstream water releases made by the project. Where there is no legal framework to support this, encouragement should be given to the appropriate government ministry to enact legislation which would require the owner to carry out such measurements make the records made public."

<sup>9</sup> "Uri Hydro-Electric Project, India: Evaluation of the Swedish Support", Draft Final Report, Nov 2005

<sup>10</sup> POE: Panel of Experts

<sup>11</sup> Evaluator's Responses to Questions from SANDRP of December 2005, sent to SANDRP by SIDA.

## The Plachimada Struggle

**Water Insecurity, Institutions & Livelihood Dynamics, A Study in Plachimada, Kerala, India, by K.N. Nair, Antonyto Paul & Vineetha Menon Centre for Development Studies, Daanish Books, Delhi, 2008, pp. xvi+132, Rs 300**

The book under review analyses the important problem of water pollution and overexploitation from several angles. Further, the authors have also used their own survey in the area for focusing indiscriminate exploitation of groundwater and pollution caused by the Hindustan Coca-Cola Beverages Private Limited (HCBPL) bottling plant located in Plachimada, where water scarcity due to this activity made it vulnerable for sustainability of water resources to the tribal community in Kerala. The authors have analysed the characteristics and conditions of groundwater position in the vicinity of the study area and found that indiscriminate exploitation of groundwater affected considerably both drinking water and irrigation supplies.

Employment opportunities in rural areas depend on the availability of water and how well this resource is managed for agricultural needs. The tribal population along with local farmers, NGOs and political parties have been fighting for the closure of the firm for polluting the local water sources and overexploitation of groundwater leading to its gradual depletion. However, the workers of the HCBPL are supporting the Cola firm. The more pathetic aspect is while the Courts and Commissions are involved in settling the dispute, the agitators celebrated the 5<sup>th</sup> anniversary of the agitation on 22<sup>nd</sup> April 2007.

The story of HCBPL indicates that no company should be allowed to run business by using groundwater, especially in South Indian States where water scarcity has been increasing year by year. Hence a company can be set up only where copious river / other surface water source is available. The photographs given in the book clearly demonstrate the intensity of water scarcity and drinking water problem encountered by the people of Plachimada.

The authors have explained how the groundwater has been affected by the industry. They have given details based on water-level data collected between April 2002 and July 2003 by the Kerala Ground Water Department (KGWD): "The data reveals that of the 19 wells, three wells dried up and in 11 wells water level came down (with a maximum depletion of 3.37 m)". Another study, in six wells fitted with no pumps, reveals that water level came down with pumping by the HCBPL. After stoppage of pumping, the water level in those wells had risen significantly. While analysing the effect of water scarcity the authors have indicated that in a half km vicinity of HCBPL since the year 2000 not only the quality of water in terms of salinity, hardness, and colour but also the quantity has been affected considerably. 94 % of the households (HHs) have experienced water shortage in

the form of drying up of wells (30 %) and reduced supply (64 %) in Plachimada. As a result, most of the HHs are compelled to collect water supplied in tanker lorries by the govt.

Another problem of HCBPL's operation was letting polluted water into surrounding sources. This has resulted in change of taste of drinking water in the wells. A research study found that this problem prevails only around the HCBPL area, where continuously sprayed and partially processed wastewater on the lawn and garden within the factory is polluting the water table. Another study concluded that increasing concentration of minerals is due to decreasing quantity of groundwater in Plachimada. Based on the reports from various committees, boards the Kerala State Pollution Control Board (KSPCB) finally issued an order on 19<sup>th</sup> August 2005 for the closure of the company on the ground of environmental pollution. However, HCBPL went to the Court to safeguard its production of Coca Cola.

The field survey carried out by the authors indicates that more than two thirds of HHs at Plachimada depends on agriculture for their livelihood. Taking all population together, about 11 % of labour HHs engaged in contract labour at the HCBPL. This seems that a major portion of HHs fighting against the company's activities but a minor portion working within the industry.

Based on the monthly per capita consumer expenditure data the authors have found that agricultural and non-agricultural labourers get only 10 days employment in a month. Further the livelihood activities indicate that 18 % of the HHs in the study area was poor and they depend upon agriculture. This section mostly belongs to the STs. The significant result of the study outcome was that the SCs are well off compared to STs and even OBCs in the livelihood status. As a result, the poor tribal has been spearheading the collective action for water security.

In Indian context, the authors have argued that groundwater is a private property of the landowners – the HCBPL, which holds a major land area has used its right over land to extract more water for its use. Since ownership and distribution of land in Plachimada are skewed, the HHs requires access to groundwater for domestic use. However, they experienced scarcity in availability due to overdrawal by the HCBPL. Apart from that, other factors that have contributed for water insecurity are classified in four categories by the authors. Most important factors among those categories are: rainfall, temperature, soil type, topography, investment in developing water resources, hydrological characteristics

and the access, allocation and management of water resources. Further reasons attributed for water scarcity in Plachimada are: shortage in rainfall; deforestation in the reserved forests; the process of global warming at macro level and reduced supply from surface irrigation sources such as from the Parambikulam Aliyar Project (PAP). Hence the authors have rightly remarked that "the recharge and extraction of groundwater is a product of the interaction of these factors; therefore, the water insecurity in an area has to be seen in a system perspective".

In the context of institutional failures in tank water management, the authors have described the processes of institutional failures in Kerala in a historical perspective. They have argued that land reforms turned out to be the main reason for this cause. Next is the development of canal irrigation, especially the commissioning of the PAP irrigation in the study region, which helped to recharge the groundwater. Consequently wells were developed for irrigation. This has led to negligence of maintenance of tank infrastructures in the study area.

While analysing the variations in the severity of water insecurity the authors have indicated that the worst affected were agricultural labour and farming HHs. To reduce the severity the State and Panchayat were making interventions for coping and mitigation measures. The only mitigation strategy followed by the agricultural labour HHs was through the Coca-Cola Virudha Samara Samithi (CVSS) strategy to fight against the depletion and pollution of water caused by the HCBPL. These HHs assert that the HCBPL is the main cause for their water insecurity.

The State level initiatives are: providing supply of drinking water in tanker lorries; drought relief assistance to farmers; temporary ban on HCBPL's water extraction and inter-governmental talks between Kerala and Tamil Nadu on PAP. At the Perumatti Panchayat level the strategy adopted was to cancel the license of the HCBPL. Following this a long chain of litigation and counter litigation started and that has been continuing. Apart from this the Panchayat is implementing two programmes towards mitigating water insecurity: one, by implementing Nellimedu drinking water scheme and two, the World bank aided Jananidhi safe drinking water programme.

In the livelihood dynamics of Plachimada, the authors have given a list of over half-a-dozen interest groups that were involved to fight against the HCBPL. 'Close down the HCBPL' was the primary demand of the CVSS agitation. While pointing the strength in collective action three factors were indicated such as scarcity in water availability; dominating presence of women in agitation and the failure to secure job in the company for the local tribal. Other important factors for successful collective action as the authors have pointed out are: institutional

assurance; cost factor; size and homogeneity of group involved and leadership. Under the heading 'Nesting of CVSS with other Organisations' the authors have vividly given interesting results of how various agencies, including local Panchayat and Government departments, got involved in the Plachimada agitation and jointly as well as individually focused the particular problem of water scarcity and water pollution due to the presence of HCBPL in Plachimada.

This book is useful for young researchers to understand how a social problem such as water scarcity and pollution, could be researched to produce beneficial effect to the society by way of explaining how most industries polluting water after indiscriminate exploitation of the same in their surroundings.

**K.Sivasubramaniyan, Assistant Professor, MIDS, Chennai**

**More critical review** There is another, a lot more critical review of this book. This is by CR Bijoy, the review titled "The Plachimada Struggle" has been published in the Economic and Political Weekly of Nov 15, 2008. A few extracts of that review are illustrative: "This book emerged out of research funded by the Swiss National Science Foundation (SNSF) and Swiss Development Cooperation through the National Centre of Competence in Research (NCCR), North-South and Development Study Group, and the Institute of Geography, University of Zurich."

