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Dams, Rivers & People

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Lead Piece

India's Water Resources and Agricultural Policies:
NEGLECT OF RAINFED AREA, BOUNTY OF RAINFALL

According to the Ministry of Agriculture, Government of India figures, roughly 81 Million Hectares (MH) out of Net Cultivable Area (NCA) of around 141 MH in India is rainfed. Moreover, out of around 60 MH of irrigated NCA, about 37-38 MH is irrigated by groundwater. Another about 5-9 MH is irrigated by what is minor surface water schemes, which are essentially rain water harvesting schemes. Both these categories of irrigated areas are also basically dependent on rain water in one way or another. The primary source of groundwater recharge is rainwater and the minor surface water schemes also get filled up when there is rain. What this means is that about 124-126 MH out of the NCA of 141 MH, that is 89% of NCA can be essentially called rainfed area.

Now if we look at central and state governments' policies, programmes and practices in water resources or agricultural sectors, we find that they are all geared towards expanding the contours of the 11% of NCA irrigated by big irrigation projects. The Agricultural policies are also basically geared towards increasing the output from these areas. The crops that are subsidized and encouraged, the policies for agricultural inputs, the subsidies there off, all are geared in that same direction. There are waves of subsidy for such areas that start with the first wave of setting up big irrigation projects, following by the state support for seeds, fertilizers, pesticides, support for maintaining the infrastructure and so on. The area also gets support in terms of market access and infrastructure related there of. Even the support of Minimum Support Price majorly goes only for such areas in Northwest India. That's the basic model that we adopted in the first five year plan and the same more or less continues till date.

In contrast, the rainfed areas are basically left to fend for themselves. It may be noted here that every farmer of the country would benefit from facilities for better water management. And every farmer has equal right in share of the state resources for this. But the governments have no policy or strategy to use the annual bounty of rainfall for all farmers. There are clear issues of inequities and injustice there.

But there are also serious issues of sustainable development here. Firstly, we need to realize that our agricultural water lifeline is groundwater and with each passing day our dependence on groundwater is increasing. For a long time to come whether we like it or not, that dependence is only going to only increase. That groundwater lifeline can be best sustained through local water systems, NOT through big irrigation projects. Secondly, for every investment that we make to increase outputs from rainfed areas, the returns are likely to be more than what we may get from big irrigation projects even if they were to be taken up in best possible manner. This has been proved through hundreds of examples all over India. And thirdly, the climate change imperatives also indicate that increasing the moisture holding capacity of the soils, increasing the local water systems and taking up water saving cropping methods like the System of Rice Intensification are indeed the most climate friendly options.

It is high time we do course correction to bring focus of our water and agriculture policies onto Rainfed Farming. It is likely to yield better economic, hydrologic, sustainable, equitable and climate friendly results and foodgrains production as per our future demands. It can also help sustain our groundwater lifeline. What is stopping us?

SANDRP

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Reflections on the Nature of Transformational Initiatives

Dr Mihir Shah

On April 20, 2010, Dr Mihir Shah, Planning Commission member, gave a remarkable lecture under the Malcolm Adiseshiah Centenary Annual Lecture Series. We are giving here some important extracts from that lecture with permission from Dr Mihir Shah. If any of the reader is interested in full lecture, please write to us.

I spent the last 20 years of my life living and working with the tribal people of central India, trying with them to forge concrete solutions to some of the most difficult challenges of our time -- of water and livelihood security. Over the past 10 months, I have been working as Member, Planning Commission handling Rural Development, Water Resources and Panchayati Raj. This lecture is an attempt to put together some of my reflections as a participant in the struggle for change, to share with you some of what I have learnt in this process.

Interface with Nature

We must weave our interventions into the contours of Nature Once we recognise the contours defined by the balances in Nature, our entire approach needs to shift from an attempt to control Nature towards a creative weaving of our interventions into the flows and dynamics of natural processes. This requires a new imagination, to use Shackle's term, to visualizing the future. The best positive examples of this are the watershed approach and the move towards organic farming.

The unity and integrity of natural cycles must compel giving up our silo-based approach to transformation We cannot expect to find a solution to India's water crisis unless we come out of the silos into which we have divided water and take a holistic view of the hydrologic cycle. We face a situation where the left hand of drinking water (under the Department of Drinking Water Supply located within the Ministry of Rural Development) acts as if it does not know what the right hand of irrigation (within the Ministry of Water Resources) is doing.

Today groundwater is both the single largest source of rural drinking water (over 80%) and irrigation (over 60%). Both tap the same aquifer without any coordination whatsoever. Indeed, we are close to entering a vicious infinite regress scenario where our proposed solution (deep drilling by tubewells) only ends up aggravating the problem it seeks to solve. If one continues along the same lines, the initial problem will recur infinitely and will never be resolved.

