



Lead Piece

Wetland (Conservation and Management) Rules 2010

Welcome, but a lost opportunity: This cannot help protect the wetlands, Sir

Wetlands in India come in all shapes and sizes, ranging from the huge vast coastal wetlands in Kerala like the Vembanad Kol, supporting millions of fish and birds, to the brackish water lagoons like Chilika in Orissa which support thousands of small fishermen, from the crystal clear lakes like the Chandra taal in Himachal, to the salty Sambhar lake in Rajasthan. They can be tiny water filled bogs, which help maintain water levels in local wells and rivers and protect small villages from flooding. Wetlands, mostly natural except a few man-made, have been an integral part of India's landscape. In many states like Rajasthan, Madhya Pradesh, Maharashtra, Karnataka, Tamil Nadu, etc, numerous natural wetlands and small man-made rainwater harvesting structures were developed by communities, which provided water and fish to humans and non humans alike. According to the 1992-1993 study by the Space Application Centre, India has nearly 3.5 million hectares under wetlands.

Unfortunately, like all our natural resources, wetlands, one of the most productive ecosystems of the world, have faced assault at our hands. India has lost more than 38% of its wetlands in just the last decade. In some districts, rate has been as high as 88% (V.S. Vijayan (2004), *Inland Wetlands of India: Conservation Priorities*, SACON (Salim Ali Centre for Ornithology and Natural History)). Main causes of degradation are habitat destruction by land-filling and, hydrological alterations by water withdrawals and upstream dams and pollution by industrial and domestic sources.

There are a number of use and non use values of wetlands. They help in retaining water during dry periods, thus keeping the water table high and relatively stable. During periods of flooding, they act to reduce flood levels and to trap suspended solids and nutrients. In addition, wetlands are important feeding, breeding, and drinking areas for wildlife and provide a stopping place and refuge for waterfowl. As with any natural habitat, wetlands are important in supporting species diversity and have a complex and important food web (S.N. Prasad, et al, 2002, *Conservation of Wetlands of India: A Review*, Tropical Ecology, International institute

for Tropical Ecology). Indian wetlands represent the immense biodiversity of the country.

India has been one of the first signatories of the Ramsar Convention on Conservation and Wise Use of Wetlands held in Iran in 1971. Currently, 25 wetlands in the country have been designated as Ramsar Wetlands of International Importance, and 68 wetlands have been identified for protection under the National Wetland Conservation Program. However, SACON has documented some 700 wetlands in the country and has recommended the inclusion of about 200 of these wetlands in the Ramsar Convention. Two of India's Ramsar Wetlands which are supposed to be the best managed wetlands with maximum funding support, have been placed on the Montreux Record, (Montreux Record, a part of Ramsar Convention, is a register of wetland sites where changes in ecological character have occurred, are occurring, or are likely to occur as a result of human interference for remedial measures and monitoring.)

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There is also the possibility of use of constructed wetlands for treatment of urban sewage. As Vol. II of National Water Mission noted, (page IV/30), “an integrated wetland system, for wastewater treatment and resource recovery through aquaculture and agriculture has been developed in three municipalities within the Kolkata Metropolitan area.” That report also notes (page IV/53), “Decentralized wetland systems have been used largely for institutional and residential complexes in several parts of India and other countries across Asia”.

Dr. Asad Rehmani, Director, BNHS had said then “Today, most of the wetlands in India are under the control of the government (both central and state), and the involvement of society in the welfare of these wetlands, is almost minimal. The British government initiated this kind of water resource management for our wetlands, in order to gain a more vice-like grip on Indians.”

Policy responses The National Wetland Conservation Program was launched in 1987 and initially restricted itself to the notified Ramsar Wetlands. However, India’s National Water Policy of 2002 does not have the word wetland in it. In 2009, the MEF issued Guidelines for Conservation and Management of Wetlands and has identified some 122 wetlands for protection. In 2008, the Ministry of Environment and Forests issued a Draft Regulatory Framework for Wetlands Conservation, under the provisions of the Environment (Protection) Act (EPA), 1986. Dr. Asad Rehmani, Director, BNHS had said then “Today, most of the wetlands in India are under the control of the government (both central and state), and the involvement of society in the welfare of these wetlands, is almost minimal. The British

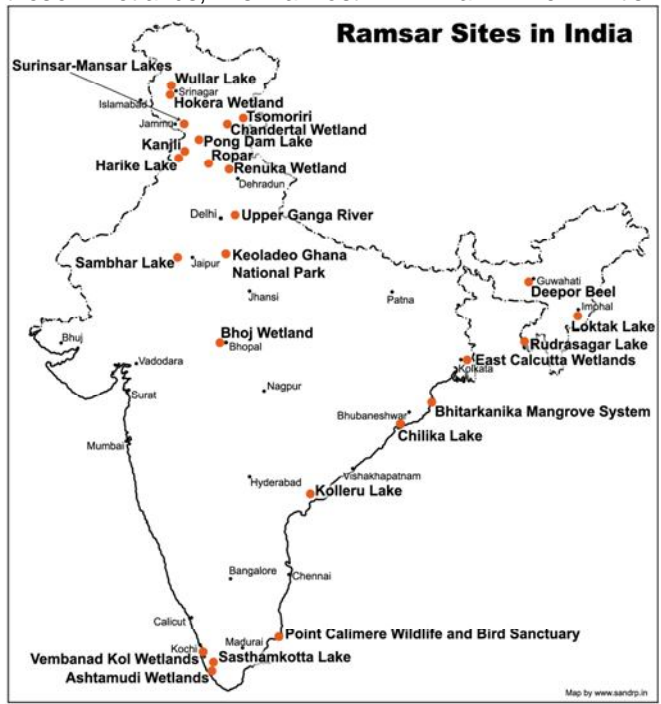
government initiated this kind of water resource management for our wetlands, in order to gain a more vice-like grip on Indians.”

In a few larger wetlands, Development Authorities have been set up for autonomous lake management like the Loktak Lake Development Authority, the Chilika Lake Development Authority, etc. However, it has been seen that these Authorities have limited autonomy and limited work. (Young (2004), *Water Allocation and Environmental Flows in Lake Basin Management*, Lake Basin Management Initiative, Thematic Paper). Loktak Lake Development Authority has faced massive

charges of corruption in 2009, when it was found that the agency which has been given a Rs 25 Crore contract and Rs 16.5 Crore advance for cleaning up the Loktak Lake is a fake entity, owned by a powerful politician in Manipur. The Planning Commission has earmarked Rs 224 Crores for Loktak clean up. (Daily Pioneer 051110). A few specific Acts have also been formulated to protect important wetlands like Chilika and Loktak. However, both these acts have resulted in huge protests from local fishermen. Chilika (Regulation of Fisheries) Bill, 2010, is still to be passed, local fishermen have been protesting against this Act for more than ten years now (The Hindu 260810), similarly, the fishermen in Loktak lake are opposing the Manipur Loktak Lake (Protection) Act, 2006 under which, fishing in the lake can be banned. (Imphal Free Press 221210).

Wetland goods and services Wetlands have been providing invaluable goods and services to the dependant communities. The fish catch of Lake Chilika, a Ramsar site, for the year 2009-10 was estimated to be about 12000 metric tonnes, supporting more than 2 lakh fishermen (ENVIS Newsletter, Oct-Dec 2009), while the tourist revenue generated at the Keoladeo Ghana National Park and Bharatpur Sanctuary was Rs 20.55 million in 1992. Vembanad Kol Wetland in Kerala supports livelihoods of around 1.6 million people living in 38 grampanchayats surrounding the wetland.

It is interesting to note that while local fishermen are being alienated from their life support systems, wetlands are facing severe degradation due to dams on their feeder rivers, but no law or policy exists to protect the wetlands (and rivers) from such large scale abstractions. (See another article in this issue of *Dams, Rivers & People* Dams and Ramsar Wetlands. The index map on this page gives locations of the Ramsar sites that are affected by upstream hydrologic alterations.)



While the Bangalore Lake Development Authority, set up to protect smaller wetlands in Bangalore has failed in actually conserving any wetlands, it has privatised more and more lakes and lake fronts.

In 2006, the National Environmental Policy first recognized the need of legal regulatory mechanism for protection of the wetlands from degradation. After several meetings by an expert group from multi disciplinary backgrounds, the draft of Guidelines was prepared. The Draft 2008 'Regulatory Framework for Wetland Conservation' was put out for comments and suggestion and many organisations including ATREE, SACON held workshops and made suggestions. In May 2010, another draft of Regulatory Framework was put out for comments, which included the draft Rules, 2009. Again, a number of comments and suggestions were sent to MoEF. Finally on the 2nd of December 2010, the Union Ministry of Environment and Forests notified the Wetlands (Conservation and Management) Rules 2010, thus these rules now become a law.

The Rules note the importance of wetlands, saying, "wetlands, vital parts of hydrological cycle, are highly productive, support exceptionally large biological diversity and provide a wide range of eco-system services, such as waste assimilation, water purification, flood mitigation, erosion control, ground water recharge, microclimate regulation, aesthetic enhancement of the landscape while simultaneously supporting many significant recreational, social and cultural activities, besides being a part of the cultural heritage".

"All significant decisions pertaining to the conservation and welfare of any wetland should be initiated and promoted by the end-users of that wetland and these suggestions (which ought to be strictly within technically sound parameters) should provide the guidelines for the decision-makers at the higher levels in the govt. Unfortunately, just the reverse is happening at present."

Dr. Asad Rahmani, Director, Bombay Natural History Society, (Towards Wetland Conservation, rainwaterharvesing.org) Dr. Rahmani is now the Expert Member, Ornithology in the newly constituted Wetland Regulatory Authority, 2010.

The Rules have a wide ranging definition of what is a wetland, "*wetland* means an area of marsh, fen, peatland or water; natural or artificial, permanent or

temporary, with water that is static or flowing, fresh, brackish or salt, including areas of marine water the depth of which at low tide does not exceed six meters and includes all inland waters such as lakes, reservoir, tanks, backwaters, lagoon, creeks, estuaries and man made wetland and the zone of direct influence on

wetland that is to say the drainage area or catchment region of the wetlands as determined by the authority but does not include main river channels, paddy fields and coastal wetlands covered under" the MEF notification of Feb 19, 1991. Interestingly, the definition not only excludes the main river channels (possibly under turf water with Water Resources establishment), but it does not define what is main river channel. The definition is also silent about

the flood plains. Another flaw of the definition of wetlands is that the definition includes the word wetland!

The National Water Mission classifies (Vol II page II/40) wetlands as natural or anthropogenic, lakes/ swamps and as inland or estuarine/ coastal.

Highlights of Wetlands (Conservation and Management) Rules 2010:

1. It calls for the constitution of a **Central Wetland Regulatory Authority**, Chaired by the Secretary, MoEF &, as expected, members from various govt ministries like Agriculture, Water Resources, Tourism, Social Justice, Central Pollution Control Board as well as four experts from the fields of hydrology, limnology, ornithology & ecology. Some of these expert names nominated by the government without any transparent process do not inspire confidence. The authority has 3 year tenure.

2. It seeks to **regulate** wetlands which include Ramsar Wetlands, and what it calls 'Protected Wetlands' which include ecologically sensitive wetlands, wetlands in protected areas, UNESCO sites or wetlands near UNESCO sites, wetlands above the elevation of 2500 meters with area above 5 ha or, wetlands or wetland complexes below the elevation of 2500 meters, but with an area more than 500 hectares or any other wetlands suggested by the Central Wetland Regulatory Authority.

3. **Restrictions on activities within the wetlands** include reclamation, setting up industries in vicinity, solid waste dumping, manufacture or storage of hazardous substances, discharge of untreated effluents, any permanent construction, etc.

4. **Regulated Activities** (which will not be permitted without the consent of the state government) include hydraulic alterations, unsustainable grazing, harvesting

Transparency in Governance which has been a bottom line for India's current Union Minister of State (Independent Charge) for Environment and Forests, Mr Jairam Ramesh. But the Ministry did not bother to put up any explanatory file on its website as to how it arrived at the rules from the draft rules, what suggestions it received, what happened to them, why and on what basis it made changes from the draft to the final rules. Out letter to him and concerned ministry officials, sent on Dec 13, 2010 has remained unanswered so far.

of resources, releasing treated effluents, aquaculture, agriculture, dredging, etc.

5. The major functions of the authority include identification of new wetlands for conservation, ensuring that the Rules are followed by the local bodies, issue clearances, etc.

6. The State Governments are to submit a 'Brief Document' about the wetlands in their state which qualify for protection under the Rules. The Authority will then assess the wetland and if accepted, the Central Government shall notify it as a 'Protected Wetland'.

7. Any appeals against the decision of the Authority can be made to the National Green Tribunal (which is not functional at this stage).

Some Areas of Concern

1. The Rules do not provide for protecting wetlands which are important for **livelihoods and water security of dependent population**. Dr. Priyadarsanan Dharma Rajan, Senior Fellow, ATREE, sent to the MoEF on 21 June 2010 as a part of comments on Draft Wetlands Rules 2009, "*Nowhere the draft Wetlands (Conservation and Management) Rules, 2009 mentions the importance of wetlands in livelihoods of poor people and the effect of degradation of wetland ecosystem services on poverty and vulnerability. The rules does not recognize the traditional rights over the wetlands for livelihoods even as it seeks to regulate such activities (sect 2 (2)). Such regulation can in effect become prohibitive for livelihood activities.*" The problem persists in the Rules 2010.