"The intricate web of power and social relations that governs access to and control over water is obscured... The changing institutional mechanisms governing the management, distribution and use of water with the changes in property rights over land and water, and the now predominant technocratic vision of water resource development in determining water insecurity and livelihood vulnerabilities, are not adequately outlined or critically examined, though they find anecdotal mention."

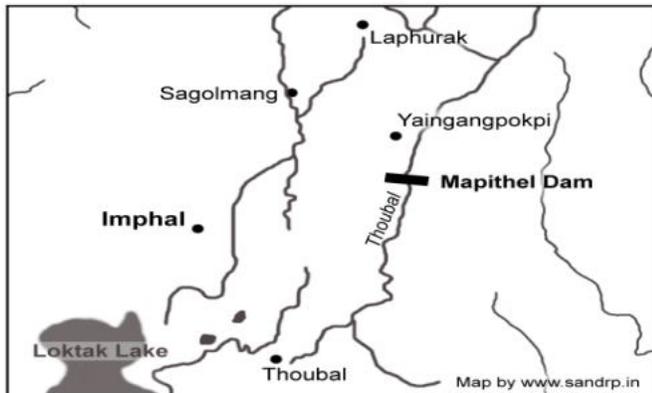
"Statements such as "thus in the new institutional environment, local panchayats are empowered to enjoy ultimate authority on local governance" are factually wrong in conception, law and practice. The water governance system that has come to be established through various laws creating a variety of institutions has not been critically examined. That the significance of the litigation in the high court (and now in the Supreme Court) is on the jurisdiction of powers related to licensing of a factory manufacturing non-alcoholic beverages on the ground of excessive exploitation of groundwater and not on the alleged crimes of HCBPL, has been missed out."

"But it has not followed through with the required rigour and sustained interest, despite the availability of vast writings and analyses on these matters. The result is a meandering work that fails to point out in concrete terms the problematique and the direction towards resolution."

**DAMS**

**Agitation on Hirakud diversion** Paschim Orissa Krushak Sangathan Samanwaya Samiti have threatened to hold 'Chetabani Sandesh' on January 13, 2009 near the 'Chasi Rekha' at Jamadarpali in Sambalpur over the diversion of water from Hirakud dam to different industries. Samiti demanded cancellation of all the MoUs signed with industrial houses after 2004 because there is no extra water to be shared and it will hamper flow into the tail end of Hirakud Command Area. Samiti said despite several protests, the State govt had given permission to Vedanta Aluminum Limited to draw water from Hirakud by constructing intake well at Pitapali area. Samiti alleged that authorities of Bhusan Steel and Power Limited are keeping silence over lifting of soil from the road leading towards its intake well inside the Hirakud despite the Chief Minister's direction. Farmers had constructed a 'Chasi Rekha' in November 2007 along the route of the pipeline being laid by Vedanta to draw water from the left dyke of Hirakud near Jamadarpali in Sambalpur. They had threatened agitation if Vedanta went ahead with its laying of pipe beyond the 'Chasi Rekha'. Earlier thousands of farmers gathered at Sindurpank to observe the first anniversary of the civil disobedience movement at Hirakud dam where they were lathicharged by police. (Express News Service 071 108, 251 108)

**Protest on Mapithel Dam** Villagers from the adjoining



areas of Mapithel Dam, Manipur, have raised their voice against the dam construction. The dam is a part of the Thoubal Multipurpose project. The project is located at village Maphou, which is 38 Kms from Imphal city on Thoubal River. The Mapithel Dam Affected Ching-Tam Organization convened a meeting on Nov 18, '08 and passed a 12 points draft resolution. It includes opposition to the construction of the dam till it is not reviewed, demand for equal and reasonable compensations to the affected villages, creation of a special economic package for the downstream areas, payment of reasonable land compensation to the families affected by the construction of approach roads to the dam site as well as demilitarization to the dam site for allowing free movement of people. A mass demonstration was observed along Dingku Road on Nov 8. It was jointly organised by 19 different social organisations including

the associations of the dam-affected villages, student bodies and human rights defenders. The proposed 66 m high and 1074 m long Mapithel dam was approved in 1980 by the Planning Commission and it was conceived to be completed in 1987. But actual construction starts in 1990s. An official estimate of submergence area at the dam site is 1215 hectares. According to affected people the project will submerge around 11 tribal villages in the upstream while another 14 villages in the downstream would be deprived of the water of Thoubal river. On November 3, at least 43 demonstrators were injured as police fired tear gas and lathicharged a rally organised by the Mapithel Dam Affected Ching Tam Organisation, near the dam site at Tumukhong village under Lamlai police station. Several thousand womenfolk from 17 villages had taken part in that protest rally. On October 24 down stream villagers from 12 villages demonstrated and sought to be enlisted as project affected people. (Hueiyen News Service 181108, www.thesangaiexpress.com 091 108, 251008, www.ifp.co.in 041108, http://www.indigenouportal.com 081208)

**Agitation in Khuga dam** The Khuga Dam Contractors



Forum has launched agitation against the Irrigation department and warned of more trouble if the govt failed to comply with their demands. Earlier they destroyed two culverts along the right side canal. The Forum said that they had to take such steps as the govt had sidelined their demands for payment of their pending bills. On Oct 24, '08, Khuga Power House had caught fire, but the forum had not taken its responsibility. Khuga Multipurpose project on Khuga River near Churachandpur, Manipur was originally conceived in 1980s. The actual construction started much later. Hydro Power, drinking water and water for irrigation are the three main components of the project. (Imphal Free Press 061 108, 081 108, The Sangai Express 251008)

**Tata dam affected still awaiting dues** The heirs of lands for the Tata dam in Maval and Mulshi talukas in Pune, acquired under the Land Acquisition Act of 1894, are still awaiting their dues even after 100 years. People affected by various dams in Maharashtra were in Dharna, demanding that rehabilitation should also be included under the public purpose and thus there should be no problem in using the acquired land for rehabilitation. People were also demanding time bound action. Similarly, Raghunath Dongre had 21 acres (in his

father's name) near the Mumbai Pune highway. 13 acres of this was acquired for the infamous Pavna dam at paltry compensation of Rs 25 000, but all 21 acres remain submerged, without any compensation or rehabilitation. (NAPM PR, The Hindu 15x08, 21x08)

**Temples submerged by Bhakra to be relocated** The Union Tourism and Culture Ministry has written to the Chief Minister of Himachal Pradesh that 12 of the 28 temples submerged behind the Bhakra dam 45 years ago when the project was completed in 1963 would be treated as monuments of national importance. The Union Minister has asked Archaeological Survey of India to take up the translocation work; some of the temples were built in the eighth century. (The Tribune 051208)

## WATER SECTOR

**Water issue plays crucial role in Rajasthan elections** From the results of the Rajasthan assembly elections, it seems water issue has played a crucial role. In Tonk district, where people were killed in police firing two years while demanding water from Bisalpur Dam, the BJP, which was ruling the state then, could not win even a single seat out of four. In Ganganagar and Hanumangarh districts, where too farmers were killed in police firing while demanding just share in water allocation during BJP rule in 2004, BJP could win only two of the eleven seats. In case of one of the two seats where BJP won, the winning candidate was a rebel Congress candidate who joined BJP just 10 days before the nominations. (The Tribune 111208)

