

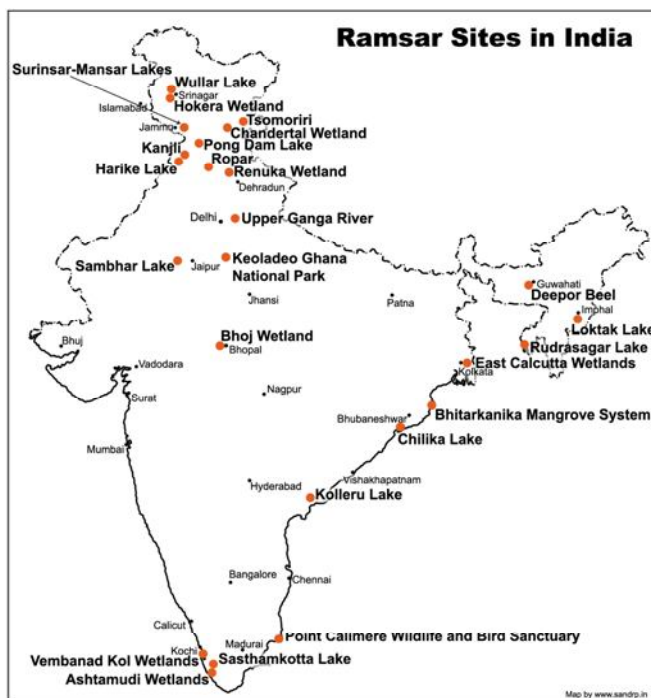
Wetland (Conservation and Management) Rules 2010**Welcome, but a lost opportunity: This cannot help protect the wetlands, Sir**

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

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.”

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.)

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”.

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

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.

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 of resources, releasing treated effluents, aquaculture, agriculture,

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draining, 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.

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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.

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

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.

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 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*

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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.

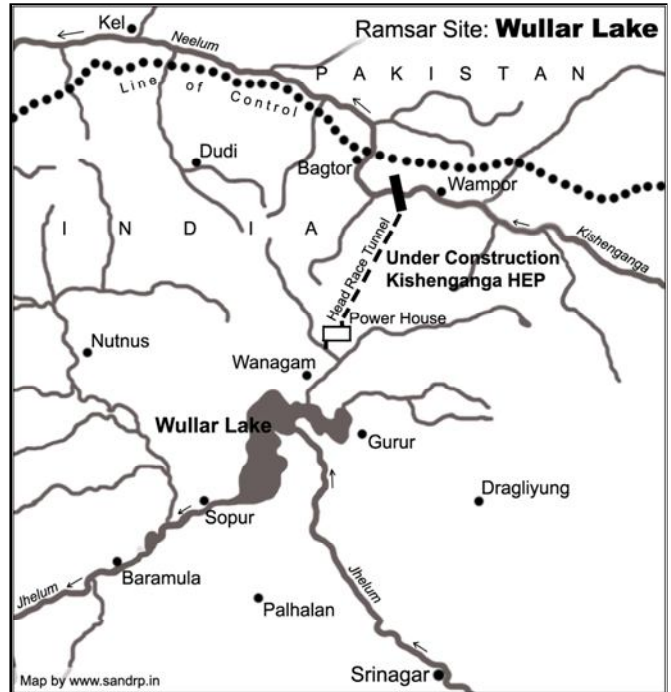
P Dandekar, Swarup Bhattacharya & H Thakkar

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.

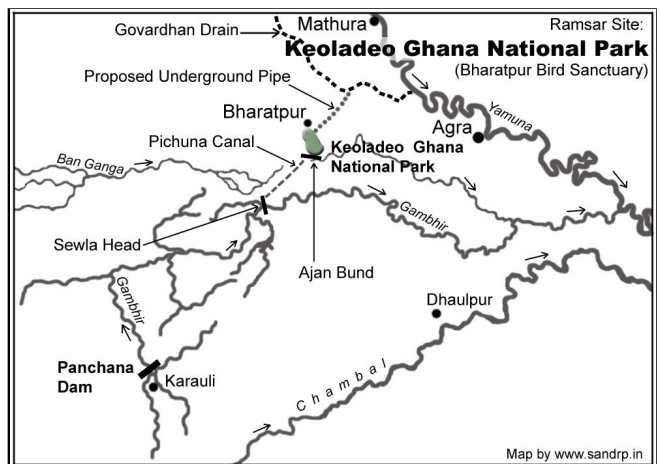
In December 2010 India's Union Ministry of Environment and Forests notified the Wetlands (Conservation and Management) Rules 2010, its first explicit legislation for protecting wetlands from further degradation. The Rules include a number of activities which are either totally prohibited or regulated 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