Considering the large number of population depending on wetlands for livelihoods and domestic water supply, **this should have been one of the most important criteria** for protection and regulation. Indeed, in the Draft Wetland Rules, 2008, wetlands supplying water to class B cities as well as smaller wetlands supplying water to households and with socio cultural significance were qualified for protection. They have been surprisingly omitted from the 2010 Rules.

As an example, 2 lakh farmers depend on Vembanad Kol for livelihoods and Bhopal lake supplies water to a population of 6 lakhs. If the socio-ecological significance of wetlands is not

emphasised in the rules, the State Governments will have little incentive of including such important wetlands for protection.

2. The entire Wetland Categorisation system into class A, B and C, depending on their sizes mentioned in Draft Rules, 2008, has been omitted in 2010 Rules. This has

many serious implications. Most importantly, now the rules regulate only those wetlands which are more than 500 hectares in areas below 2500 meters. In reality, there are a number of smaller wetlands, talabs, jheels and tanks in rural and urban India which perform important socio ecological functions and are under severe threat by land-filling and reclamation. Many times, these wetlands and tanks are essential for the water security of the region.

The 2010 Rules have totally neglected the management and conservation of these crucial smaller wetlands. Even in the section which mentions ecologically sensitive wetlands, no mention of water security or livelihood security has been made.

3. The draft Regulatory Framework 2008 as well as the Draft Rules 2009 mentioned the constitution of Regulatory Authorities and Appraisal Committees at the Centre, State & District level. The District level committee had space for Zilla Parishad representative and a member of Grampanchayat. This was critical to maintain participation & ensure that local concerns are addressed. However, the 2010 Rules make no mention of the State and District level committees. In fact there is need to have a wetland level management committee for each protected wetland to begin with & at least 50% of the members of such committees must come from the local communities/ gramsabhas, community based organisations & non govt experts.

If it is argued that the constitution of State and District Regulatory Authorities and Appraisal Committees has been dropped because water is a state subject, then why are guidelines set out by these Rules to the state governments for

conservation of their wetlands? With the support of EPA under which these rules have been notified, state & district level committees could have been notified.

The Rules note the importance of wetlands, saying, "wetlands, vital parts of hydrological cycle, are highly productive, support exceptionally large biological diversity and provide a wide range of eco-system services, such as waste assimilation, water purification, flood mitigation, erosion control, ground water recharge, microclimate regulation, aesthetic enhancement of the landscape while simultaneously supporting many significant recreational, social and cultural activities, besides being a part of the cultural heritage".

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4. The Draft rules had a provision for community based organisations, research organisations, etc., to put up proposals for suggesting wetlands for protection. This provision has been removed. The authority to put up new wetlands for protection lies only with the State Government now.

5. Like all Government Authorities, the Central Wetland Regulation Authority finds no place for community representatives like representatives from the Fishing Associations, Farmers representatives, etc.

6. While accepting the Ramsar definition of Wetlands, the wetland rules do not accept river channels as wetlands,

as prescribed by Ramsar Convention, and they are excluded them from protection under Wetland Rules. All river channels should be included in the definition of wetlands and ecologically and socially important stretches should receive protection. Currently only 85 kilometres of the Upper Ganga is protected as a Ramsar Wetland. Considering the fact that there are only a few protected river sanctuaries in the country, the Wetland Rules was a great opportunity to protect the biodiversity rich stretches of various rivers

from further degradation through hydraulic modifications and pollution. This is especially relevant to the floodplains, riparian areas, mangroves and mudflats of rivers. Unfortunately, this has not happened.

7. The Rules do not protect the traditional & community rights of fishing, water collection & farming, in practice for a long time and need to protect such wetlands. They only state that "Harvesting of living resources will not be allowed without prior consent from State Governments".

8. The wetland rules provide no clear guidelines as to when can the states decide to allow activities that are detrimental to wetlands? Through what process are the state govt take such decisions? Will all such recommendations be allowed?

9. There is little attempt to learn from the past experience of failure or success in protection of wetlands. For example, in towns like Udaipur and Jaipur non government efforts has helped protect some lakes.

Many experts have indicated their dissatisfaction over the Wetlands (Conservation and Management) Rules 2010. Dr. Brij Gopal, National Institute for Ecology, said that the Rules have no teeth and are, at best, confusing. Krishna Kumar, Program Officer, Vembanad Wetland Conservation Program with ATREE said that these are diluted as compared to the initial drafts and that

community concerns have not been addressed. Dr. Asad Rahmani, Expert member, Ornithology and President, BNHS, said that wetlands need to be looked as a part of the drainage system and isolated approach will not help. At the same time, he has said that community participation in the management and wise use of their wetlands is imperative and conservation cannot happen without local support and participation.

Climate Change It is well known that wetlands can play a very important role in the context of climate change and a move towards wetlands conservation is indeed urgently required. The section under National Water

Mission under the Prime Minister's National Action Plan on Climate Change (NAPCC, which Mr Jairam Ramesh has agreed, has been formulated in a non participatory way) has a whole sub-section (3.4.4) on wetlands, some of the actions which it lists for conserving wetlands include:

- Environmental appraisal and impact assessment of developmental projects on wetlands
- Developing an inventory of wetlands, especially those with unique features
- Mapping of catchments and surveying and assessing

land use patterns with emphasis on drainage, vegetation cover, silting, encroachment, conversion of mangrove areas, human settlements, and human activities and their impact on catchments and water bodies.

- Formulating and implementing a regulatory regime to ensure wise use of wetlands at the national, the state, and district levels.

It is clear that the newly notified rules fall short of even the objectives laid out for wetland protection in the Prime Minister's NAPCC, which promised state & district level regulatory regime, but the new rules do not have that.

National Water Mission Unfortunately, the only recommended strategy that the National Water Mission document put together by the Union Water Resources Ministry in most non participatory and non transparent process has only one recommended strategy for the wetlands, which says in Table 3.1 of the NWM (Vol. 1), "Development of Water Resources Information System which, inter alia, would include... wetland especially, those with unique features" and their catchments. This sounds reasonable, is it not, if you do not know where your wetlands are, you cannot protect them. But should it now worry us slightly that the MWR does not have even the word wetlands in its National Water Policy does not know where its wetlands are? The WRIS that is

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under development on CWC website at huge public expense is yet to have any substantial content in public domain. Annexure VI of the NWM (Vol. 1) says that this activity is supposed to be completed by March 2012 that is 15 months from now, so let us see what progress we see on this front. No other specific strategy or action is suggested about wetlands in Vol. 1 of NWM.

In Surface Water Section in Vol. 2 of NWM (Table 9, Page II/39), the wetlands have been characterised as *Very High* under water consumption and *Low* under Livelihood support, food production and energy, showing bias of the committee against the wetlands. The saving grace is that it has described wetlands as *Very High* under Ecological services. Here, in section 3.9 on wetlands, the flood plains are included, "flood plain areas on the banks of river, including low level islands in the river (Diara lands) which would receive flood waters when the river is above the bank full stage, would remain under water for a prolonged period from say a fortnight to a few months, and would become dry as the river recedes would also qualify as wet lands."

The Vol. II of NWM also acknowledges (page V/23), "Wetlands are under threat from drainage & conversion for agriculture and human settlements, besides pollution. This happens because public authorities or individuals having jurisdiction over wetlands derive little revenues from them, while the alternative use may result in windfall financial gains to them. However, in many cases, the economic values of wetlands' environmental services may significantly exceed the value from alternative use." That section notes the need for "Developing conservation and prudent use strategies with participation of local communities". The MEF rules also fall short of this objective.

The NWM (Vol II, page II/40-41) lists three alternative strategies for wetlands:

- a) Wetland ecologies are important and fragile. Leave the wetlands alone for good health of the ecology;
- b) As far as possible, manage wet lands in such a way that the land becomes available for use in agriculture and food production. Where possible, provide flood control and irrigation. Provide an efficient drainage system to keep the land dry and without salinity;
- c) Wet lands provide an excellent opportunity for a fish culture, including, in case of estuarine and coastal wet lands, an opportunity for the commercially attractive brackish water fisheries.

Section 3.9.3 of Vol. II of NWM document (page II/41) describes preferred strategies for wetlands. It says strategy b) (see above) is preferable for *all* manmade

wetlands. This is clearly wrong, since only waterlogged lands do not fall in this category. Even Ramsar wetlands like the Pong dam in Himachal Pradesh falls under this category and this strategy is clearly not preferable or even applicable for such wetlands.

For Natural and coastal/ estuarine wetlands, its recommendation of strategy a) above is welcome. It also suggests, "A good many of such wetlands, as in the Sunderbans, have been deforested, embanked (Zamindari embankments) and brought under agriculture, before about a 100 years, and their services have been lost. Where possible, these may be re-planted with suitable mangrove species native to the area."

However, it notes, "for some estuarine wet lands which are away from the coastal or mangroves zones the strategies b) or c) could be followed. This would depend much on the local preference. E.g., for the Vembanad wet lands in Kerala, in spite of a strong lobby preferring commercial fishery, the strategy of agriculture development was followed; whereas for the parts of Chilika lake wet land, the fishery interests seem to have prevailed". Here the strategy does not take into account the ecological services that the wetlands provide.

For Natural Inlands wetlands, the strategy says, "For the natural wet lands which are on the inlands, a very careful analysis would be required before deciding on the strategy." This can be used to destroy the Natural Inland wetlands. The report adds, before building embankments to protect new flood plains:

- Where large new agricultural areas on riverbanks are sought to be protected against floods, do not do so without carefully weighing and adopting the strategy at a) which prefers ecological preservation.
- While managing inland Jheels or Beels, do not prefer the strategy at b) except at the high level foreshore lands of the Jheels. Prefer the strategies at a) and c).

While this is welcome, its suggestion that existing embankments should be continued to be maintained is not socially, hydrologically or environmentally sound.

In conclusion, there are really serious doubts if the newly notified rules are going to be useful in protecting wetlands, Mr Jairam Ramesh Sir. The National Water Mission or the NAPCC have some welcome recommendations, but they have not been taken into account while drafting the new rules, nor is there any commensurate action on that front is visible on horizon, and thus they also do not hold much hope for wetlands.

P Dandekar, Swarup Bhattacharya & H Thakkar

In conclusion, there are really serious doubts if the newly notified rules are going to be useful in protecting wetlands. The National Water Mission or the National Action Plan on Climate Change have some welcome recommendations, but they have not been taken into account while drafting the new rules, nor is there any commensurate action on that front is visible.

Water Crisis in Ramsar Wetlands of India

The Ramsar Convention noted that with the designation of six new sites during Ramsar COP9 in Uganda, effective from 8 November 2005, the total area of Wetlands of International Importance in India went up to 677,131 hectares in 25 Ramsar Sites.

In December 2010 India's Union Ministry of Environment and Forests notified the Wetlands (Conservation and Management) Rules 2010, its first explicit legislation for protecting wetlands from further degradation. The Rules include a number of activities which are either totally prohibited or regulated for the Protected Wetlands. (For details, see *Welcome, but a lost opportunity: This cannot help protect the wetlands, Sir* in the current issue). The activities which are prohibited include reclamation of the wetland, setting up new industries within the protected area, discharge of untreated sewage or effluents and solid wastes, etc.

However, regulated activities, i.e. the activities which are permitted with prior permission from the respective state governments include "water abstraction, diversion or impoundment of water sources within the catchment area of the wetland ecosystem". The Rules provide no pointers to the State Governments on addressing this complex issue of water abstraction from the wetland or its feeder systems, which is fraught with tradeoffs and requires a tough stand. The only condition is that an Environment Impact Assessment is to be prepared before allowing any such activity. It is expected that such recommendations from state government is to be cleared by the National Wetland Regulatory Authority. However, there is no role for the local people in this entire process.

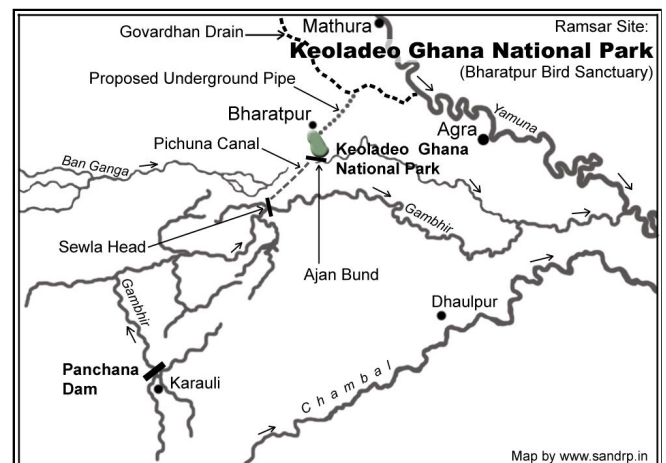
While it is obvious that wetlands are not mere museums of birds and fish, but a living system providing a number of goods and services to the society (as also acknowledged by the Notification on Wetland Rules and also the National Water Mission under PM's NAPCC), it is also true that one of the major problems faced by wetlands in India is unchecked and unregulated water abstraction from the wetlands and their sources in the upstream. Like we saw in the earlier piece, the new Rules make no specific statement on the amount of water that can be abstracted from the wetland or its sources. Even as the rules state 'hydrological alterations' as a key threat to wetlands, they do not elucidate on the need for regulated abstraction that can allow sustained existence of the wetlands.