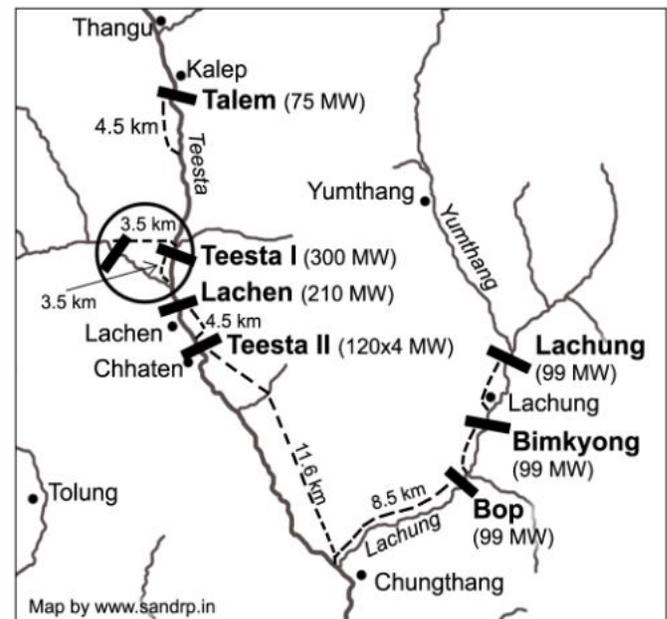
## WATER OPTIONS

**Check dams change face of a Vidarbha village** Two check dams built over the existing percolation tank in the Dhangarwadi village in Yavatmal district in Vidarbha region in Maharashtra in 2006 has changed the face of the village. People are now able to take two crops in 70 ha of land. The two check dams have been built at a cost of Rs 3.5 lakh by Dilasa Sanstha, an NGO working in this region with average annual rainfall of 900-1000 mm. People that were not sure of even a single crop in this village are now sure of two crops in a year, with yields going up by upto 200%. (Indian Express 161108)

**Lake renovated in Barmer** The 700 year old Molap lake in Tirisingari Soda village in Barmer district has been renovated with funds from the UNDP and the Italian Development Council. The lake, 80 km from Jodhpur is helping the people of this village with 225 households and also some 20 neighboring villages. The village has formed a Jal Sabha (Water Assembly) and Jal Kosh (Water Fund) for maintaining the lake. The work of the village impressed Sweden's Crown Princess Victoria during her visit there recently. At Godawas, another village in the district, the school has a roof top rain harvesting structures and the students have formed Jal Dal (Water Group) and Gullak (Piggy bank). (The Hindu 25x08)

## HYDROPOWER PROJECTS

### MoEF cancels seven HEPs in North Sikkim



In view of the observation of Carrying Capacity Study of Teesta Basin as ecologically sensitive North Sikkim, Ministry of Environment and Forests have decided that projects above Chungthang area should not be considered for construction of dams and large scale developmental activities.

The Carrying Capacity study has been done by Centre for Inter-Disciplinary Studies of the Mountain and Hill Environment, University of Delhi which was commissioned by MoEF. MoEF has informed the state govt to scrap five projects- Teesta I (300 MW), Teesta II (480 MW), Bhimkyong (99 MW), Bop (99 MW) and Lachung (99 MW) HEPs, with a total installed capacity of 1077 MW, falling under this area. In reply ministry has not received any response from the state till date.

Besides these five projects, Lachen (210 MW, with NHPC) and Talem (75 MW) HEPs are also proposed upstream of Chungthang. Accordingly these two projects should also be scrapped which has not mentioned by MoEF.

In the meanwhile, a number of organizations (including Kalpavriksh, ACT, SANDRP) have written to the Expert Appraisal Committee of the Ministry of Environment and forest on the River Valley projects that the application for the scoping of the EIA for the Teesta IV hydropower project should be rejected at this stage itself, since if the Teesta IV project comes up, it will destroy the last remaining stretch of the Teesta river in Sikkim. More over that project would be in violation of the decision of the MEF, not to allow any dam with height above 80 m (from the deepest foundation level) on the Teesta River, even downstream from Chungthang. (Information received under RTI on 051208)

**CCEA approves Pare HEP****German Aid to the project raises many questions: Violations of basic norms**

The Cabinet Committee on Economic Affairs has given approval for the 110 MW Pare HEP on the Dikrong River, downstream of the powerhouse of the first stage of the Ranganadi HEP, in the Papumpare District of Arunachal Pradesh by NEEPCO at an approved estimated cost of Rs 573.99 crore including Interest during Construction and Financing Charges of Rs 68.06 crore at June '07 Price Level, with Equity from Union Govt as Rs 172.2 crore and Debt of Rs 401.79 crore. The Germany's Official Development Assistance Agency has granted a soft loan of over Rs 580 for the project. This project is part of the Pare - Panyor Development Scheme. A 78 m (48 m from river bed level) high concrete gravity dam near village Jampa with 2.81 km long, 7.5 m diameter head race tunnel will be constructed.

**Serious questions are bound to arise as to how the German govt has decided to support this project, their first ever support for a large hydro in the North East India. The project has already seen serious violations of the rights of the people during the public consultations, when they did not even get the documents of environmental impact assessment and the environment management plans.**

Agreement for the Pare HEP was signed on 21.09.2006 between NEEPCO and Govt. of Arunachal Pradesh.

Power Purchase Agreement was signed on 24.11.2006 with the beneficiaries of the North Eastern States. Techno Economic Clearance was accorded by CEA on 24.09.2007.

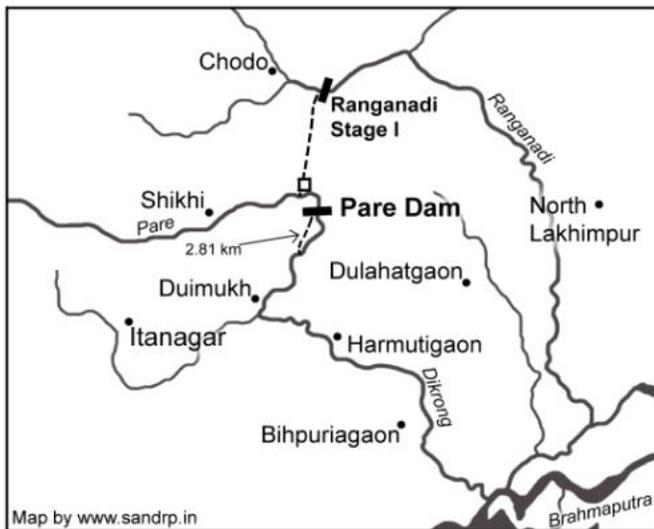
The Prime Minister of India laid the foundation stone of the project on the 31<sup>st</sup> January 2008.

On Dec 15, 2008, the Union Minister of state for Power

informed the Rajya Sabha that, "However, NEEPCO has approached Indian Institute of Technology, Guwahati on 20.11.2008 for undertaking a comprehensive study on hydro-meteorological aspects of Dikrong-Panyor Basin covering the entire catchment for three seasons (viz. pre-monsoon, monsoon & post-monsoon) and its impact in the downstream which will also cover the additional impact on flood if any, due to implementation of the existing Ranganadi Hydro Electric Project, Stage-I, the ongoing Pare Hydro Electric Project and the proposed Ranganadi Stage-II Hydro Electric Project in the Dikrong-Panyor Basin."

This study should also include the carrying capacity aspects and cumulative impact aspects of these projects.