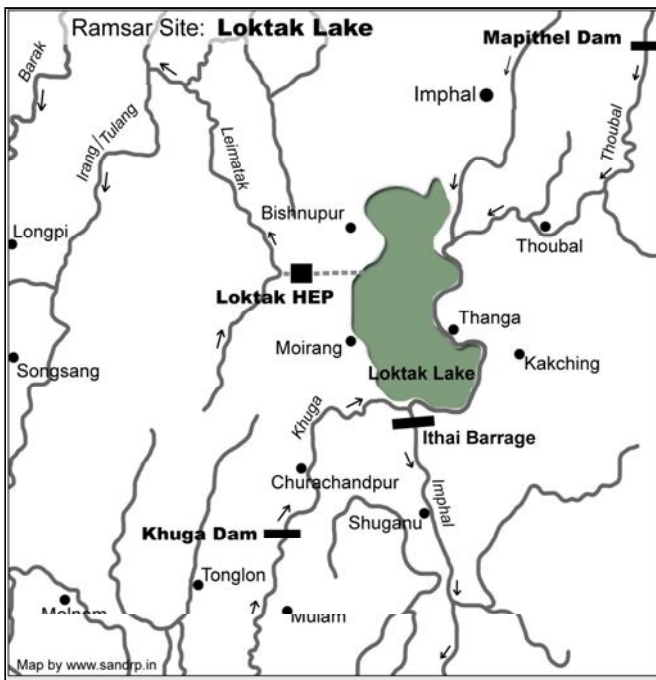


management of its related river systems is proving to be ineffective and unsustainable.

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

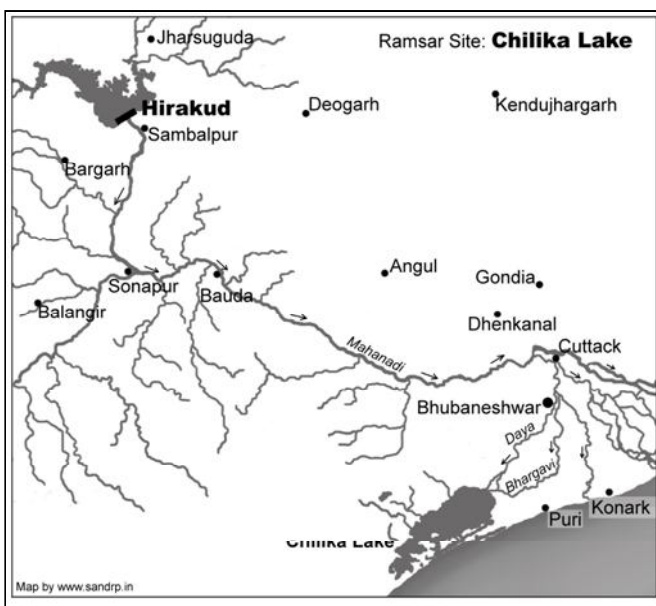
Keoladeo Ghana National Park (Bharatpur Bird Sanctuary), Rajasthan KNP, once a prominent member of the Ramsar List from India has been on the Montreux Record for Remedial Measures (The Montreux Record, a part of Ramsar Convention, is a register of wetland sites where changes in ecological character have 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.



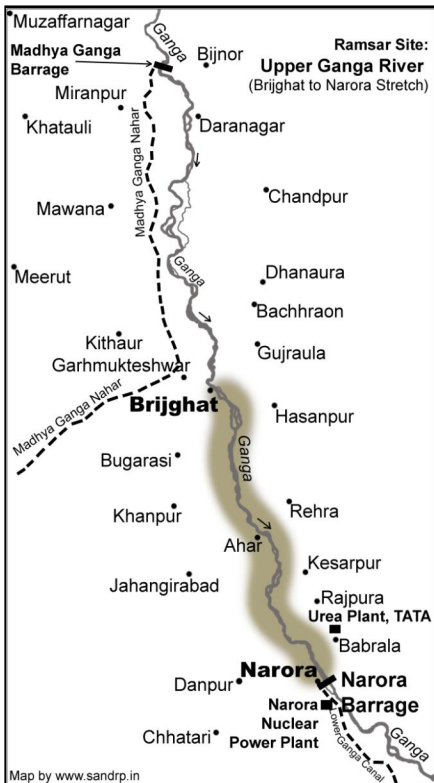
One of the main reasons for its endangered status is the hydrological alterations through the Loktak Multipurpose Project. The NHPC Project on the Manipur River or Imphal River, with the Loktak Lake forming the head waters to provide regulated storage for power generation, was built in 1983 as a multipurpose 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.



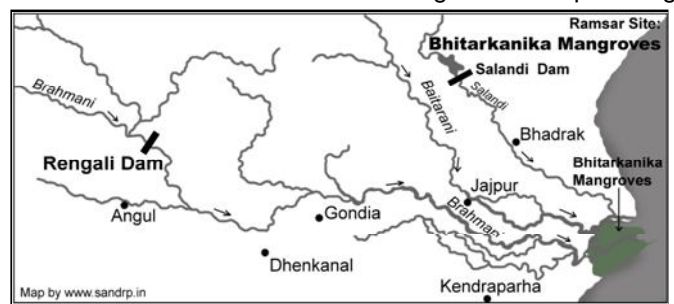
Sightings of the endangered Irrawaddy dolphins are regularly reported here. The highly productive ecosystem of Chilika lake sustains the livelihood of 0.2 million fishermen and 0.8 million watershed community. (Dr. A. K. Pattnaik, *Lessons from the Chilika Lake, India Institutional Coordination and Policy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