And the problem of large scale water abstraction from wetlands and from its sources (mainly Feeder Rivers) is becoming serious. It is also an irony that the Rules make no statement about protecting the smaller wetlands which are central to the water security of small settlements. At the same time, when Ramsar wetlands

have been threatened by large scale upstream water diversions, the rules do not take any stand against these either. This was a valuable opportunity to set strict guidelines for regulating such alterations. Nearly all wetlands have been facing severe pressures from upstream water diversions and even the Ramsar Wetlands, which are supposedly best managed (and funded) ones, have not been spared from this water tussle. The fate of smaller and less 'conspicuous' wetlands is sealed through water abstraction, reclamation and pollution. It is high time that we put in place systems for maintaining freshwater inflows (and outflows) of wetlands in order to protect their ecological functions. In fact, isolated management of wetlands, without addressing the management of its related river systems is proving to be ineffective and unsustainable.

Let us look at some examples of Ramsar Wetlands in India which have been affected severely by hydrological alterations mainly through upstream dams.

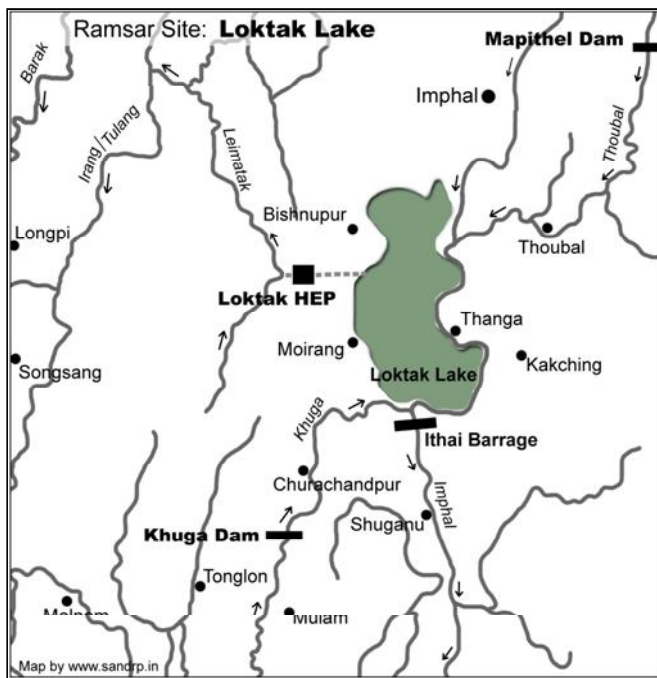
Keoladeo Ghana National Park (Bharatpur Bird Sanctuary), Rajasthan KNP, once a prominent member



of the Ramsar List from India has been on the Montreux Record for Remedial Measures (The Montreux Record, a part of Ramsar Convention, is a register of wetland sites where changes in ecological character have occurred, are occurring, or are likely to occur as a result of human interference). Its World Heritage Site status is also threatened due to decreasing freshwater water inflows and resultant changes in its ecological characteristics, including visits from migratory birds like Siberian Cranes. The park is situated on the confluence of Gambhir and Banganga Rivers. About 90 kms upstream of KNP, Panchana Dam has been constructed on river Gambhir (completed in 2003). The release of water to the KNP had progressively decreased as the construction was nearing completion and has now practically become nil. The Central Empowered Committee constituted by the Supreme Court noted on this issue that, "The 9985 hectares command area of the

Panchana Dam has been developed for irrigation which requires almost the entire water available from the dam leaving no water for the Keoladeo National Park." The issue has been greatly politicised and the Park is still waiting for its share of water through a canal or a pipeline from Chambal. In the meantime, the Banganga and Gambhir rivers have all but disappeared because of the absence of freshwater flows (for details see [Dec 2009-Jan 2010 issue of Dams, Rivers & People](#)). "Bharatpur Sanctuary and the farmers too need water. There is a conflict and we need a national policy to address this" said Dr. V.S. Vijayan.

Loktak Lake, Manipur Loktak is the largest freshwater lake in north-eastern India, also called the only Floating lake in the world due to the floating Phumdis (heterogeneous mass of vegetation, soil, and organic matters at various stages of decomposition) on it. It is



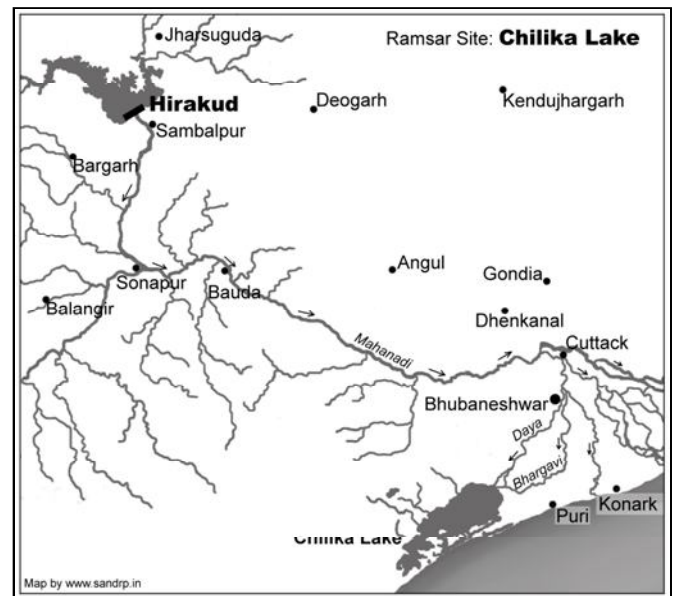
located near Moirang in Manipur state, India. Keibul Lamjao, the only floating national park in the world is situated at the south west part of the lake. It is home to the endangered Manipur brow antlered deer 'Sangai'.

Loktak is also presently placed on the Montreux Record. One of the main reasons for its endangered status is the hydrological alterations through the Loktak Multipurpose Project. The NHPC Project on the Manipur River or Imphal River, with the Loktak Lake forming the head waters to provide regulated storage for power generation, was built in 1983 as a multipurpose project with 105 MW installed hydropower capacity and lift irrigation in the Manipur valley. The water level in the lake at the Ithai barrage is maintained throughout the year at FRL 768.5 m (2,538 ft) for power generation. (CBIP 2003 (*Hydroelectric Power Stations in Operation in India*)). Construction of the Ithai barrage converted a naturally fluctuating lake into a reservoir. With the

barrage operated to ensure maximum availability of water around the year, natural flushing was restricted. The situation was further compounded by construction of water control structures on upstream tributaries of Manipur River, including the Khuga dam on Khuga river and Mapithel dam on Thoubal River. These two last named projects have seen strong opposition from the affected people. Changes in water management brought about significant impacts on the lake and its resources. Assessments by Citizens Concerned on Dams and Development and Wetlands International South Asia highlighted loss of fisheries, agricultural land, proliferation of phumdis and degradation of the national park resulting from unsustainable water management. (Ritesh Kumar, *Payments for Environmental Services for Sustainable Water Management in Loktak Lake, Manipur, Mountain Forum Bulletin, January 2010*)

The 105 MW Loktak hydroelectric power project was supposed to annually generate 443.6 Million Units electricity at 90% dependability but is generating much less electricity at 405 MU. The generation will decrease further when the controversial Khuga and Mapithel dams are fully operational in the upstream. Several community organisations & experts have expressed concern about the impacts of Loktak Multipurpose Project on the lake ecology.

Chilika Lake, Orissa Chilika, the largest brackish water



lagoon in India, covering an area of more than 1000 km², is the first declared Ramsar site of India. It is fed by two major deltaic branches Bhargavi and Daya of the Mahanadi river system. In the past, the lagoon was connected to the sea through a 25 km long channel.

The extremely rich diversity of the lagoon depends on the freshwater inflow from the Mahanadi system as well as the salt water inflow from the sea during high tide. The lake is home to over 160 varieties of fish and supports millions of migratory birds.

Sightings of the endangered Irrawaddy dolphins are regularly reported here. The highly productive ecosystem of Chilika lake sustains the livelihood of 0.2 million fishermen and 0.8 million watershed community. (Dr. A. K. Pattnaik, *Lessons from the Chilika Lake*, India Institutional Coordination and Policy Development in Lake Basin Management, World Lake Database)

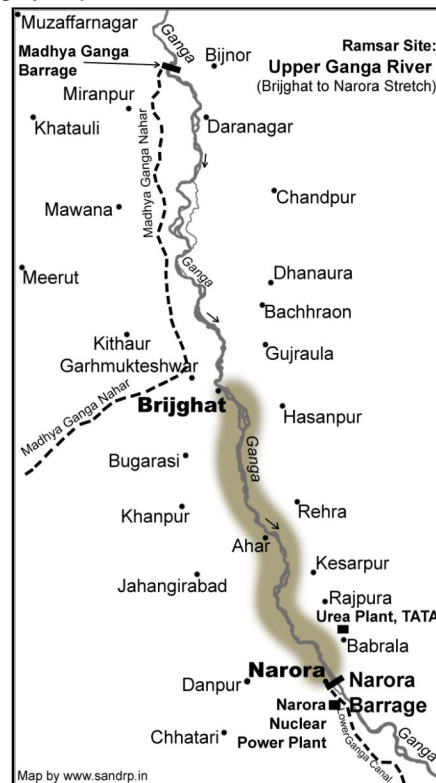
Hirakud dam project was completed in 1966 on the Mahanadi River System, intercepts 83400 sq. km of Mahanadi catchment. The reservoir has net storage capacity of 5818 M. Cum and with gross storage capacity of 8136 M Cum.

(<http://sambalpur.nic.in/hirakud%20dam.htm>)

After the construction of the Hirakud reservoir and irrigation system, adverse hydrologic impacts were seen on the lagoon. Due to reduced freshwater flows, the flushing capacity of the lagoon decreased resulting in increased siltation and clogging of the mouth and reducing inflow of salt water. Sedimentation rate increased three folds between 1950 and 2000. Freshwater outflow reduction from the lagoon mouth to the sea caused salinity decrease from 23 ppt in 1950s to 13.2 in 1999, reducing the fish catch drastically (Das et al, *Impact of Mahanadi Basin Development on the ecohydrology of Chilika Lagoon*, Proceedings of the 12th World Lake Conference, 2007).

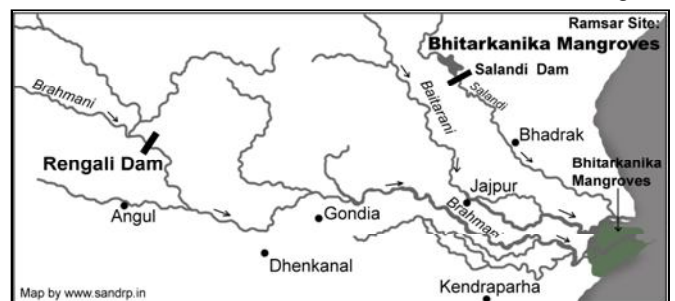
In 2000, the Chilika Development Authority dredged and widened the mouth of the lake towards the sea to enhance its flushing capacity. Positive impacts on fish catch and biodiversity were seen in the following year and subsequently, the lake was taken out from the Montreux record. However, a long term and sustainable solution would be "to enhance the flow regime and optimising salinity levels for the maintenance of the lake's rich biodiversity. The data collected from the past few years have indicated the need for integration of the Mahanadi floodplain system in the north with the lake and the development of an effective mechanism for flushing out the sediment and nutrient-rich water from the lake. Initiatives are underway in the lake catchment to apply a *river basin-scale approach* to addressing the underlying causes of the problems." (Ramsar Advisory Mission no. 50: Chilika Lake, 2001) Several experts and studies have stressed the importance of maintaining environmental flows in the lake through Mahanadi system. (Young (2004), *Water Allocation and Environmental Flows in Lake Basin Management*, Lake Basin Management Initiative, Thematic Paper)

Upper Ganga River (from Brij Ghat to Narora) This 85 kilometre stretch of the 2,525 kilometre long river was included as a Ramsar site on Aug 11, 2005. The stretch, though passing through populated and industrialised areas, the river here provides habitat for IUCN Red listed Ganges River Dolphin, Gharial, Crocodile, 6 species of turtles, otters, 82 species of fish and more than hundred species of birds. (Ramsar website, accessed on Dec 29, 2010)



The Ramsar application, states that "Irregular water flow from the reservoirs in the upper reaches and inconsistent rainfall in the area are responsible for the irregular flow of the Ganga River. The discharge record from the barrages shows a regular fluctuation in the water level causing disturbance to the natural habitat of different aquatic animals." The Tehri dam and a very large number of hydropower projects under construction in the upstream will surely create problems for this site in future.

Bhitarkanika Mangrove System, Brahmani-Baitarni Basin, Orissa Bhitarkanika is the second largest



mangrove system in India, covering an area of 650 km² in the river delta of the Brahmani and Baitarni rivers. It has been given the status of a Ramsar Site and a World Heritage Site. The Bhitarkanika Mangroves are home to 55 of India's 58 (and World's 63) known mangrove species. The mangroves harbour one of India's largest populations of saltwater crocodiles, and Gahirmatha Beach, which separates the mangroves from the Bay of Bengal, is one of the world's most important nesting beach for Olive Ridley Sea Turtles. It is also east coast's major nursery for brackish water and estuarine fish fauna (Ramsar Information Sheet, Bhitarkanika Mangroves).

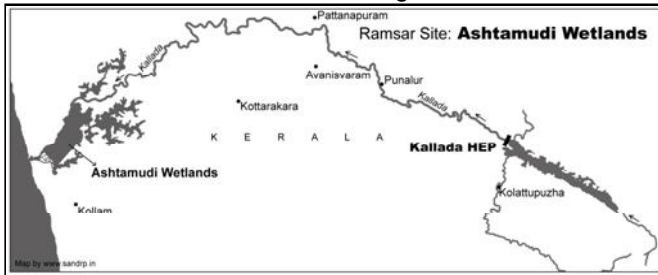
The Rengali Reservoir on the River Brahmani, which has displaced more than 10,000 families and has a track record of being a very poorly managed and monitored project delivering very little of the promised benefits

(CAG Report, 2008, Orissa), is causing and will cause severe threat to the delicately balanced Mangrove ecosystem. Already, after the construction of the reservoir, there has been a 58% decrease in the rivers water supply between 1999 and 2003 at Jokadia Barrage. The Salandi dam on Salandi river is also likely to affect the wetland.