**German aid in violation of its policies** Serious questions are bound to arise as to how the German govt has decided to support this project, their first ever support for a large hydro in the North East India. The project has already seen serious violations of the rights of the people during the public consultations, when they did not even get the documents of environmental impact assessment and the environment management plans. This means the project is yet to have a proper consultation with the local people, without which the construction has been started. The German govt is supposed to ensure that the project it supports follow the guidelines of the World Commission on Dams, before it decides to fund any large hydro project. Moreover, a carrying capacity study, an options assessment study, a cumulative impact assessment study, and a study on the impact of the project on climate change and how the project would perform in the climate change context should have been done, none of which has been done. All this has clearly not happened in case of this project. This is in complete violation of the German policies. (PIB 061108, 111208, 151208, <http://www.neepco.gov.in/> 111208)

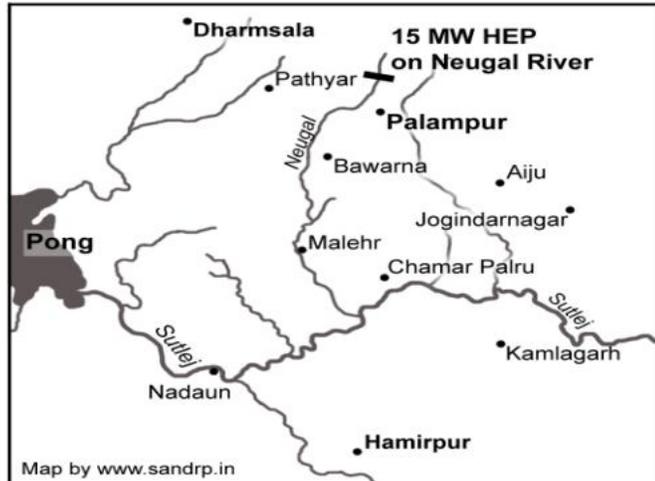


The project is envisaged to generate annually 506.42 MU, but this looks like an exaggeration considering the performance of the existing upstream project. It is proposed with 1st year & levelised Tariff of Rs 2.38 and Rs 2.01 per unit respectively, but these are bound to go up substantially considering the cost escalations and reduction in power generation. The Project is scheduled to be commissioned in 44 months. Total 198.48 ha of land will be required of which 35.17 ha is forest and 277 families will be affected due to the project. The power from the project would be utilized within the North Eastern Region, using the existing transmission system of Ranganadi HEP. Environmental Clearance has been obtained from MOEF on 13.09.2006. Memorandum of

**HYDROPOWER PROJECTS – HIMACHAL PRADESH**

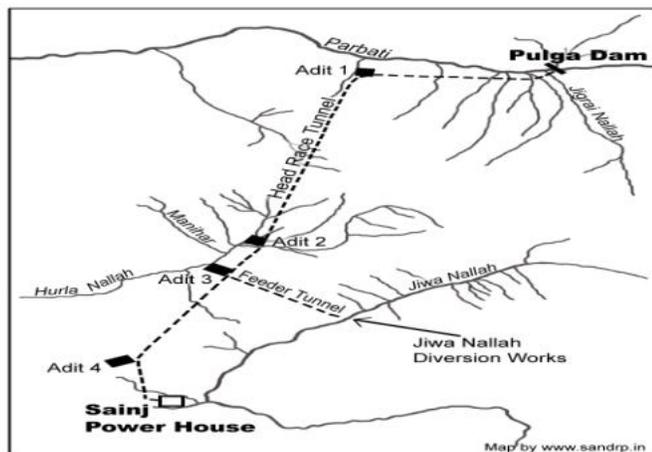
**Om Power Corp penalised**

Om Power Corp, executing a 15 MW HEP on the Neugal



River near Palampur town in Kangra district, Himachal Pradesh has been fined Rs 64 lakh due to violation of environment norms. It was charged that the company has excavated hills haphazardly, damaged trees and dumped debris in the local irrigation channels and the Neugal River resulting in serious water crisis in the entire region. This action has been initiated following complaints to the state forest minister J P Nanda during his visit to Palampur town in the end of October '08. Thereafter minister constituted a high level team of forest officials. Forest Minister said that the govt will not allow the company to resume work till it takes corrective measures. A forest department official said most hydropower projects are violating environment laws. "But the government is adopting a pick-and-choose policy to take action. It reacts only when there is a protest by local communities," the official said. (THE TRIBUNE 031108, THE TIMES OF INDIA 211108)

**PIL cancelled on Parbati II** The court has vacated the



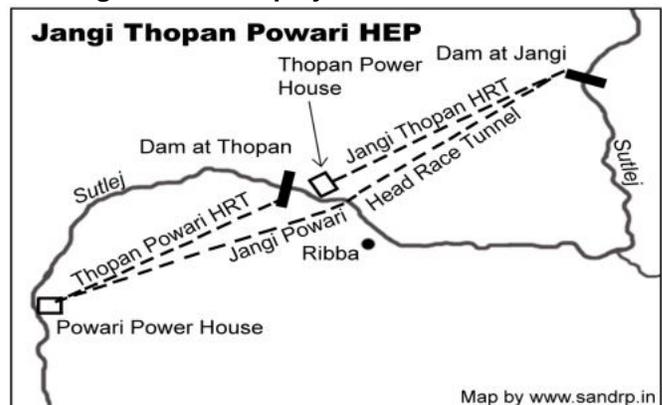
stay on 800 MW Parbati stage II HEP in Kullu district of Himachal Pradesh. A Kullu Based organization has filed a PIL in the High Court and court had stopped work from

August 2007 to April 2008. The PIL was against the using of sand aggregates from the dam construction site. (THE TRIBUNE 251108)

**NHPC penalized for violations in Chamera III**

The NHPC has been penalised around Rs 5 crore for the widespread damage caused to environment by its 231 MW Chamera III project coming up on Ravi River in Chamba district, Himachal Pradesh. The company has until December 10 to pay up, failing which the work will be stopped. As usual the firm has denied the charges and said it would contest the claims. Forest department officials visited dumping sites after receiving reports of damage to the environment and found that debris was being dumped in an unscientific manner, which in turn was flowing into Ravi. At many sites, the retaining walls had collapsed. According to Divisional Forest Officer, Chamba D.P. Kaushal about 60% of the sites has been overused and haphazard dumping has caused widespread damage to the environment. Two weeks ago, the forest department's Chamba division fined the firm Rs 1.7 crore. It has given the firm a month to pay up. A week later, another fine of Rs 2.59 crore was slapped on the firm. The officials said debris was harming aquatic life and it could lead to silt depositing at dams built over Ravi. If the firm would fail to follow norms, the matter would be taken up with the Centre, Kaushal said. The forest division of Bharmour has also fined the firm Rs 60 lakh for haphazardly dumping waste along the main road connecting Chamba to Bharmour. Around 1.5 lakh cubic meters of waste had been dumped along the roads mentioned by the DFO of Bharmour. (THE HINDUSTAN TIMES 111108)

**Brakel gets back the projects** The Himachal cabinet



has accepted the recommendation of a high-powered committee to restore the 960MW Jangi Thopan Powari HEP to Brakel Corporation NV. The project is on River Sutlej in Kinnaur district and would cost nearly Rs 5,000 crore. The two projects form a cascade with Jangi Thopan being the upper scheme and Thopan Powari being immediately downstream of Jangi Thopan. 65 m high (above river bed level) concrete gravity dam will divert the waters of Sutlej through a Head Race Tunnel of 15 km length. The project was first allotted to Brakel in

Dec 2006. Notably, Reliance Energy had filed a petition in the High Court seeking cancellation of the allotment, which it alleged had been obtained by misrepresentation of facts. The committee has observed that cancellation of the project allotment at this stage would not be legally sustainable. Chief Minister has said, "The government has taken a decision against the cancellation in the larger interest of the state and also as per the advice of the chief secretary's committee." The Reliance Corp has filed a fresh (third) petition in the High Court against this decision. (THE INDIAN EXPRESS 261108, [http://brakelcorp.com/project\\_overview.htm](http://brakelcorp.com/project_overview.htm) 031208)

**Cheap hydropower for power intensive units?** The Himachal Pradesh govt has given approval to two mega steel plants based on arc and induction furnace based techniques in Simour district. These power intensive units are to be provided power at subsidized rates of Rs 2.5 per unit, when the average cost of power in the state is Rs 3.68 per unit. The state electricity regulatory commission had issued a notice to the state electricity board in this regard and the HPERC is not happy with the response from HPSEB. HPERC has made it clear that due to the subsidized power to these units, the domestic consumers in the state will have to bear the extra burden of Rs 50 crore, since these units are likely to consume 370 to 400 million units in a year with load of 88 MW. What this implies is that the so called cheap power from hydropower projects is being frittered away in this state on such unjustified industries. (The Tribune 31x08)