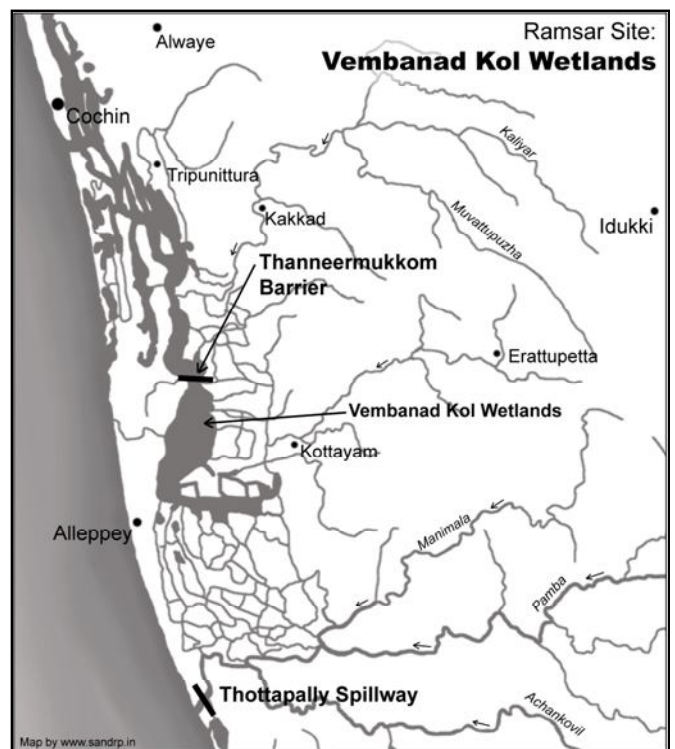
Bhitarkanika Mangrove System, Brahmani-Baitarni Basin, Orissa Bhitarkanika is the second largest mangrove system in India, covering an area of 650 km² in the [river delta](#) of the [Brahmani](#) and [Baitarani](#) rivers. It has been given the status of a Ramsar Site and a World Heritage Site. The Bhitarkanika 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](#))

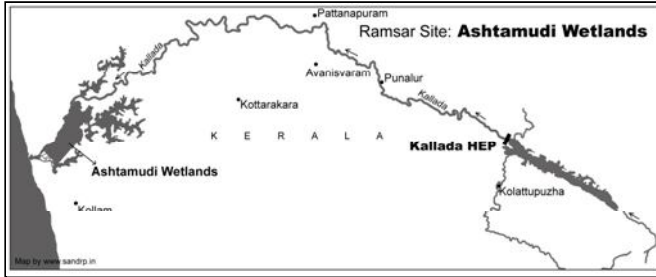
Scientists from the Minerals and Materials Technology and Spatial Planning and Analysis Research Centre, Orissa, who conducted a study on “Effect of reduced water flow through Brahmani-Baitarani river system on the mangrove population of Bhitarkanika estuary”, called for early estimation of minimum volume 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)

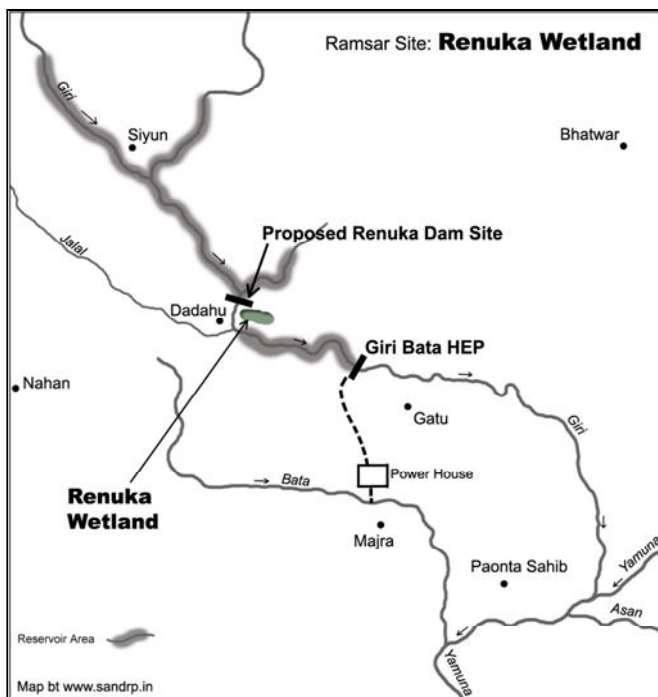
Vembanad Kol Wetlands, Kerala The entire VKW receives drainage from ten rivers, Keecheri in the north to Achankovil in the south, adding up to a total drainage area of 15,770 sq km (40% of the area of Kerala), and an annual surface runoff of 21,900 Mm³, almost 30% of the total surface water resource of Kerala.



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)



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

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 & Chandratat (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)