At the same time, the Government of Orissa has been planning mega steel industries in the Brahmani basin. The capacity of the Rengali Reservoir is 4,400 MCM of which 3,450 MCM is required by the Rengali canals. Another 454 MCM shall be consumed by mega-industrial plants such as the National Thermal Power Corporation, National Aluminium Company, Mahanadi Coalfields and the Steel Authority of India Limited. An additional amount of about 414 MCM will be drawn at the Brahmani at Jokadia Barrage once the mega-steel plants start operating. This brings the total amount extracted to 4,318 MCM, nearly equivalent to the amount of available water supply, severely affecting the inflow of freshwater to the mangrove ecosystem, which is crucial for its survival. This will also have repercussions on the rich and diverse marine life of the Gahirmatha Marine Sanctuary. (Sanctuary Asia, Bhitarkanika's Mangroves in trouble)

Scientists from the Minerals and Materials Technology and Spatial Planning and Analysis Research Centre, Orissa, who conducted a study on "Effect of reduced water flow through Brahmani-Baitarani river system on the mangrove population of Bhitarkanika estuary", called for early estimation of minimum volume of water needed for sustenance of this crucial ecological barrier. According to study, during the pre-Rengali dam period, the flow at delta head was 19,514 million cubic metres. According to approximate estimation, the Rengali dam needs to release at least 500 million cubic metres of fresh water exclusively for sustaining mangrove forests even in non-monsoon months during worst drought years. The study warns of slow decline and disappearance of the plant species in these mangroves if a sustainable amount of water is not released into the system. (Wetlands of India, ENVIS Newsletter for Wetland Systems, Sept, 2008)

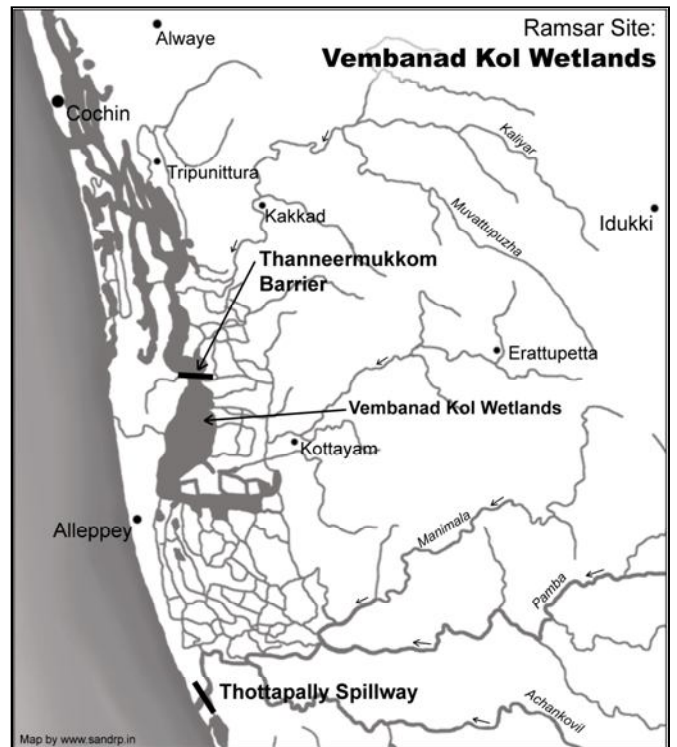
Ashtamudi Wetlands According to ENVIS, Kerala,



Ashtamudi, the deepest estuary in Kerala, receives discharge of Kallada River (Annual Discharge: 3375 MCM). The Ashtamudi wetland also serves the role of

containing the flood waters, which otherwise would have had an adverse impact on the thickly populated coastal land and parts of the city of Kollam. A major intervention affecting hydrology of the wetland was the construction of Kallada dam in the upper catchment, built to irrigate 61630 ha of paddy and upland crops. This 85.3 m high 35 m long (area - 23 km² @ FRL) gravity/ masonry dam created a large reservoir storing 505 Mm³ of water. The dam reduced the summer flows significantly, aggravating salinity ingress in the wetland and into the Kallada River. (Ramsar sites in Kerala, ENVIS, Kerala)

Vembanad Kol Wetlands, Kerala The entire VKW receives drainage from ten rivers, Keecheri in the north

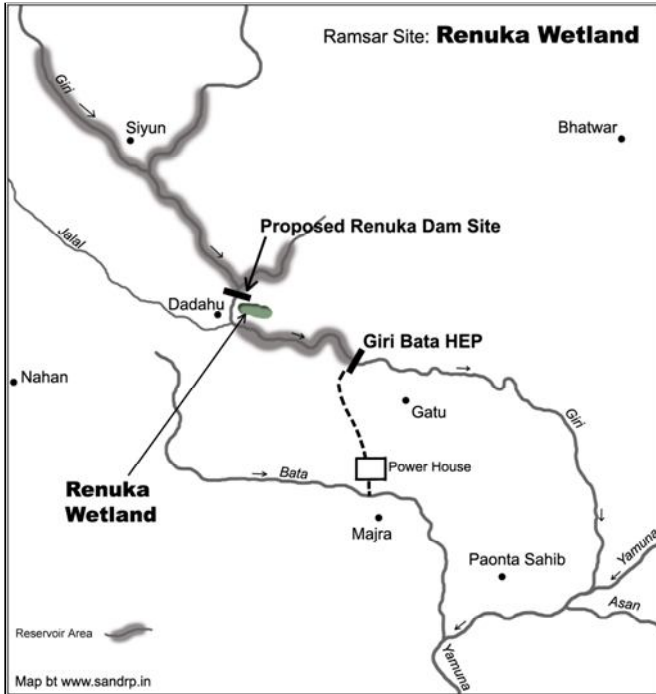


to Achankovil in the south, adding up to a total drainage area of 15,770 sq km (40% of the area of Kerala), and an annual surface runoff of 21,900 Mm³, almost 30% of the total surface water resource of Kerala.

It has been claimed by ENVIS Centre, State of Kerala that interventions like Thottapally Spillway that divert floodwaters of Achankovil, Pamba, Manimala and Meenachil directly to the sea and Thanneermukkom barrier built to prevent salinity ingress into the farmland of Kuttanad have significantly altered the original flow pattern, salinity ingress, pollution dispersion and other characteristics of the wetland. While some bunds arrest the inflow of salt water to the fields, they also obstruct the heavily polluted water to flow to the sea.

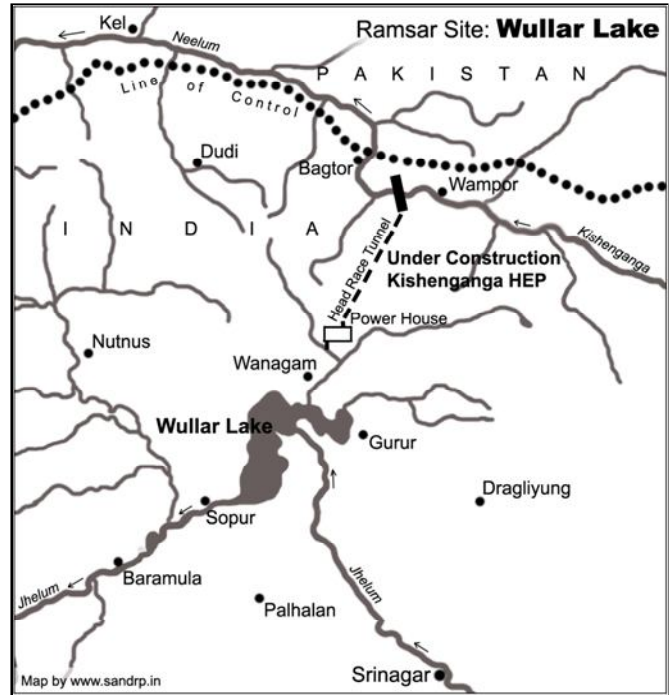
Renuka Wetland, Himachal Pradesh Renuka lake is a relatively small wetland of 20 hectares in the foothills of the Himalaya. It is believed to be an abandoned channel of the Giri River which now flows to its west.

It supports exceptionally rich avian and fish diversity, including a few species of Mahseer fish. The wetland is connected to the Giri River through another lake known as Parshuram Taal. (Ramsar Information Sheet, Renuka Wetland filled by WWF)



However, when the Renuka Dam on Giri River for supplying water to Delhi has been proposed, the EIA conducted by Council of Forestry Research and Education did not mention any links between the River and the wetland. The MoEF's Expert Appraisal Committee on River Valley Projects or the MoEF itself did not object to this serious discrepancy and environment clearance was granted to the project based on flawed EIA. The project currently is stalled because of rejection of forest clearance and also due to the opposition from local communities and others. An application against the environment clearance is also pending before the National Green Tribunal, which is yet to start functioning.

Wular lake, Jammu and Kashmir This Ramsar site wetland is threatened due to the under construction Kishanganga Hydropower Project. This 330 MW project plans to divert the water from the Kishanganga river into Jhelum, which feeds the Wular lake. Currently the Kishanganga river meets the Jhelum downstream from Wular lake. Due to the project, the lake will get additional water in monsoon. In non monsoon months too the lake will get additional water, and more importantly, the inflows will have huge fluctuations as the hydropower project is likely to operate for a few hours when water is available and during the rest of the hours there will be a huge drop in the inflows. These big fluctuations in the inflow will certainly have an impact on the wetland.



Thus, at least 9 of India's 25 Ramsar sites are severely affected through hydrological alterations & large scale water abstraction. In many of these cases, the union government, including the Union Ministries of Environment & Forests & the Union Water Resources Ministry are also responsible for the state of affairs.

The other Indian wetlands declared as Ramsar sites include the Bhoj wetland (MP), Deepor Bill (Assam), E Kolkata wetlands (W Bengal), Harike, Ropar & Kanjli (all 3 in Punjab), Kolleru lake (Andhra Pradesh), Point Calimere Wild life & Bird Sanctuary (Tamil Nadu), Pong dam lake & Chandratal (both in Himachal Pradesh), Sambhar lake (Rajasthan), Sasthamkotta lake (Kerala), Tsomoriri, Hokera and Surinsar-Mansar complex (all 3 in Jammu & Kashmir) and Rudrasagar (Tripura). The fate of many of these remaining Ramsar wetlands is not likely to be particularly different. If this is the situation of Ramsar wetlands which gets additional funding, protection & monitoring, including from international sources, one can imagine what will be the situation with the non Ramsar wetlands. In such a scenario, legislation like Wetland Rules was expected to become the guiding force for developing a more sustainable water management regime.

It was also expected that the new Rules will correct some of these wrong practices and ensure that in future these are not repeated. Unfortunately, this has not happened and the responsibility again lies with the State Govts and there is no clarity in the rules about how the state governments are to decide in such matters. It is clear that the newly notified wetlands protection rules 2010 are not likely to help the cause of the wetlands.

Parineeta Dandekar & H Thakkar (all maps by Swarup Bhattacharya)

India and China share rivers and much more...**Can India be firm with China on Brahmaputra basin dams?**

Chinese Premier Wen Jiabao's forthcoming India visit (15-17 Dec 2010) provided another useful opportunity for India to be firm and forthright with China on India's concerns about Chinese dam and hydropower projects on the shared rivers, including in the Brahmaputra basin. The importance of this issue cannot be underscored considering that this issue has been raised in the Parliament several times, even the Prime Minister has had to make clarifications in the recent past, the people and governments of several states, including Assam and Arunachal Pradesh have been agitated about this. India's Planning Commission, Environment, Water Resources and Power Ministries have also been raising these concerns.

Unfortunately, India has been less than firm and forthright with China on these issues in the past. For example, the Indian government has informed the Parliament in the past that China has not disclosed the reasons for floods in Himachal Pradesh in August 2000 and in Arunachal Pradesh in June 2000, when the floods in both cases originated from China. Both floods created huge devastations in India.

China started the construction of the 510 MW Zangmu Hydropower project on the Yarlung Tshangpo (as Siang, the main tributary or main stream of Brahmaputra is known in Tibet see the location map above) on Nov 12, 2010. India reacted to that only *after* the Indian media picked up the news from international media reports. Worryingly, the report from the China's news agency Xinhua said the US\$ 1.2 billion project "can also be used for flood control and irrigation". For a project to be useful for irrigation and flood control it needs to store and divert water. But even without these features the Zangmu and the numerous other hydropower projects that China plans will have adverse downstream impacts. The Chinese foreign ministry spokesman Hong Lei did clarify to media that China took "full consideration of the potential impact on the downstream area."