**HP MOU with SJVN for Luhri, Dhaulasidh** The Himachal Pradesh govt has signed the MOUs with the Sutlej Jal Vidhyut Nigam Limited for the 775 MW Luhri hydropower project on Sutlej river and for the Detailed Project report for the proposed 40 MW Dhaulasidh project near Sanotu village, 23 from Nadaun in Hamirpur district in Beas basin. The project is likely to cost Rs 230 crore. For the Rs 5700 crore Luhri HEP (Rs 7.35 crore per MW) to be taken up between Nirath and Chaba villages in Shimla district downstream from the under construction Rampur HEP, a joint venture company would be set up in which HP govt would have 49% equity and SJVN would have 51% equity. (The Tribune, Financial Express 28x08)

## HYDROPOWER PROJECTS – JAMMU & KASHMIR

**Baglihar: How an HEP should not be** The Prime Minister formally commissioned the Baglihar hydropower project on Oct 10, 2008. However, this project is an example of how an HEP should not be. The project cleared by the Central Electricity Authority in March 1991 and by the state govt in April 1999 was expected to be commissioned by 2004. The first unit was commissioned on Sept 19, '08, the second unit on Oct 26 and the third unit is likely to be commissioned in Dec 2008. The original sanctioned cost was Rs 3495 crore, which itself was high. The latest cost estimates say the cost would be over Rs 5200 crore. The project has seen huge flood

damages, geological problems, in addition to disputes with the contractors Jaiprakash Associates. The need to change some features of the projects following opposition by Pakistan and judgment of the independent arbiter was the most famous part of the project's execution. The latest problem is the issue raised by Pakistan that India violated the Indus Treaty of 1960 during filling of the reservoir, when water flow according to them dropped from stipulated 55000 cusecs (cubic feet per second) to 22000 cusecs. According to reports from Jammu and Kashmir media, the project is not generating electricity at promised rates and in any case, is not helping meet the local needs. (The Hindu 11x08, CEA monitoring report dated Oct 31 2008)

## POWER OPTIONS

**States reluctant for Renewable Purchase Obligation** Minister of State for New and Renewable Energy, Vilas Muttemwar informed in the Rajya Sabha that between June 2004 and February 2008 12 State Electricity Regulatory Commissions have fixed annual Renewable Purchase Obligation ranging from 2-10%. The first SERC to fix RPO was Madhya Pradesh (10%), followed by Orissa (450 million units), Tamil Nadu (10%), Andhra Pradesh (5%), Uttar Pradesh (7.5%), W Bengal (3.8%), Kerala (5%), Gujarat (2%), Maharashtra (3%, annual increase of 1%), Rajasthan (7.5%), Haryana (3-10%) and Karnataka (minimum 10%). Indian Wind turbine Manufacturers Association has said that there is no national level policy for wind, no guidelines for determination of tariff for power from wind as in case of thermal and hydro, only half the states have an RPO and no state, except Maharashtra, has proper implementation or monitoring mechanism. There is also no accounting of renewable in case of transmission and distribution planning. IWTMA has asked for the generation-based incentives to the players. MNRE has initiated a GBI scheme just for 49 MW at 50p a unit. (THE FINANCIAL EXPRESS 131008)

**Global agency for renewables** A new agency to be launched on 26 Jan '09 in Germany, aims to promote the renewable energy worldwide. The International Renewable Energy Agency, which was initially driven by Denmark, Germany & Spain, will be the first worldwide agency solely dedicated to promoting RE. IRENA will provide consultancy to govts of developed & developing countries and support projects in biomass, hydro, wind, solar, geothermal energy & biofuels. (SciDev 161208)

## SOLAR POWER

**Big response to incentive scheme** The government of India scheme for generation incentives for solar power had a cap of 50 MW to begin with. However, the companies have already lined up capacities of 3000 MW to be set up at an investment of Rs 48000 crore, hoping that the govt would extend the incentives to them all. The Ministry of New and Renewable energy has written to the Prime Minister to expand the coverage of the scheme. (The Economic Times 16x08)

**POWER SECTOR****Nuclear power plans would also create huge water problems**

In thermal power stations the water is turned into high pressure steam by a boiler or nuclear reactor to turn the turbines of the power stations that drive the generators.

The amount of water used in a power station and its consumption depends on the cooling technology. Some power stations use large quantities of water, but most of this water is returned to the source and can be used again. All power stations do consume some of the water they use. This is generally water that is lost as evaporation.

There are two types of cooling systems:

⇒ Closed cycle: the steam is cooled in towers or ponds and the water that is not lost to evaporation, it is recycled through the plant again.

⇒ Once-through: the steam is cooled by more water that is pumped from an outside source in pipes through a condenser.

Of the two systems, the closed cycle uses about 2-3% of the water volumes used by the once-through system. However, the two systems consume about the same amount.

#### Cooling Water Withdrawal and Consumption Rates for Common Thermal Power Plants and different Cooling System Types

| Cooling System       | Plant Type             | Water Withdrawal (litres/MWh) | Water Consumption (litres/MWh) |
|----------------------|------------------------|-------------------------------|--------------------------------|
| once-through cooling | Fossil/ biomass/ waste | 75708-189270                  | ~1136                          |
|                      | Nuclear                | 94635-227124                  | ~1514                          |
| pond cooling         | Fossil/ biomass/ waste | 1136-2271                     | 1136-1817                      |
|                      | Nuclear                | 1893-4164                     | 1514-2725                      |
| cooling towers       | Fossil/ biomass/ waste | 1893-2271                     | ~1817                          |
|                      | Nuclear                | 3028-4164                     | ~2725                          |

Source: *Water & Sustainability (Volume 3): U.S. Water Consumption for Power Production—The Next Half Century*, EPRI, Palo Alto, CA: 2002 viewed on 26/11/08)

Nuclear power plants need more cooling water than fossil-fired power stations. This is because the steam in nuclear power stations is designed to operate at lower temperatures and pressures, which means they are less efficient at using the heat from the reactor and thus require more water. A study on water and sustainability for power production in the US by the Electric Power Research Institute compared the water needs and

consumption rates of existing power stations by type of fuel and cooling technology.

**Hence, with water resources availability already under pressure with domestic, industrial and irrigation demands growing rapidly it is highly recommended to undertake a comprehensive water availability audit before going in for the inland nuclear plants**

The EPRI analysis showed that existing nuclear power stations used and consumed significantly more water per megawatt hour than electricity generation by fossil fuels. Nuclear 'once-through' systems use about 20-25% more water and

nuclear 'closed systems' can use up to 83% more water. Furthermore actual water consumption rates are higher. The data shows that for once-through systems nuclear consumes about 33% and closed systems 50% more than fossil fuel power stations. Assuming that a power station ran 24 hours a day and based on the lower end of the estimates in above mentioned table, annual usage of water (million liters) and its consumption per MW would be as follows.

|               |                        | Withdrawal ML/MW | Consumption ML/MW |
|---------------|------------------------|------------------|-------------------|
| Once Through  | Fossil/ biomass/ waste | 663              | 10                |
|               | Nuclear                | 829              | 13                |
| Pond Cooling  | Fossil/ biomass/ waste | 10               | 10                |
|               | Nuclear                | 17               | 13                |
| Tower Cooling | Fossil/ biomass/ waste | 17               | 16                |
|               | Nuclear                | 27               | 24                |

The existing nuclear power stations use and consume more per MW water than power stations using other fuel sources. Depending on the cooling technology utilised, the water requirements for a nuclear power station can vary 20-83% more than for other power stations.

In Case of Nuclear power plant with 1000 MW capacity proposed in Haryana near Kumaria, District Sirsa, the water requirements are to be met by a 310 cusecs channel from Bhakra through the Bhakra Main Line Canal. Emergency standby arrangements have to be made through the Rajasthan Feeder. This would ensure the availability of 280 million liters of water per MW annually to satisfy the need of the plant requirements.

Hence, with water resources availability already under pressure with domestic, industrial and irrigation demands growing rapidly it is highly recommended to undertake a comprehensive water availability audit before going in for the inland nuclear plants. Thus a review of India's nuclear power plans is required in view of a number of serious problems such a plan would create. (<http://www.aph.gov.au/library/pubs/rn/2006-07/07rn12.pdf> 25/11/08, THE TRIBUNE 2/11/08)

### Thermal Power Projects face serious water problems

The newly appointed minister for the energy in Maharashtra, Sunil Deshmukh, has criticized and opposed four coal base power projects with total installed capacity of 4570 MW in Amravati district (his home district). He claimed that the allocation of land and water to these projects will further increase imbalance in Vidarbha. Water availability and irrigation potential will be reduced if the water is made available to these projects. Sophia Power Company Project promoted by IndiaBulls (2400 MW), TSR's Power Project (1320 MW), Eldeco's captive power project (50MW) and Wardha Power Company power project of 800 MW are the projects which are under criticism. The govt has allotted 1300 acres of land and 3.075 BCft (billion cubic feet) water from the Upper Wardha Irrigation project to Indiabulls. For TSR's project 850 acres of land and 1.075 BCft of water has been allocated. The minister stressed that the district has the highest irrigation backlog in the state. He asked, "How can we allow the water meant for irrigation to be consumed by these power projects?"

Imported coal, gas and nuclear based power projects in the coastal Raigad, Ratnagiri and Sindhudurg districts are also being opposed on the grounds that these projects will pollute the environment and might have impact on the horticulture and fisheries of the region.

Similarly the Talaiya Ultra Mega Power project near Talaiya village in Hazaribagh district of Jharkhand has been identified as a pit head coal fired power project of 4000 MW. Water to the plant will be taken from Talaiya Reservoir on Barakar River. Talaiya reservoir has no extra water for the project so Rs 350-500 crore had been recommended in the name of strengthening to raise the height of the dam. 20 villages will be submerged again. Problem regarding transport corridor of the project has also to be resolved as it will pass through forest land.

It dear the thermal power projects are also going to create a lot of water problems, besides the issue of displacement and environmental impacts. (THE FINANCIAL EXPRESS 181208, THE MINT 171208)

**Incentives in agriculture to conserve energy** The Uttar Haryana Bijli Vitran Nigam plans to introduce a scheme for farmers under which an independent distribution transformer of the appropriate capacity/rating will be provided to the tubewell consumers who make an energy efficient water pumping installation. The step has been taken by the Nigam to conserve energy in agriculture sector and to ensure reliable power supply to tubewell consumers. The Nigam had started the process by appointing energy auditors to conduct an investment grade energy efficiency analysis of all the tubewell installations. Each tubewell installation would be analysed for energy efficiency. The recommendations of the energy auditors shall be provided to the farmer. Any

farmer who opts for making the necessary changes to his pumping installation to make it more energy efficient shall be encouraged by the Nigam by providing him a dedicated transformer. (THE FINANCIAL EXPRESS 101108)

**National Fund to curb T&D losses** A panel headed by planning commission member BK Chaturvedi, is set to submit a report by the end of Dec 2008 on the modalities for the National Electricity Fund's operations. The Fund is aimed at reducing the transmission and distribution losses in the country. It is expected to have a corpus of Rs 90 000 crore. (Financial Express 111208)

### WATER POLLUTION

**PPCB forced to act on Budha Nullah** Under pressure from the Punjab and Haryana High Court; the Punjab Pollution Control Board has ordered the closure of 35 dyeing units guilty of discharging untreated toxic effluents into the Budha Nullah. Earlier Board has not acted but the present directive has forced them to do so. Board's action is to be monitored closely for the desired effect because the HC's previous order of closure of 26 units had been scuttled by the state govt on the plea that a committee had been formed to look into the whole issue. In this case the court is only expediting the implementation of the P Ram Committee's report on the pollution of the Budha Nullah. (THE TRIBUNE 291108)

**HP industries pollute Swan** The Swan rivulet that flows into the Sutlej River near village Agampur village (Nangal, Punjab) has been polluted into a black stream since six days by a distillery at Mehatpur and the tanneries in the upstream Tahliwal industrial area, both in Una district in Himachal Pradesh. Around 45 buffaloes had died in nearby Rajewal village three months back. (The Tribune 15x08)

### IRRIGATION

**Andhra Pradesh's Jalayagnam** AP govt claims that following additional irrigation would be achieved under the controversial Jalayagnam project.

| Region     | Total cultivable land | Current Irrigated land | To be irrigated under the plan | Total irrigated land after the plan |
|------------|-----------------------|------------------------|--------------------------------|-------------------------------------|
| Telangana  | 175.03                | 44.94                  | 58.16                          | 103.10                              |
| Rayalseema | 98.95                 | 15.08                  | 17.36                          | 32.44                               |
| Andhra     | 115.74                | 64.56                  | 27.88                          | 92.44                               |
| TOTAL      | 389.72                | 124.58                 | 103.40                         | 227.98                              |

(Lakh Acres)

The secretary, Irrigation & CAD, agreed in a printed interview that the contentious Polavaram project is yet to get clearance for forest diversion or from the Central Water Commission. And yet he claimed that the work on it is going on at full swing. This is contrary to the assurance given by the officials of the Union Ministry of Water Resources that the work on the project is not going on. Such work is also in violation of the law. (Indian Express 011108)

**LAKES, GLACIERS****Himalayan Glaciers to melt by 2035?**

The glaciers in the Himalayas are receding very fast and if the present rate continues, a large number of them may disappear by 2035 because of global warming. The Himalayas have the largest concentration of glaciers outside the polar caps. The Geological Survey of India says that the Himalayan glaciers occupy about 17% of the total mountainous range, while an additional 30-40% area has seasonal snow cover.

**Basin-wise areas and volumes of Indian glaciers**

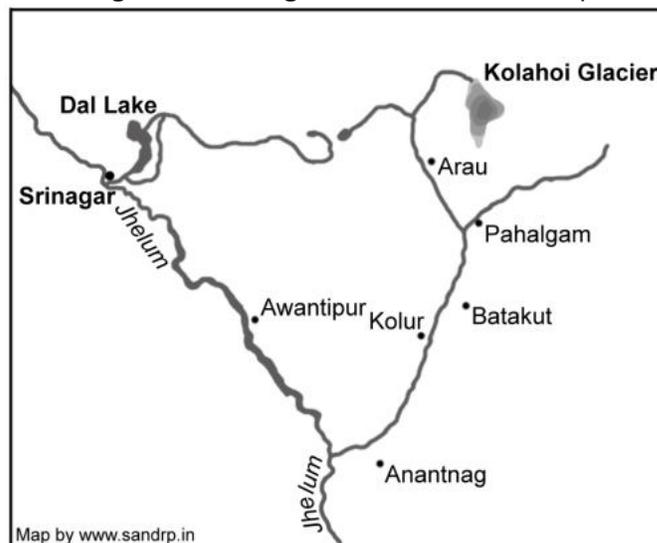
| Basin              |             | No. of<br>Glaciers | Area<br>(sq km) | Volume<br>(cubic km) |
|--------------------|-------------|--------------------|-----------------|----------------------|
| Indus              | Ravi        | 172                | 192.74          | 8.04                 |
|                    | Chenab      | 1278               | 3058.99         | 206.15               |
|                    | Jhelum      | 133                | 94.18           | 3.30                 |
|                    | Beas        | 277                | 599.06          | 36.94                |
|                    | Sutlej      | 926                | 1250.86         | 60.99                |
|                    | Indus       | 1796               | 2165.46         | 104.60               |
|                    | Shyok       | 2658               | 7105.66         | 601.71               |
|                    | Kishanganga | 222                | 174.28          | 5.93                 |
|                    | Gilgit      | 535                | 8240            | ND                   |
| <b>Basin Total</b> |             | <b>7997</b>        | <b>14723.63</b> | <b>1027.66</b>       |
| Ganga              | Yamuna      | 52                 | 144.47          | 12.21                |
|                    | Bhagirathi  | 238                | 755.43          | 67.02                |
|                    | Alaknanda   | 407                | 854.59          | 90.72                |
|                    | Ghagra      | 271                | 729.42          | 43.77                |
| <b>Basin Total</b> |             | <b>968</b>         | <b>2483.91</b>  | <b>213.72</b>        |
| Brahmaputra        | Teesta      | 449                | 705.54          | 39.61                |
|                    | Arunachal   | 161                | 223.37          | 9.96                 |
| <b>Basin Total</b> |             | <b>610</b>         | <b>928.91</b>   | <b>49.57</b>         |
| <b>Grand Total</b> |             | <b>9575</b>        | <b>18054.05</b> | <b>1290.95</b>       |

(Preliminary Consolidated Report on Effects of Climate Change on Water Resources, Minis. of Water Resources, June 2008)

Note: The area total (and sub total for the Indus basin) does not include the Gilgit glacier area, the volume of the Gilgit basin glaciers is also not given in the above document.