But note that this clarification really says nothing either about the downstream impacts or what consideration they have given to such impacts. Should Indian government complain about this? The trouble is, when Indian government responds to downstream countries about the dams and hydropower projects it builds or when India responds to even its own people, Indian government response is almost in same ambiguous, escapist and almost insulting language and manner. To illustrate, when an Indian Union Minister responded to a

question in Parliament about impact of Arunachal Pradesh hydro projects on downstream Assam, the answer was, "No specific information is available regarding threats to existing identity of indigenous people of Assam by mega dams proposed in the NER". Should not the water resources ministry be more

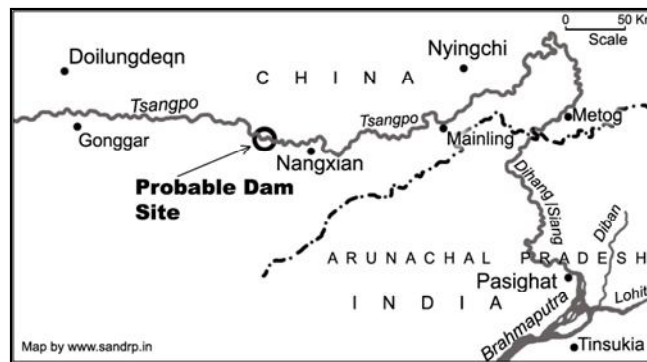
forthright about the adverse impacts that Assam people are sure to face due to the existing and proposed Arunachal projects?

As a matter of fact, Indian, Arunachal and Assam governments have often justified the expeditious clearance and building of big dams in the North East, saying that it will establish first user right. The trouble is,

firstly there is no international law or mechanism where such a right can be defended against actions of upstream countries. Such a defense would be possible if there was a treaty on sharing the common rivers, like the Indus Treaty that India has with Pakistan. But no such treaty exists between India and China on any of the rivers that the two countries share. And India has not used its substantial leverage (The delegation accompanying the Chinese premier includes 400 business people and five years back too Wen went back from India after a successful business trip) to push any such treaty.

The only international convention in this regard, the UN Convention on Law on Non-Navigational Uses of International Watercourses was approved in 1997 by the UN General Assembly a vote of 104-3. Interestingly, China was one of the only three nations that voted against the convention. India did not do it a great favour by abstaining from voting. The convention in any case it yet to come to force since sufficient number of countries are yet to ratify it. But even when it gets ratified, as noted by a task force report from India's defense think tank IDSA (Institute for Defence Studies and Analyses), such laws are "difficult to implement and often contradictory".

No effective international court exists for such conflict resolution. Unfortunately, the IDSA report ends up with a rather problematic suggestion, "As a counter-measure to China's plan for the diversion of the Yarlung-Tsangpo, India should propose a south Asian-China-ADB power project with international support on the Great Bend." Such a suggestion would be seriously counter productive since it will justify the worst feared of the proposals China has of building a 38 000 MW hydropower project on Brahmaputra and diverting it to the Northern part in phase two. In fact, China has



multiple projects lined up on Tsangpo, as can be seen from the second map here.

China's track record, however, is far from encouraging in this regard. What is going on in the Mekong basin is a good guide. There exists an international Mekong Commission including countries like the Thailand, Laos, Cambodia and Vietnam, and the commission is backed by powerful Japan and the Asian Development Bank. But China, which is not part of the commission, has been building hydropower projects which are affecting the downstream existing projects adversely, but the downstream countries could do nothing about the Chinese projects. The downstream countries can at best request China to make amends. What

happened to such requested in Mekong basin? This is what an editorial in major Thailand daily, *Bangkok Post* wrote on March 10, 2010, "But those requests have gone in one Beijing ear and out the other for years." This completely demolishes the first user principle argument that supporters of dams in Arunachal Pradesh, including environment minister Jairam Ramesh are using to push such projects.

We also need to look at the track record of Indian govts in this regard. When it comes to sharing even basic information about the plans of the government in North East India, the Water Resources Ministry refuses to provide basic information to the people of the North East Region. The Ministry refused to provide such information to South Asia Network on Dams, Rivers & People even under the Right to Information Act. Ultimately SANDRP had to file appeals to the Central Information Commission and the ministry had to provide basic information under the CIC orders. But this and the earlier quoted answer in Parliament from the minister show how callously Indian government deals with these issues. Indian government ensures no proper environment impact assessment, has absolutely no will or capacity to implement environment management plans of the projects and has no law that requires proper participation of affected people in planning and decision making in water resources development or management. India needs to fundamentally change its ways of dealing with the issues related to rivers and dams. Indian government needs to improve its own credibility through more responsive, transparent and environment friendly treatment of rivers & people.

The need of the hour is a comprehensive treaty with China on the river basins that the two countries share. This is also urgently important since the rivers that India shares with China are fed by glaciers, most of which are located inside Tibet. Our knowledge base of these

lifelines is very poor and better cooperation is also useful for India in the context of climate change. This has been rightly emphasised by Shri Jairam Ramesh, India's environment minister. The best way to go forward for India, China, Bangladesh (a downstream country along the Brahmaputra) and even the rest of the world would be to set up a multilateral river basin level mechanism involving not just the governments but the people of

three countries to share not just the water of the rivers that India and China share, but also the mountains, the glaciers, the forests, the biodiversity and the associated lives and cultures that also get shared. The Report of the World Commission on Dams provides a very useful starting point for such a mechanism. Interestingly,

both Indian and Chinese governments were involved in the work of the WCD so both are familiar with the WCD recommendations.

The Indian and Chinese premiers had an unprecedented historical opportunity to create a river basin management mechanism on these lines for sharing the international rivers. It would have not only helped the two countries for generations to come, but it would have the potential to create a remarkable example for the rest of the world. Such a mechanism can help keep the Brahmaputra Basin Rivers in the natural state over large parts. Brahmaputra, the fifth largest river in terms of water it carries and second largest in terms of the silt it carries, remains relatively less disturbed among the rivers of the world and provides ideal platform for this. Would the Indian government show the firmness, forthrightness and foresight to propose this to the Chinese Premier? It would have only strengthened the Indian government hand in dealing with its bigger neighbour. It would also have given huge strength to the fragile bilateral relations that the Chinese ambassador to India referred to on Dec 13, 2010 in Delhi.

Himanshu Thakkar (An edited version published on Rediff)

Post Script Post the summit, Nirupama Rao, India's Foreign Secretary said that on water resources, China and India agreed to talk more in the future.

At a programme in Delhi during the visit, Chinese Premier said, "China takes seriously India's concern" and is ready to further improve the "joint working mechanism". "We will do whatever we can and do it even better. I would like to assure our Indian friends that all the upstream development activities by China will be based on scientific planning and study and will never harm downstream interests". (The Indian Express, The Financial Express 171210) No other details are available as to what transpired on this issue in the India China talks.



Union Environment Minister is not over reacting as some allege**Why the MoEF needs to urgently take up some systemic tough actions**

A completely wrong impression is being created, largely by vested interest lobbies that Union Ministry of Environment & Forests under the leadership of Shri Jairam Ramesh is over reacting in recent months. The situation is exactly the opposite. The Ministry needs to take up some urgent systemic actions if India's Environment & Forests are to have any hope. Fact of the matter is that the Ministry is yet to really start performing the role for which the ministry is created. To illustrate:

- Our rivers continue to remain what the World Bank describes as fetid sewers. The MoEF has the mandate and power to ensure that rivers are not polluted. The Ministry has been empowered with the laws like the Water Pollution Control Act, the Environment Protection Act and so on. It has been provided with huge institutions and sufficient financial resources in terms of thousands of crores, and yet the ministry is yet to achieve a single clean river in the country. Right in the National Capital, the river flowing through it is a gutter as described by many editorials in National papers, but the ministry is unable to take *any* action to fix that problem. The National River Conservation Authority headed by the Prime Minister, which governs the only national and flagship river conservation programme of the country is yet to meet at all during the entire UPA I and II.

- The ministry every month continues to give hundreds of clearances under EPA (1986), Environment Impact Notification (2006) and Forest Conservation Act. (1980) accompanied by Forest Rights Act. Each such clearance is accompanied by an Environment Impact Assessment, Environment Management Plan and conditions of clearances. The MoEF has neither the capacity nor the will to ensure compliance with the conditions under which such clearances are given. It does not even know what is going on at project sites. Its field offices do not do *any* surprise visits to the project sites to ensure if the projects are following the laws of the land. Even during the once in five year visit that do to a project they are not able to either take stock of the compliance nor take any action when compliance does not happen. A recent review by the additional Chief Secretary of Himachal Pradesh following a High Court order showed that almost everyone of the reviewed projects were violating the laws or management plans. But there are practically no consequences for such violations. A recent RTI response from the ministry revealed to SANDRP that over five years after getting environment clearance in Oct 2005, the Polavaram dam in Andhra Pradesh has not submitted a single compliance report when it is supposed to submit such reports every six months. No consequences. Even when the reports submitted to MEF by the developers (e.g. Karcham Wangtoo HEP) or by committees appointed by the ministry (e.g. Sardar Sarovar Project) or by non govt organisations (e.g. Tehri Dam & Rampur HEP) show violations, there are still no

consequences. And if the ministry does not know what is going on, what action can it take?

- It is an open secret that the EIAs submitted to the ministry are routinely plagiarised, are cut and paste, and dishonest, seriously compromised jobs, including the EIA done by NEERI for the 9900 MW Jaitapur nuclear power plant most recently cleared. But the MoEF has not taken any measures against any of the EIA consultants for filing fraudulent EIAs, even after media has reported and when these issues have been brought to the notice of the ministry (e.g. in case of WAPCOS EIAs by SANDRP) one way or the other.

- The ministry still does not have clearly defined norms that only persons with adequate back ground in environmental issues should be selected for the Environment Appraisal Committees appointed by the ministry for scrutinising the applications for clearances. So we have Rakesh Nath heading the EAC for River Valley projects, without having absolutely any background on environmental issues. He was appointed during Mr Jairam Ramesh's regime, incidentally.

- The MEF decision to give the work of preparing the fresh Action Plan to a consortium of IITs was wrong, since IITs have neither the track record of taking independent stand, nor does it have the expertise in governance issues, which is at the root of failure of earlier plans. The consequences are now clear with the seriously flawed report submitted by the consortium.

These are just a few BIG systematic issues one can highlight, on which urgent action is required. But there is no move in that direction. There is no doubt that Mr Ramesh has taken some steps in right direction in some projects. The developers have become used to have an MoEF that is working as an agent of environmental destruction. So some of the developers are crying that there is over reaction from the ministry. However, if one looks at closely, almost in each of the instances where the ministry has taken action, one can see that the action was long over due and that in many cases the action was taken *only after* people working on ground have high lighted the problems or cases have been filed in the courts. This is true in case of Lavasa, Vedanta, Posco, Polavaram dam, Maheshwar hydro projects, Renuka Dam, among others. In fact for each such case, one can show dozens of others where action is over due from the MoEF, but the ministry has not yet taken the required action. There are other instances (e.g. SUVs, western life styles being bad for environment or that the National Action Plan on Climate Change should have been formulated in participation with the people at grass roots) where Mr Jairam Ramesh has made statements, but action is *still* awaited. Actions that can bring systemic change in environment governance so that non compliance invites consequences are still awaited.

Himanshu Thakkar (An edited version published in [Business Standard](#))

CLIMATE CHANGE & WATER SECTOR

Rs 350 Cr Scheme on Climate Resilient Agriculture

The Cabinet Committee on Economic Affairs has approved the implementation of a new plan scheme 'National Initiative on Climate Resilient Agriculture' to address climate change impact on agriculture and allied sectors. The main objective is to assess the impact of climate change on agriculture and allied sectors and evolve cost effective adaptation and mitigation strategies. The Project is proposed at an estimated budget of Rs 350 crore for XI Plan out of which Rs 200 crore is to be spent during 2010-11 and Rs 150 crore during 2011-12 on research infrastructure, capacity building & on-farm demonstration of available climate resilient technologies.

About one lakh farmers could be directly benefited through on-farm demonstration of climate resilient technologies. The components of the scheme are:

1. Detailed vulnerability assessment of agro-climate regions & production systems, & the relative vulnerability of different crops, livestock & fishery sectors.
2. Initiate strategic research on adaptation and mitigation at seven major research institutes of the Indian Council of Agricultural Research on natural resources, major food crops, livestock, marine and freshwater fisheries.
3. Demonstrate available climate resilient practices on farmers' fields in 100 most vulnerable districts in 27 states/ UTs.
4. Strengthen research infrastructure and capacity building of scientists for undertaking long term research on climate change adaptation.

During the first year, the research infrastructure at key institutes of ICAR will be strengthened to study climate change impact on major food crops and livestock at an outlay of Rs.200 crore. A detailed vulnerability assessment of at least 15 National Agriculture Research Project zones will be taken up during the year. Simultaneously, the existing best practices available from National Agricultural Research Systems will be demonstrated in 100 most vulnerable districts already-selected, involving at least 1000 farmers in each district through Krishi Vigyan Kendras.

During the 2011-12, long term strategic research programmes will be initiated on crop improvement to heat and drought stress, management of natural resources for adaptation and mitigation and innovative livestock management practices to minimize heat stress on animals. The scheme is expected to help in identification of at least 15-20 heat/drought tolerant promising cultivars of different crops by end of XI Plan. The outputs are expected to provide adequate resilience to the small and marginal farmers and reduce production losses at least by 25-30%. (PIB 151210)

SRI developments As in other Asian countries, rice remains a staple in this country, where some 44 million

ha are planted with the grain. In the SRI method, single 12-day seedlings are transplanted at a precise spacing of 25-centimetre squares. The soil at the roots is also kept moist, well-aerated, and well-drained, while adding organic nutrients to it is encouraged. Frequent weeding is done with implements that also "churn" the soil, aerating it. According to agriculture experts, this keeps the water requirement at a minimum. The attention paid to spacing the plants, meanwhile, means that the roots of each plant have enough room to grow, enabling it to flourish to its full grain-bearing potential. SRI thus requires less seeds, water, and fertiliser even as it leads to greater yields.

Indeed, according to a comparative study by the Watershed Support Service and Activities Network, in the southeastern state of Andhra Pradesh, SRI results in returns that are 52 percent higher than those from convention cultivation. And while gross yield was 18 percent higher with SRI, total input costs were 32 percent lower. WASSAN researcher S Bhagya Laxmi says the reduction in expenditure with SRI can be traced in large part to the 37-percent slash in labour costs for transplantation. More than half of these labour costs are for weeding, she says, but with the local SRI innovations, "twice as much time" was even freed up for the women who used to do the backbreaking work.

In Andhra Pradesh, SRI has already inspired the creation of at least two kinds of weeders. One is called the cono-weeder, which was designed by scholars at the state Acharya N G Ranga Agricultural University. The other is the Mandava weeder, which was named after the home village of a group of farmers who found the cone-weeder too heavy and cumbersome for them to use. Putting their heads together, the farmers led by 50-year-old Parcha Kishan Rao redesigned it, making it lighter and far easier to push. Today the Mandava weeder is being manufactured locally and sold for Rs 800 each. Says WASSAN director K Suresh, "the rice intensification method has been evolving more within the domain of people's knowledge and through farmer network innovations than through the formal science establishments." Vinod Goud, a scientist with the International Crop Research Institute for the Semi-Arid Tropics, says more SRI farmers can only be good news at a time when climate change is wreaking havoc on crop yields. Through SRI, he adds, greater food self-sufficiency and resource – especially water – conservation are ensured. (IPS 291210)

Climate Change & Manipur's Wetlands Urbanization and encroachments, conversion of the low lying areas into farms, disposal of garbage, leaching of chemical fertilizers, and toxic chemicals besides aging and the climate change are the major causes of degrading, polluting and ultimate dying of the wetlands in Manipur. Lakes are known as 'pats' in Manipur.

Wetlands cover nearly 2.37 per cent of Manipur's total geographical area (22,327 sq km). A study on 'Shrinking water area in the wetlands of the central valley of Manipur' by Abha Lakshmi Singh and Khundrakpam Moirangleima of Aligarh Muslim University's geography department said. There are about 155 wetlands of which 153 are located in the central valley while 2 in the hill districts. Loktak, the largest fresh water lake in north eastern India (including 4 tiny wetlands-sanapat, laphupat, thaunamchapat, utrapat and keibul lamjao floating park) covers an area of 24,672 hectares during monsoon (post monsoon-23,246 hectares).

These lakes play a vital role in the socio-economic and cultural life of the people. Sustenance of human society lies in the sustainable management of wetlands. But the existing surviving lakes are also on the verge of extinction at fast rate as they are threatened by climate change besides other natural and anthropogenic forces. A strange hurricane like strong wind has started to reach Manipur in between April-May period for the last three consecutive years since 2008, uprooting many standing crops in hundreds of hectare besides destroying houses. Ecology Professor B Manihar Sharma of Manipur University's Life Science department said "Coming of such wind in the region is one clear example of climate change impact". Such strong wind and subsequent rise of temperature has been affecting the ecology of the wetlands. "Besides the impact of strong wind, the warming up of lake water due to sudden rise in temperature also affected habitat of sensitive plants and soft scale local fishes such as Porom, Meitei Ngamu and tiny fish species Ngakha and Ngasang," Professor Manihar added.

Waithou Lake located at the adjoining areas of Imphal East, West and Thoubal district, was once known to be the breeding place for the threatened fish species Ngaton (*Labio bata*) but after the construction of the Cheksabi barrage and ringbund during 1970s, the habitat of the fish has been completely vanished from the lake. State fish Pengba (*Osteobrama belangeri*) is also extinct in wild but is bred in ponds. Likewise around 15 out of more than 200 fish species in Manipur were endangered "critically endangered" while 50 to 60 are highly vulnerable due to overexploitation, pollution, flow modification, destruction or degradation of habitat, invasion by exotic fishes and climate change, Prof Waikhom Vishwanath of the same Dept observed.

"Earlier many local fishes and plants were available in Waithou lake. But many non-local fishes (common or grass or silver carps) has replaced them", Laishram Sanakhomba (67) of Saijin Pallak, a village located on the bank of the lake said. No scientific study has been done to confirm the exact number of highly endangered plants or fishes at risk in Manipur's wetlands due to factors relating to climate change and human pressure.

Oinam Yaima (65) a resident of Chandrapur village near Moirang township in Bishnupur district who lives in a floating hut in Loktak for the last one decade also has a similar story. "The cyclone type wind which hit the lake early this year (April-May) had affected our environment besides destroying many floating huts", Yaima recalled. More than 10,000 individuals live on floating huts for their livelihood. The Loktak lake ecology has been adversely affected in major way in recent decades due to the hydropower project built over the lake, see earlier piece in this issue.

Meanwhile, state's Environment and Ecology Wing under forest department has decided to take up proper conservation and management of 19 lakes in Nov 2010. They are Pumlun/Khoidum/Lamjao, Ekop (Kharung), Loushi, Waithou (Punnem), Ahongbeekhong, Ushoipokpi, Sanapat, Utra, Tankha, Karam, Lamphel, Yaral pat, Zeilad, Heingang, Jaimeng, Khayang Kachophung pat, Lampelchoi and Loktak pats (lakes). The total water area covered by these pats is 397.82 sq km. However the government's move is yet to convince the state's environmentalists as the state govt has poor track record on this issue. ([Kanglaonline 291210](#))

CDM HYDRO PROJECTS

Pak says India dodged UN to get carbon credits India has managed to get approval of carbon credits amounting to \$482,083 to be credited seven years (\$68,869 per year) from the UN for Nimmo-Bazgo and Chuttak hydropower projects, which are allegedly not in line with the Indus Waters Treaty, after showing that it has got the clearance report on trans-boundary environmental impact assessment of the said projects from Pakistan.

The 42-m high Chutak hydroelectric project is located on the Suru River, a tributary of Indus in the Kargil district of Kashmir. A 57-m high Nimoo-Bazgo hydroelectric project is also being developed in the Leh District on the Indus River. The projects cleared by United Nations Framework Convention on Climate Change on 11 Aug 2008. Under 37 clauses (b) of UNFCCC rules business (FCCC/ KP/ CMP/ 2005/ 8/ Add.1 dated 30 March 2006), it is mandatory for India to get ratified Environmental Assessment Report of both projects from Pakistan to earn carbon credits. Page 23 of Project Design Document of both projects approved shows that trans-boundary environmental impact assessments of these projects have been conducted. M/s NDV had prepared the Validation Report for UNFCCC and page 52 of the report stated that trans-boundary environmental impacts were considered as per procedures laid-down.

The recently sacked Commissioner of Pakistan Indus Water Syed Jamaat Ali Shah said that he dealt with the issues relating to Indus Waters Treaty with India and the clearance of the projects in terms of Environmental Assessment Report does not fall its jurisdiction; rather it

comes under the jurisdiction of ministry of environment and Foreign Office.

As per the definition of International Commission on Large Dam, in various bulletins, especially in 35 (1980), 37 (1981), 50 (1985) and 96 (1994), emphasises detailed EIA Report prior to physical execution of work on any large dams. Also, as per the decision of International Court of Justice Hungary & Slovakia Case (Gabcikovo-Nagymaros Dam), (ICJ Reports, 1997), which has now become precedence, legally binding and an obligation to contact and ratify Trans-boundary Environment Impact Reports of all upcoming and ongoing projects including hydroelectric dams. India has already recognised the value of this verdict and mentioned it in its counter while pledging the case of Baglihar Dam in 2006, in the court of neutral expert. (The News 221210)

DAMS

Jawai Dam Operation: Rajasthan HC notice The Rajasthan High Court has given a notice to Concerned Rajasthan officials as to why they have reserved less water in Jawai dam for drinking water needs for Pali. In a PIL filed by social workers, it has been suggested that sufficient water to cater to drinking water needs of Pali for at least two years must be reserved in the Jawai dam. (Bhaskar 061210)

MWR ok for 2 state JV for Kishau Dam The Centre has given a nod to Uttarakhand and Himachal Pradesh to take up Kishau dam as a joint venture, at a meeting convened by Union secretary of water sources in New Delhi on Dec 23, 2010. It was made clear at the meeting that the Centre would have no objection if the two states reached an understanding to take up the project. The project to be constructed in Uttarakhand and it will submerge a large area in Himachal and also Uttarakhand.

Serious questions The project, very strangely bypassing all the national laws, has already been declared a national project. What happens if the environment impact assessment or the public consultation finds the project unviable or unacceptable? What happens if the Union Ministry of Environment and Forests finds the project not worthy of environment or forests or wildlife clearance? What happens if the Central Electricity Authority finds that the project is not worthy of concurrence as per the Electricity Act 2003? What happens if the Technical Appraisal Committee on Water resources or Planning Commission does not find the project suitable for clearance? What happens if the Upper Yamuna River Basin states find that it is not possible to arrive at consensus on the sharing of water, costs and benefits of the project? What happens if the affected people upstream and downstream do not find the project acceptable? What is the logic of declaring a project as National Project without getting nod from all

these laws, agencies and perspectives? It seems the Union Water Resources Ministry is trying to act as a super ministry that is riding roughshod over these steps and in the process risking the very idea of a national project and thus insulting the idea of nationhood.

In the revised detailed project report, the installed capacity of the project to be set up on the Tons, a major tributary of the Yamuna, has been increased from 600 MW to 660 MW. It involves the construction of a 680-m long and 236-m high concrete gravity dam 45 km upstream of Dak Pathar at the fringe of the Ichari reservoir. The reservoir is to extend upstream 44.5 km and in all, the area of 2950 ha will be submerged in the two states. At least nine villages in Uttarakhand and eight villages of Sirmour in Himachal will be totally or partially submerged. The dam will have a total storage capacity of 1824 Million Cubic Metres and the live storage will be 1324 MCM. The cost of the project is estimated at Rs 10,500 crore being a national project 90 per cent of the funds will be provided by the Centre as grant. The project promises to generate 1851 million units of power annually. The release of stored water during the lean season is expected to help augment generation in downstream power projects of Chibro, Khodri, Dhakrani, Dhalipur, Kulhal and Khara.

The project was first conceived in 1940 and a preliminary project report was submitted to the Central Water and Power Commission. A detailed project report envisaging a 235-m-high arch dam was prepared in January 1965, but it was not approved because the proposed site fell in active seismic zone. Yet another report was prepared in 1978 but by the time a dam at Ichari, downstream of the proposed Kishau dam site, had already come up. (The Tribune 241210)

J&K govt to provide Rs 68 crore for reviving dams

The Jammu and Kashmir government has sanctioned Rs 68 crore for reviving two dams in Budgam district of central Kashmir in order to provide irrigation facilities. State finance minister Abdul Rahim Rather announced Rs 23 crore for Arzan-Garzan dam and Rs 45 crore for Malapora dam. (PTI 171210)

SARDAR SAROVAR PROJECT

Farmers deprived of Narmada water for industrial development Nearly 500 farmers visited Sanand mamlatdar's office on Dec 27 2010 and protested against the govt's decision to stop water supply from Fatehwadi and Narmada canals. They said that the govt's move would severely affect cultivation of crops, including wheat, on 12,000 ha in Sanand, Changodar and Bavla. Ten days ago, the state irrigation department blocked supply to 40 villages without prior notice. Farmers in these villages now face the risk of losing their crops, adding that the water supply from the said canals should be restored immediately.

They alleged that the supply had been cut because the government wanted to fuel industrial development in the region. "If fields are not irrigated, farmers will be forced to move out. This will make it easier for industries to acquire agricultural land at cheaper rates," the farmer leaders said. The state government's pro-industry policy has angered farmers in Ahmedabad, Vadodara and Mehsana districts. They say private companies are eating up fertile land to set up their units. "If government officials wanted to discontinue supply from Fatehwadi and Narmada canals for irrigation, they should have informed us beforehand. We wouldn't have sown seeds. Now, it is too late," a leader Kamashi said.