The Indian Himalayan glaciers are broadly divided into three-river basins of the Indus, Ganga and Brahmaputra. The Indus basin has the largest number of glaciers (7997), followed by the Ganga basin (968) and the Brahmaputra (610). The principal glaciers are: Siachen 72 km; Gangotri 26 km; Zemu 26 km; Milam 19 km and Kedarnath 14.5 km. The Himalayan glaciers feed seven of Asia's great rivers: the Ganga, Indus, Brahmaputra, Salween, Mekong, Yangtze and Huang Ho. About 70% of glaciers are retreating at an alarming rate in the Himalayas. The Glacial melt has started affecting freshwater flows with adverse effects on the biodiversity, and people and their livelihoods, with a possible long-term implication on regional food security. Scientist professor Syed Hasnain of The Energy and Resources Institute, in a recent study said that "All the glaciers in the middle Himalayas are retreating, and they could disappear from the central and eastern Himalayas by 2035." In a paper of The New Scientist in the June 5, 1999, issue, he had predicted that freshwater flow in rivers across South Asia would "eventually diminish,

resulting in widespread water shortages." The giant Gangotri glacier supplies 70% of the Ganga flow during the dry season. The Gangotri glacier is the outlet of one of the largest glacier systems in the Himalayas, and the source of the Bhagirathi, one of the major tributaries of the Ganga. A study carried out by the India's Department of Science and Technology has found the Gangotri glacier shrinking at a pace of 17 m a year. Its mammoth neighbour Pindari glacier is reportedly melting at a speed of about 9.5 m a year. (THE TRIBUNE 111108)

**Kolahoi glacier melting in Kashmir** The twin-peaked

Kolahoi glacier, rising almost 5 500 m, is rapidly melting due to global warming. The base of the glacier is at the head of the Lidder valley. In 1985, the glacier's snout stretched 800 m further down the valley and the snout is much smaller. Melting glacier may convert the valley's lush green fields and mountains into a barren desert resembling adjoining high-altitude Ladakh. The Energy and Resources Institute along with University of Kashmir have recently organised a research expedition to the glacier and raised an alarm bell. According to Ghulam Jeelani, a geo-hydrologist, "if the glacier continues to melt at the current speed, it may disappear from the map of glaciers in a decade or so." Environmentalists have appealed to the people to sign a petition urging UN Secretary-General, Prime Minister of India Manmohan Singh and Pakistan President Asif Ali Zardari to create and sign a Kolahoi Accord by 2011. The Kolahoi glacier's melting has put on stake the Kashmir valley's reputation as one of the world's most beautiful tourist destinations. This glacier feeds the Jhelum, which drains into Srinagar's Dal Lake - the most popular attraction for domestic and foreign tourists. The melting of the glacier also threatens the livelihood of lakhs of people. The valley produces a rich crop of rice, wheat, corn. Famous apple orchards and fields of saffron are blessed by glacier waters. (THE TRIBUNE 101108)

**RIVERS**

**Ganga a "National River"?** The office of the Prime Minister in a press release has stated on Nov 4, '08 that a decision has been taken to declare the Ganga as a National River and also set up a Ganga River Basin Authority as an empowered planning, implementing and monitoring authority for the Ganga River. The proposed Authority would be chaired by the PM and would have as its Members Chief Ministers of States through which the Ganga flows.

The Prime Minister referred to the special place Ganga has in the hearts and minds of all Indians and stated that this emotional link needs to be recognized and that the country should set up a model for river cleaning through the new institutional mechanism. The details of the Authority to be vested with appropriate powers would be worked out in consultation with State Governments and Central Ministries. The unit of planning, it was felt, should be the river basin and action related to pollution abatement, sustainable use of water and flood management should be integrated. The proposed Authority will promote inter-sectoral coordination for comprehensive planning for the river. Various agencies working on different aspects of river conservation and pollution management would be brought together under this proposed Authority. Prime Minister also directed that detailed final proposals may be prepared within two months after necessary wide ranging consultations. It was decided that there is a need to replace the current piecemeal efforts taken up in a fragmented manner in select cities with an integrated approach that sees the river as an ecological entity and addresses issues of quantity in terms of water flows along with issues of quality.

This announcement raises more questions than it answers. From the timing of the announcement, and looking at the recent events preceding this announcement, it seems more like an attempt to take away the emotive issue of Ganga River from the opposition right wing political elements. Otherwise, there is nothing in this announcement that shows any seriousness on the part of the govt towards the Ganga, or any of its numerous tributaries or any other rivers.

Constitutionally, water and land are state subjects in India. The centre has limited role in management of water and related issues. In recent years, though, the centre has acquired considerable role on the environmental and financial grounds. If the centre were serious about the holistic and people friendly management of rivers, as the announcement seems to suggest, it could have done a lot in the Ganga Action Plan, going on since 1985 and otherwise. It is clear from the past experience that the centre has completely failed. Thus, there is little ground to believe that centre is serious this time around. In substance, this announcement changes nothing on ground or legally. (PIB 041108)

**Ganga erosion at Farakka** The National Disaster Management Authority has invited expression of interest for consultancy services for study on the problem of flooding and erosion by river Ganga and its tributaries under the Flood Risk Mitigation Project. The following points are mentioned in the scope of work:

- i. to study the River Ganga from Rajmahals (about 40 km upstream from Farakka Barrage) to Dhulian (about 15 km downstream of Farakka Barrage)
- ii. to study the behavior of the river to varying flow conditions and sediment load and develop hydro dynamic models (one and two dimensional)
- iii. to identify reaches vulnerable to erosion and predict the morphological changes of the river behavior and impact of the human interventions such as encroachments into flood plains, construction of embankments, dams, barrages, bridges, spurs and anti-erosion measures
- iv. to evolve a scheme of cost effective, eco-friendly, sustainable & socially acceptable river training measures for prevention of erosion in vulnerable reaches
- v. to propose a Road Map along with an action plan for implementation of the findings and recommendations including broad cost estimates, the timeframe for each activity and the roles and responsibilities of various stakeholders. (THE ECONOMIC TIMES 241008)

**Chambal water supply scheme raises questions**

The Supreme Court has cleared a Rs 503 crore drinking water scheme to lift water from the Chambal river for 926 villages and 4 towns of Karauli and Sawai Madhopur districts in Rajasthan. The permission of the apex court was required since about 690 sq m of land required for the project falls in the Chambal Ghariyal Sanctuary. The project involves a 160 km long pipeline.

A monitoring committee involving the wildlife warden and the Public Health Engineering Department would be set up to ensure that the prescribed minimum flow of water is maintained downstream of the tapping point of the Chambal river. The Forest Case Update for Sept-Oct 2008 says, "It was found that minimum flow of water observed during the last 20 years was 4.78 cusecs. It was pointed out that flow of water will be available at the down stream of the tapping point after meeting the water requirement of the proposed project."

A question that arises is, will the prolonged minimization of flow to the level observed just once in 20 years would have impacts downstream from the tapping point? Secondly, has been credibly established that the proposed project is the best option for the 926 villages and 4 towns of the Karauli and Sawai Madhopur districts? 4.78 cusecs is very little flow for a wide river like Chambal and would not be able to ensure adequate depth of water to ensure sustainable existence of biodiversity. These vital questions have clearly not been addressed while taking this decision. (The Tribune 201008)

## INTER STATE ISSUES

### Andhra Pradesh – Maharashtra Babli: CWC biased?



The Central Water Commission, after conducting surveys has indicated to the officials of the inter-State wing of the Irrigation Department that "Maharashtra is well within its right in constructing the 11 barrages" on Godavari river upstream from AP border. Maharashtra proposes to use 7.2 BCft (Billion Cubic feet) of water, well inside its allocation of 60 BCft in the sub-basin made by the Godavari Water Disputes Tribunal, by building these barrages. The 11 barrages are, Amdura (Bandra), Digras, Muli, Mudgal, Dhalegaon, Loni Sawangi, Raja Takli, Mangrul, Jogla Devi, Hirvopuro and Apegaon. The AP government now has the option of approaching the Supreme Court. But, it is unlikely that it will raise this issue and, thereby, complicate matters, since the apex court is already seized of the Babli dispute. AP apprehends that if it does so, the Supreme Court may constitute a new tribunal on the Godavari waters and, by the time the tribunal finalises its report, Maharashtra might complete construction of all the 11 barrages. Information received by the government, in the meanwhile, indicated that Maharashtra was executing only ancillary work, suspending the work on the main dam, in view of high water level in the river. However, crest-gates were being fabricated. Opposition parties of AP has staged a massive Dharna on December 1, 2008 in front of the collectorate office in Warangal district blaming the state government to fail to exert pressure on the Centre and the Maharashtra govts to halt the Babli project. Meanwhile the Supreme Court has finalized the date of final hearing as 24 March, 2009. (THE HINDU 081108, 091208, DECCAN CHRONICLE 021208)

## GROUNDWATER

**Opposition to IMFL unit** On the ground of depletion of groundwater level and possible pollution villagers and political parties have opposed the plan to set up a bottling unit by an Indian Made Foreign Liquor firm at Kallakottai in Gandarvakottai taluk of Tamil Nadu. A meeting has been convened by the district administration to hear the views of the villagers. District Revenue Officer who presided over the meeting said he would convey peoples view to the administration. (THE HINDU 111108, <http://indiainenvironmentportal.org.in> 111108)

## AGRICULTURE

**Neem fertilizer** The govt is in the process of gathering data on the usefulness of neem-based fertilizers. Additional Secretary in the ministry of chemicals and fertilizers has stated that registration will be completed soon. Since 2000, 80 villages in South 24 Parganas district in W Bengal and Nagpur district in Maharashtra had been under experiment with the neem fertilizer with support from the United Nations Industrial Development Organization. The pilot project has found that neem is effective as fertiliser. Unlike chemical pesticides which act on specific pests, neem helps in managing all pests and has no toxicity and it doesn't leave any residue on plants or soil. In 2007 the govt has decided to promote it to the rest of the country involving various commodity organizations, the Spices Board, Tea Board of India, Coffee Board of India and others. The second phase of the programme is expected to last three years and in the mean time the registration of neem-based products will likely be completed, giving it legal sanction and make availability easier. Though Neem-based insecticides cost 10-20% higher than chemical pesticides but they also help plants to develop resistance to a number of pests. Already Lalitha Neem Pvt. Ltd makes neem oil extracts and neem-based fertilizers in Rajapalayam district in Tamil Nadu. (THE MINT 091208)

**Record Paddy yield in Punjab** Punjab achieved a yield of 6.1 T per Ha in Kharif 2008, the highest ever state wide yield. Total area under Paddy was 27.5 lakh ha (26.1 lakh ha last year), which yielded 167.33 lakh T paddy. 148.65 lakh T arrived for sale in the grain markets, of which 120.74 lakh T was procured by the govt agencies. (The Tribune 041208)

**Global Organic Market worth USD 40 Billion** The global organic market in 2007 was USD 40 billion and is growing at USD 5 billion a year. The largest share is of US, with USD 21.2 billion market, out of which USD 20 billion is organic food and drinks market. Other notable markets are Germany (5.3 billion Euro), UK (3 billion Euro in 2006), France (2 billion Euro). (The Financial Express 081208)

## ECONOMY

**75% live on less than USD 2 per day in India** According to the latest figures from the World Bank, 75.6% (827.7 million) of the population in India survived on less than USD 2 per day in 2005, compared to 82.6% (701.6 million) in 1990. The population living on less than 1.25 USD per day in 2005 was 41.6% (455.8 million) compared to 51.3% (435.5 million) in 1990. (Financial Express 271208)

## REVEALING QUOTES

**It is Punjab Pollution Board, not Punjab Pollution Control Board.** It is an irony that PPCB officials are facilitating the spread of environmental pollution in the state, rather than curbing it.

*Sant Balbir Singh Seechewal* (The Tribune 241208)

**Publications available with SANDRP****PUBLICATIONS IN ENGLISH:**

1. *Trapped! Between the Devil and Deep Waters: The story of Bihar's Kosi River* by Dinesh Kumar Mishra, SANDRP & PSI, 2008 Rs 595/-
2. *Large Dams for Hydropower in NorthEast India* SANDRP-Kalpavriksh, June '05, p 228, Rs 150 (indv), Rs 300 (inst)
3. *Tragedy of Commons: The Kerala Experience in River Linking*, River Research Centre-SANDRP, '04, p 146, Rs 120
4. *Unravelling Bhakra*, Shripad Dharmadhikary, Manthan, 2005, pp 372, Rs 150/- (individuals); Rs 300 (institutions)
5. *THE GREATER COMMON GOOD* by Arundhati Roy, Published by India Book Distributors, 1999, pp 76, Rs 80/-
6. *Water Private Limited* Manthan Adhyayan Kendra, 2006, pp 124, Rs 50/-
7. *Kosi Deluge: The worst is Still to come* A report by Fact Finding Mission, 2008, Rs 100/-
8. *Dams, Rivers & Rights: Action Guide*, IRN, 2006, pp 38, Rs 20/-
9. *Green Tapism: A Review of the EIA Notification-'06*, Environment Support Group, Bangalore, 2007, p 201, Rs 250/-
10. *Conserving Raindrops a Much Better Option than Linking Rivers* by Bharat Dogra, pp 8, Rs 4/-.
11. *Alternative Power Planning: 20 Questions* Prayas and Kalpavriksh, Sept 2007 pp32, Rs 20/-
12. *The World Bank as a Knowledge Producer* Manthan, March 2008, pp 80, Rs 100/-
13. *The Forest of the Buddha*, B Imam & P Carter, Sanskrit Publishers, Jharkhand, 2005, pp 121, Rs 650/- (copies not available with SANDRP, request can be sent to: [rch\\_buluiamam@sancharnet.in](mailto:rch_buluiamam@sancharnet.in))

**PUBLICATIONS IN HINDI:**

1. *Bandh, Nadi evam Adhikar* Dam Action Guide for Communities, SANDRP, 2007, pp 44, Rs 30/-
2. *Ken-Betwa Nadi Jod : Pyasi Ken Ka Paani Betwa Mein Kyon?*, SANDRP, 2004, pp 46, Rs 20/-.
3. *Nadi Nahin Jodnaa, Bund Bund sanjonaa* by Bharat Dogra, pp. 16, Rs 8/-
4. *Bade Bandh, Bharat ka Anubhav*, SANDRP, 2001, pp 268, Rs. 100/-.
5. *Jal Vidhyut ka Sach* (Hindi) By B Jhunjhunwala, pp 61, Rs 10/-.
6. *Ganga ki Bhrun Hatya*, MATU (Delhi), 2008, Rs 60/-
7. *Ganga ke maike main* Matu (Delhi) 2008, Rs 25/-
8. *Bina Jaankari Kaisy Jan Sunvai?*, MATU (Delhi), 2004, p 32, Rs 15/-
9. *Behtar Bijli sewa ke liye Jagrukata aur Karyakram: Samuday ke liye Agenda* Prayas, 2008, Rs 30/-
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