Kamashi alleged that government officials were giving false reasons to justify blocking of water supply for irrigation. "They say farmers are not paying charges for using Narmada water. This is far from reality. Farmers regularly make payments to the Fatehwadi canal division. If authorities there do not pass on payments to Narmada canal officials, it is not our fault," he said. Authorities, he claimed, had cited maintenance work at the said canals as another reason. "We checked, but we did not find any activity," he said. (Ahmedabad Mirror 281210)

GROUNDWATER

Impending crisis in Punjab Punjab — whose river water has been dammed, with the main river having been converted into a narrow channel through earthen embankments — is devoid of adequate recharge of the underground aquifer. As a consequence, even the heavier rains do not provide enough recharge. On the western side, the Ghaggar River causes floods. On the other hand, with the crop cultivation intensity going up to 187 per cent, the water requirements of crops have been increasing. *The situation is such that water supply from the canal system does not meet even 20 per cent requirement of the crops being grown in the state.*

There is a need to start a scheme to provide incentives to the farmers to conserve water and power. If the farmer laser-levels his fields under cultivation and to the extent he does so, he gets reduction on water and power charges up to 10 per cent. Further, if he installs tensiometers in his fields and applies water to the fields as indicated by the instrument, he gets another 5 per cent rebate. If he resorts to the technique of direct seeding without puddling and uses tensiometre, he gets up to 40 per cent rebate on the bill. Thus, by using water-saving techniques, the farmer will be able to save on his power bill up to 50 per cent over and above the lower bill he will get on the lesser use of power. (SS Johl in The Tribune 191210)

HYDRO PROJECTS

Penalty sought for delayed hydro projects The standing committee on energy has recommended adopting penal provisions to punish hydropower project developers who default on implementation of allocated

projects. The parliamentary panel made this observation after it came out in a recent meeting that only 22% of the 15,627 mw hydropower capacity addition envisaged under the 11th Five Year Plan has been commissioned so far. Of the balance, 4,634 mw capacity is expected to be commissioned with high degree of confidence and 2,070 mw with best efforts only. Rest 5,442 mw capacity is projected to slip from the current Plan. The committee wondered why the desired results were not achieved despite so many high-powered project monitoring committees and groups. Meanwhile, 87 hydropower projects worth 20,334 mw capacity are being taken up for implementation under the coming 12th Five Year Plan. There is no penal provision in place to punish the developers currently in case of their failing to complete projects on time. On the contrary, since all claims of cost escalations are allowed, there are incentives for them to delay the projects. (Financial Express 041210)

Cost-plus tariff may continue till 2016 To compensate developers of delayed hydropower projects, the government could continue with a cost-plus tariff regime till 2016. A decision to this effect was taken by a task force on hydro project development held on 29 October 2010. State-owned firms have been lobbying the power ministry for an extension of the present regime. "We are evaluating whether we can apply competitive bidding, or extend the present regime. We will float a cabinet note shortly for the same," said a top power ministry official. However, the Central Electricity Regulatory Commission is in favour of a competitive system from 2011. According to the power ministry's tariff policy of 2006, competition is key to keeping prices in check through a reduction of capital costs and greater operational efficiency. "If the present system is continued, whoever is currently benefiting will continue to benefit," said R.S.T. Sai, chairman and managing director of THDC. "Even new projects can be awarded during the period." (Mint 061210)

HYDRO PROJECTS IN NORTH EAST INDIA

Indian Express at it again: Blind advocacy for dams *Indian Express* newspaper keeps (see Oct-Nov 2010 issue of *Dams, Rivers & People* for an article on how they have been doing this for some time) blindly advocate for large dams in the North East India. Thus while reporting that "within days of Chinese Premier Wen Jiabao's visit to India, intelligence agencies have reported 24 new projects (believed to be hydropower projects) along the Brahmaputra river and its tributaries on the Chinese side", the paper did not forget to push for building big dams and hydropower projects on Indian side to establish first user right. As pointed out in another article on this topic in this issue of *Dams, Rivers & People*, such right has no sanctity in absence of an effective international law or treaty. The paper makes such claims, saying that water experts have been urging this, but is unable to name a single expert in the article,

leaving aside for the moment the need and question of independence or credibility of such names. Interestingly, the paper attributes a quote to Wen, without giving source, "Over the years, in order to help downstream areas with disaster prevention and mitigation, the Chinese technical personnel have defied the hostile natural conditions in the upper reaches, overcome tremendous difficulties and even risked their lives to handle emergencies and to collect flood-season hydrological data that are shared with India." The paper does mention that China charges India for such data for Brahmaputra and will charge now for sharing Sutlej data, an agreement for this was signed during Chinese Premier's Dec 2010 visit to India. (Indian Express 211210)

L Subansiri: amidst agitation, NHPC signs PPA with Chhattisgarh Even as the under construction 2000 MW Subansiri project of NHPC faces strong opposition in Assam and Arunachal Pradesh, the NHPC has signed a Power Purchase Agreement with the Chhattisgarh state Power Distribution company to supply 42 MW during evening peak hours at rather cheap rate of Rs 2 per unit. (Bhaskar 161210)

HYDRO PROJECTS IN UTTARAKHAND

Srinagar HEP height challenged in High Court The Uttarakhand High Court has admitted a public interest litigation on raising the height and increasing the production capacity of Srinagar Hydro Electricity project filed by some residents of Tehri Garhwal district. The Bench of Chief Justice Barin Ghosh and Justice VK Bist asked the Union ministry of environment and forests to file a counter affidavit on the matter. The PIL said the Alaknanda Hydro Power, the execution agency for the hydro electricity dam, received the no objection certificate from MoEF in 1985 in which the prescribed height of the dam was 66 m with a 200 MW capacity. The PIL said a revision has been done by the executing agency and increased the height of dam to 90 m and capacity to 330 mw without seeking a fresh environmental clearance as required under the law.

In the hearing before the Central Empowered Committee of the Supreme Court on Dec 16, 2010, the advocate for the respondent (project developer) argued that the Environment (Protection) Act and the EIA Notification came into force *after* the clearance was granted to the 200 MW Project and could therefore not apply retrospectively. He relied on the Narmada dam judgment extensively to support his point that at this stage when twenty five years have passed since the clearance was granted, no challenge can lie against the Project. The CEC members pointed out to the advocate that if the conditions which were placed on the proponent in the Narmada case were imposed in the present project, the project would become unviable as those conditions were very onerous. He therefore asked the advocate to refrain from making comparisons. The Applicant pointed out

that what was in question was the compliance of conditions laid down in the clearance. The issue of retrospective application of the law does not apply as the Project work did not start until 2000. The CEC informed the parties that it was awaiting for the response of the Ministry of Environment and Forests on the issue of whether a fresh clearance should have been sought when the dam height was increased. The CEC pointed out the discrepancy in the area of land that would be submerged by the project and sought clarification from the project officials. The applicant also produced recent photos of illegal muck disposal in the river. The respondents denied the same. The CEC noted that this matter was of immediate concern and requested the advocate for the respondents to ensure that muck disposal does not take place in the river. The CEC also added that the respondents could not afford to be complacent just because the CEC was not passing any refraining order. They finally directed the parties to meet in the presence of the Forest Department and find a solution to the muck disposal problem. (Financial Express 231210, Forest Case Update Dec 2010)

THDC to issue fresh bids under court order Tehri Hydro Development Corp has informed the Supreme Court that it would invite fresh price bids from the two multinational firms Alstom Hydro and Voith Hydro for pump storage component of the Tehri project following the report of the expert committee. An expert committee has found that one of allegations made by Voith Hydro, a joint venture between two German giants Voith and Siemens has some justification. Earlier, on 26 March 2010, the Apex Court appointed a three member expert panel and said that the opinion given by it would be considered by the Tehri Hydro Project, while taking a final decision in this regard. The court's direction came on appeals filed by THDC, Alstom Hydro and Voith Hydro.

THDC had invited bids for Tehri Pump Storage Plant, Phase-II in 2007. Later, three bidders - Alstom Hydro, Voith and Japan's Sumitomo Corporation - were declared qualified. Later, a dispute arose and Alstom approached Uttarakhand High Court contending Voith Siemens was not technically qualified and it had submitted two price bids which was in contravention of the terms and conditions. However, the High Court had held that Voith was qualified and later this was challenged in the Supreme Court. (PTI 151210)

HYDRO PROJECTS IN HIMACHAL PRADESH

Karcham Wangtoo affected to boycott panchayat polls People in four villages of Himachal Pradesh's Kinnaur district have decided to boycott the panchayat elections to protest an upcoming hydropower project. They are opposing the under construction 1,000-MW Karcham-Wangtoo hydropower project on Sutlej river in Kinnaur district, due to threats of environmental damage. "We (voters of Urni, Yula, Chagaon and Miru panchayats

in Nichar subdivision) have decided to boycott the panchayati raj elections in protest against the Karcham-Wangtoo hydropower project," former president of Chagaon panchayat Anjana Negi said. She said no candidate had filed nomination papers for any post of the four panchayats, which have 3,326 voters. Kinnaur Deputy Commissioner Sunil Chaudhary said that no nomination was filed for the 22 wards in the four panchayats. The three-phase elections for 3,195 panchayats in the state were to be held on Dec 28, Dec 30 and Jan 1, 2011. Savitri Devi from Urni village said: "We have also decided not to exercise franchise for the zila parishad and block development council posts. This was the only option to draw the attention of the authorities to our problems."

Terming the government as insensitive, another villager, Amar Singh Negi, said: "Cracks have surfaced in most of the houses due to indiscriminate use of explosives for tunnel construction. The project authorities are hell bent on destroying the fragile ecology of the area." The 1,000-MW Karcham-Wangtoo, 100-MW Tidong, 195-MW Kashang, 402-MW Shongtong-Karcham and 100-MW Shorang hydropower units are among the various projects under execution on the Sutlej river in the district. "Several areas where the projects are coming up are facing water shortage as most of the traditional water sources have dried up due to massive construction," said R.S. Negi, who heads the Him Lok Jagriti Manch, a people's movement in the district. (IANS 201210)

IRRIGATION

Unjustified inflation in costs of Maharashtra irrigation projects Reckless approval of cost escalations to irrigation projects under the Vidarbha Irrigation Development Corp granted by the then irrigation minister and present deputy chief minister Ajit Pawar has not only led to the VIDC facing a financial crunch but also raised the needle of suspicion of wrongdoing. As irrigation minister from 2004, Pawar was also the chairman of the VIDC. Papers reveal that there are several instances of escalation of as high as 200% without any justification. Pawar has been succeeded in irrigation department by another NCP man Sunil Tatkare after Prithviraj Chavan took over in Nov 2010.

Pawar and the then executive director DP Shirke did not bother about the state's capacity to pay and took decisions unilaterally. It is now apprehended that the VIDC will be facing a major funds crisis as the allocation from the state will be far too less compared to the cost approved. There are possibilities that the contractors may stall work for want of money, pushing projects beyond schedule.

Pawar virtually gold-plated as many as 38 ongoing irrigation schemes by increasing their estimated costs by over four times to Rs 26,722.23 crore from the original Rs 6672.27 crore. This happened in a single year - 2009

- with a majority of approvals given in three months, between June and August, just a couple of months before the state elections.

One may wonder who benefits out of the cost escalation if there are not enough funds to be released. Here is an indicator - contractors are always keen on getting a higher cost approved, which insiders say is reciprocated with cuts reaching up to the highest level. Incidentally, the year in which the approvals were made coincided with the state and parliamentary elections when political parties are most in need of money.

VIDC may already be facing paucity of funds. This is indicated by the contractors having filed a petition before the high court to remove a condition in its tenders saying the payments will be made as and when funds are available. The petitioners say that even though condition has been there since four years or so, lately there has been an inordinate delay in releasing payments.

The VIDC, under Pawar, did not apparently bother about the state's capacity to raise funds as the corporation granted approvals by disregarding accepted practices too. The cost of quite a few projects jumped almost 200%-300% in a span of 3-5 years. The letters granting escalation were terse and did not justify the huge rise. 'Technical reasons' was the commonly cited reason. Pawar said that attempts were being made to get a national project status for Lower Penganga and Bembla projects which would lead to almost 90% of the funds coming from the Centre.

The governor has issued directives that new projects should be started only after the existing ones are completed. "Given the delay expected due to the hefty cost revision, VIDC may also take a long time to tap the irrigation potential of 205 TMC (thousand million cubic feet) which is a much higher capacity than the existing projects," said the source in the irrigation department. VIDC got a little over Rs 3,000 crore out of Rs 8,000 crore granted for irrigation during the current year. Of this, around Rs 900 crore is central assistance for Goshikhurd project with the remaining to be distributed among other projects.

On cost escalation, the finance department source said, "An escalation of 10% a year in cost is normal in government projects. Doubling of costs in seven years is accepted. However, anything beyond can be questionable. The approvals given show much higher escalation without mentioning any reason," said a senior official in finance department.

Here are some examples: In Bembla project, the cost approved in 2009 was Rs 2176 crore against Rs 1279 crore in 2006; Upper Wardha project's estimated cost of Rs 661 crore in 2006 was hiked to Rs 1,386 crore in 2009; Jigaon project's cost was Rs 1,221 crore in 2005 which was jacked up to Rs 4,044 crore. For the Human

dam in Chandrapur, against the original cost of Rs 33 crore, it got an approval of Rs 1,016 crore as the project was delayed for want of forest clearance. Incidentally, an inquiry report on some unreasonable escalation of costs in the VIDC is waiting to be tabled in the assembly. The inquiry was conducted by former irrigation official Nandlal Vadnere. Sources said it was likely to be tabled towards the end of the session so as to avoid discussion on it.

Push for Privatisation Maharashtra government will need Rs 77,000 crore to complete ongoing 1,092 irrigation projects in the state. However, due to the limitations in the mobilisation of funds from budgetary allocation alone, the government is exploring various options, including long-term debt from the banks and financial institutions, public and private placement of bonds and private sector investment. So far, the government and its various undertakings have spent Rs 50,063 crore on these projects. Of the 1,092 projects, construction is in progress on 243 projects in Krishna Valley, 332 in Vidarbha, 122 in Tapi Valley, 80 in Konkan and 315 in Godavari River Valley.

Maharashtra Economic Development Council, in its recent report, has suggested there was a need for increase in irrigation outlay to 30% from the present level of 20%. Moreover, MEDC in its report said despite increase in the budgetary provision to 30% to complete incomplete irrigation projects, the government would have to tap private sector investment in the water resources sector.

The report adds, "Investors need to have the confidence that they will get due returns on their investment. International experience in the area is limited and only in one project each in Brazil and Morocco has privatisation been tried. The state government had prepared guidelines in 2003 for private investment in water resources projects but with the setting up of the Maharashtra Water Resources Regulatory Authority in 2005 in the context of the State Water Policy announced in 2003, it became apparent these guidelines need a review. (The Times of India 151210, Business Standard 241210)

WATER POLLUTION

Big Polluters of Orissa The State Pollution Control Board has identified industries and mines consuming more than 500 kilo litre water per day as major polluting industries. According to a paper presented by two scientists of the SPCB at Orissa Environment Congress, no urban local body has executed a full fledged sewerage scheme with water treatment plant. Even the Capital City does not have a full-fledged sewage treatment plant as yet. The State Government has now tied up with international agencies to source funds for drainage system and sewage treatment plants in Bhubaneswar and Cuttack. The paper reveals that there are at least 2758 industries which consume over 100

KLD water, 46 of them being in the highest bracket of 500 KLD and more. Similarly, there are 196 mines which consume as much water. Among the industries, five pulp and paper units consume over 66,000 KLD water while nine integrated iron and steel units account for a whopping 2,77,686 KLD. Another major segment is thermal power plants which consume 4.47 lakh KLD. (Indian Express 281210)

WATER SUPPLY & SANITATION

Delhi does not have even enough lab staff It is well known that the National Capital of Delhi does not have capacity to treat the sewage it generates and has been illegally dumping untreated sewage into the river for many years now. This should be a national shame. The capital diverts all the freshwater available in the river when it enters the capital and does not allowing any freshwater downstream from the Wazirabad barrage at least in nine months of the year.

This was accepted by Dr Vijay Babbar of Delhi Jal Board at a meeting on Yamuna Elbe Rivers in Delhi on 11 Dec 2010. Now it seems Delhi Jal Board does not have sufficient staff to even test the quality of sewage that comes out from the treatment plant and its 5 zonal labs work only in one shift. So in at least 16 hours of any day, the sewage output of the Sewage Treatment Plants does not even get tested.

Dr Babbar promised that by 2014 Delhi will have sufficient installed capacity to treat all its sewage. He also accepted that at best the STPs give output with BOD (biological Oxygen Demand) of 10 ppm, which is not good for even bathing quality. For bathing quality, the water should have BOD less than 3 ppm and Dissolved Oxygen of over 5 ppm. He suggested that oxidation ponds every 50 to 100 km length of Yamuna downstream from Delhi may help improve the quality of water in the river.

DJB to stop biogas supply The biogas being supplied to 4000 families in South Delhi from the Okhla Sewage Treatment Plant of Delhi Jal Board will be stopped from Jan 25, 2011 as DJB is unable to maintain the infrastructure of gas distribution. The DJB will find alternative ways of using the biogas. Okhla STP is the only STP of Delhi that supplies Biogas. (SANDRP, Nav Bharat Times 191210, Indian Express 231210)

Cost of inadequate sanitation Poor sanitation, improper toilets and the resulting problems cost India nearly \$54 billion in 2006, according to a report by the Water and Sanitation Program, a global partnership administered by the World Bank. Of the total cost, premature deaths and other health-related issues accounted for \$38.5 billion, or nearly 72%. Nearly 10% of adult deaths in the country are related to inadequate sanitation and hygiene, and this figure goes up to 31% for those under five years of age. (Mint 241210)

RIVERS

Second Krishna Tribunal Award The Second Krishna Tribunal, headed by Justice Brajesh Kumar declared the award on Dec 30 2010. The largest share of surplus water (available between 65 and 75% dependability) went to AP (181 Thousand Million Cubic Feet surplus water, total allocation 1001 TMC ft), followed by Karnataka (177 TMC ft surplus water, total 911 TMC ft) & Maharashtra (81 TMC surplus water, total 666 TMC ft). In a 2000-page judgment, the tribunal also asked the three states not to divert water for any other purpose other than the purpose decided by the tribunal. Govt of India will constitute Krishna Water Implementation Board after three months with a member each from the states and two from the centre. "The states who want to file a review or seek explanation on the award can do so within the next three months," Justice Kumar said. The tribunal verdict can be reviewed only after May 2050. The 2nd Krishna river water disputes tribunal was constituted on April 2, 2004, but started functioning in 2007. Karnataka will get more water than what was allocated earlier. Karnataka hailed the order, describing it as a "New Year gift". The award allowed Karnataka to increase the height of the Almatti Dam built across the Krishna River in Bijapur district to 524.256 metres from the current 519 metres; this will have adverse impact on both upstream (in Maharashtra, besides Karnataka) and downstream of the dam. Karnataka Law Minister Suresh Kumar said the state will have no difficulty in honouring the tribunal order to release 8-10 TMC ft to AP during June-July every year. Maharashtra is likely to challenge the new award in Supreme Court. Maharashtra has been racing to build large number of irrigation projects in the state even before the end of 2000 time limit set by the first Krishna tribunal, or Bachawat tribunal for review. The Bachawat award was open to review after the year 2000.

The Bachawat tribunal award of 1974, had distributed 2060 tmc of water under the A Scheme, under which Karnataka got 700 + 34 tmc, Maharashtra got 560 + 25 tmc and AP 800 + 11 tmc. While AP had fully utilized its share of the 800 tmc of Krishna water under the A scheme, Karnataka was able to utilize 566 tmc. Maharashtra had also not been able to utilize its share.

AP had objected to Karnataka constructing the Almatti dam to a height of 524 m & the matter was taken to the Supreme Court, which asked the State to restrict the dam's height to 519 m. The Maharashtra govt had objected to the raising of the Almatti dam as it would have meant even more flooding of portions of its land than what is already experiencing at 519 m. The other members of the 2nd Krishna Tribunal are Justice Srivastav & Justice D K Seth. Krishna is already a deficit basin and this additional allocation would create race to construct more dams. The tribunal also does not seem to have left much water for the river. AP is also likely to feel aggrieved. (PTI 301210)

AGRICULTURE

FDI in Water Logged Areas!! Government has put in place an investor-friendly policy on FDI, under which FDI, upto 100%, is permitted on the automatic route, in Floriculture, Horticulture, Development of Seeds, Animal Husbandry, Pisciculture, Aquaculture and Cultivation of Vegetables & Mushrooms under controlled conditions and services related to agro and allied sectors in water logged areas, subject to certain conditions. Besides the above, FDI is not allowed in any other agricultural sector/activity. (PIB 031210) This sounds a bit suspicious. Who will define which are water logged areas? How will the FDI driven activities in such areas affect surrounding areas? What happens if the water logging gets solved? There are many such questions for which there no clear answers.

Drought in Orissa The State govt has declared 10991 villages under 107 blocks and 104 wards under 14 urban local bodies of 17 districts as drought hit. (Indian Express 171210)

FAO predicts food crisis in 2011 The Food and Agriculture Organisation of the United Nations has alerted developing countries about possible steep rises in food prices during 2011, if steps are not taken immediately to increase significantly the production of major food crops. According to FAO, "with the pressure on world prices of most commodities not abating, the international community must remain vigilant against further supply shocks in 2011." World cereal production is likely to contract by 2 per cent during 2010 and global cereal stocks may decline sharply. The price of sugar has reached a 30-year high while international prices of wheat increased by 12 per cent in the first week of December, 2010, as compared to their November average. We need to set up in each of the 128 agro-climatic zones identified by the Indian Council of Agricultural Research a Climate Risk Management Research and Training Centre. These centres should develop alternative cropping patterns to suit different weather probabilities. (The Hindu 191210)

QUOTES

"We came to Cancun to save nature, forests, planet Earth. We are not here to convert nature into a commodity. We have not come here to revitalize capitalism with carbon markets."

Evo Morales - President of Bolivia
(Soumya Dutta report from Cancun 091210)

WAPCOS, the company who did the environmental studies for NHPC's Lower Subansiri project, notes maximum temperature in the region in July as 25 degrees and minimum as five degrees. "That's fiction. The average temperature in this region during peak summer is a maximum of 35 degrees and minimum of

25 degrees," says Debojit Baruah who teaches Botany in Lakhimpur Girls' College.

(India Today Dec 13 2010)

Why are people of Punjab and Haryana Hungry? According to a Global Hunger Index report from International Food Policy Research Institute, the food exporter states of Punjab and Haryana figure very low among the hungry areas. "Economic growth is not necessarily associated with poverty reduction. According to research, even the best performing state like Punjab is very low in the index."

Prof Shengen Fan, Director General, IFPRI
(The Times of India 301210)

PAKISTAN

Darawat Dam cost UP 300% in five months The cost of Darawat dam has increased by more than 300 per cent, from Rs 3.1 billion to Rs 11.4 billion, within five months in the "run up to its construction, and that too without additional benefits — water storage or command area". The original PC-I of the project approved in Sept 2009 put the cost at Rs 3.1 billion. But the cost was "revised by an unknown consultant who increased it to Rs 11.407 billion only five months after the approval of first PC-I". The original PC-I was based on a feasibility study conducted by NDC and Techo Service. After President announced a plan to initiate small dams, the Sindh irrigation department referred the study to a little-known firm, Cameos Consultant, which came up with a revised estimate in February 2010, increasing the cost to Rs 11.407 billion. The project was later transferred to the Water and Power Development Authority for execution. The consultant changed the nature of the dam from one of concrete gravity to a concrete face rock-filled dam and increased the cost from the original estimate of Rs 1.53 billion to Rs 3.533 billion. In the original PC-I, the command area (25,000 acres) was to be irrigated through conventional system at a cost of Rs 512 million. In the revised plan, the entire command area was put on "high efficiency sprinkler and drip irrigation at a cost of Rs 1.875 billion, an increase of Rs 1.36 billion".

"Another feature is laying pipes in the entire command area to supply water to sprinklers and drippers at a staggering cost of Rs 1.9 billion. In the original PC-I, watercourses would have cost Rs 525 million. The cost thus went up by Rs 1.427 billion on this head alone," according to an analysis of the study. A Rs 193 million metalled access road of 20 km and a Rs 65 million 300 KVA hydro plant were added to the project. In order to justify the cost, financial inter rate of return and economic internal rate of return have been grossly exaggerated, the analysis says. The gross value of crops production has been increased from Rs 1,220 to Rs 20,000 per acre, an increase of 1,600 per cent. "It is done without detailed working, and is highly unrealistic." When contacted, a Wapda official said that "original cost estimates, though approved in 2009, were actually finalised in 2005." (Dawn 211210)

Wapda seeks WB funding The WAPDA seeks funds from the World Bank to build Munda & Kurram Tangi dams, with total installed capacity of over 800 MW. The Muda dam project entailed a 703-foot high dam on the Swat River, with a water storage reservoir of 1.3 million acres feet and with a power generation capacity of 740 MW. The Kurram Tangi in North Waziristan has water storage capacity of 1.2 maf and with electricity generation capacity of 83 MW. (The Nation 111210)

CHINA

36 Punished over Fatal Dam Breach Thirty-six people had been punished following a dam overflow that left 22 people dead and 523 houses destroyed in September 2010 when a typhoon hit southern China's Guangdong Province, provincial authorities said. Xinyi Zijin Mining, a branch of China's largest gold miner and Zijin Mining, owner of the breached dam, holds direct liability for the accident, a provincial government statement said.

The dam in Guangdong's Xinyi City held the tailings of a tin mine. Its contents overflowed on the morning of Sept. 21, as rainstorms associated with typhoon Fanapi pounded the area. Grayish mud and rocks from the dam flattened part of a village. The reason for the dam breach was the non-standard construction of the dam's catchpit, thus lowering the dam's flood control standard, according to the statement. Thirty-six people, including the director of Xinyi City's work safety bureau, the director of Xinyi City's land and resources bureau, and the general manager of Xinyi Zijin Mining, were believed to be responsible for the accident due to their dereliction of duty, said Zeng Qingrong, deputy director of the inspection office of the provincial government. Fifteen people among the 36 were transferred to the judiciary for further possible penalties, Zeng said. (Xinhua 221210)

Run of River Project disrupts river trade A recently built run of river hydropower dam on the Longjiang River in China's Yunnan Province is causing severe disruption to thousands of villagers relying on cross-border trade in Burma's northern Shan State, as per a new report. The report *High & Dry* exposes how local trade and transport across the River has been crippled by unpredictable daily fluctuations in the water level since the completion of the 110 m tall Longjiang Dam about 30 km upstream in mid-2010. An estimated 16,000 villagers have seen their income cut drastically by the continual drops and surges in the water level, which have caused both grounding and flooding of the ferry boats. "The people of our village live, eat and work with the river. People cannot work when the water suddenly rises and falls like this," said an impacted villager. "Impact assessments for dams should be carried out for the entire length of the river, regardless of national boundaries. China should consider the health of our shared rivers and all the communities that rely on them," said organisation spokesperson. (www.shanwomen.org 141210)

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WRITINGS ON THE WALL

"We were wrongly advised that we should take care of GDP and it will automatically take care of poverty. This is not correct. We need to take care of poverty and it will automatically take care of economic growth".

Mehub-ul-Haq, Pakistan Finance Minister in 1960s (Quoted by Devinder Sharma in *Countercurrents*, 091210)

"We may be at peak water, because processing water takes energy. Small solar distillation plants may help some people, but an awful lot of areas will run out of water. I was married in India, at Agra, and we took a day trip to Fatehpur Sikri to see Fatehabad, a beautiful city that was constructed beginning in 1570. Semiprecious stones in marble around doorways, etc. It is a Unesco world heritage site. It took 15 years to build, and was the capital of the Mughal Empire from 1571 to 1585. It was then abandoned due to the lack of water, and today is a ghost town. That's going to happen to lots of places all over the world."

Michael Murphy, one of the few who warned us of the 2008 meltdown well in advance, author of "Survive The Great Inflation" (Market Watch. com, 281210, incidentally, India's well known water expert Anupam Mishra has been saying this about Fatehabad for long.)

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Edited, Published, Printed & Owned by Himanshu Thakkar at 86-D, AD Block, Shalimar Bagh, Delhi – 88
Printed at Sun Shine Process, B-103/5, Naraina Indl. Area Phase – I, New Delhi – 110 028