The most significant negative illustration is the interlinking of rivers project. In a country like India which gets seasonal rainfall from monsoons, the periods when rivers have "surplus" water are generally synchronous across the subcontinent. Further, given the topography of India and the way links are envisaged, it might totally bypass the core dryland areas of Central and Western India, which are located on elevations of 300+ metres above MSL. It is also feared that linking rivers could affect the natural supply of nutrients through curtailing flooding of the downstream areas. Along the east coast of India, all major peninsular rivers have extensive deltas. Damming the rivers for linking will cut down the sediment supply and cause coastal and delta erosion, destroying the fragile coastal eco-systems. Most significantly, the plan could threaten the very integrity of the monsoon system. The presence of a low salinity layer of water with low density is a reason for maintenance of high sea-surface temperatures (greater than 28 degrees C) in the Bay of Bengal, creating low pressure areas and intensification of monsoon activity. Rainfall over much of the sub-continent is controlled by this layer of low saline water. A disruption in this layer consequent upon massive interlinking of rivers, which would curtail the flow of fresh river water into the sea, could have serious long-term consequences for climate and rainfall in the subcontinent, endangering the livelihoods of a vast population.

This regress appears a natural corollary of what has been termed "hydro schizophrenia", which entails taking a schizophrenic view of an indivisible resource like water, failing to recognize the unity and integrity of the hydrologic cycle. I am happy to inform you that this is the central message emerging from the Mid-Term Appraisal (MTA) of the Eleventh Plan we have just completed.

Our interventions need to be location-specific reflecting every element of diversity -- social, cultural and physical. Since we intervene in very diverse contexts, we need to give up the bureaucratic one-size-fits-all, monocultural approach. Across India we are faced with multifarious variations -- in rainfall received, in soil and rock type, in slope and contour, in animal forms, in kinds of vegetation, crop or forest -- and each of these and each combination of these, has different implications for the possibilities of striking, harvesting and storing water as also the possible forms of livelihood (agriculture or pastoralism, nature of crops that can be sustained, kind of livestock to be raised etc).

Many of these variations occur even within a small micro-watershed. And this natural diversity has a complex interplay with the socio-cultural tapestry of these regions. That includes values regarding life-goals, priorities (e.g. security in view of pervasive, inherent uncertainty), understanding of and relationship with natural forces and resources. Which have evolved over centuries, if not millennia. This canvas of *differentia specifica* poses a unique challenge to the development planner, the scientist, the social worker.

Irrespective of the specific challenges of each situation, an unthinking, insensitive bureaucracy seeks to impose its own pet solution -- tubewells, eucalyptus, soybean, Holstein Friesian. Appropriateness does not matter. Sustainability is of no concern. Dialogue is not attempted. History is given a go by. With disastrous consequences.

Those who seek to intervene in any context, but especially in one with such diversity and potential fragility, cannot do so on the basis of a notion of mastery over nature and society. With mastery and control, comes the resort to simple tech-fixes -- monocultural, unilinear, and indiscriminate.

In our development programmes, unfortunately, we have sought to impose simplistic answers, top-down, without making the effort to understand the context, in all its diversity and complexity. We have been narrowly pre-occupied with single variables like aggregate income, neglecting completely the entire range of issues involved in eco-system resilience and stability.

Disciplines, narrowly defined through specialisation, have not spoken to each other. Nor have they spoken to the people in whose name solutions are sought to be developed. They have not been mindful of the balance that must be retained if our interventions are to be sustainable. Nature and society are not to be mastered or subdued. They are, rather, to be deeply understood so that we can weave our interventions in a creative manner into their delicate fabric. Consistently learning each step of the way -- light, nimble and innovative in our tread.

I am again glad to inform you that the MTA of the Eleventh Plan attempts a corrective in this direction. There are many examples of this. I will limit myself to only a few. One of the limitations of the Total Sanitation Campaign (TSC) that we have identified is the narrow range of technology options offered in a country with such immensely diverse geographic, hydrologic, climatic and socio-economic conditions (high water table, flood prone, rocky ground, desert/water scarce areas and extreme low temperatures). This has led to many problems, including non-acceptance by local communities, water pollution in shallow water table regions and waste of public funds. We highlight the need to broaden the range of models permissible under TSC and offer an initial menu of alternatives derived from detailed consultations with experts and practitioners.

Similarly the MTA highlights the fact that problems surrounding groundwater overuse are not just a matter of the share of extraction in annual replenishment. The relationship between extraction and replenishment is complex and depends upon the aquifers from which groundwater is extracted.[1] The foundation of good groundwater management is a clear understanding of aquifers, which requires knowledge of geology – of rock types and rock structure. For groundwater availability is dependent on the water storage and transmission characteristics of these underlying geological strata. The geological diversity in India makes aquifer understanding challenging, but all the more important because the local situation dictates the approach to managing groundwater. Moreover, these local situations also determine how groundwater overuse, droughts, floods etc. impact drinking water security. The vulnerability of different hydro geological settings to the level of groundwater development is different.

About 54% of India (comprising mainly the continental shield) is underlain by formations usually referred to as "hard rocks".[2] Groundwater resource in hard rocks is characterised by limited productivity of individual wells, unpredictable variations in productivity of wells over relatively short distances and poor water quality in some areas.

The initial thrust of irrigation by tubewells following the Green Revolution was restricted to India's 30% alluvial areas, which are generally characterized by relatively more pervious geological strata. But from the late 1980s, tubewell drilling was indiscriminately extended to hard rock regions where the groundwater flow regimes are extremely complex. Deeper seated aquifers often have good initial yields, but a tubewell drilled here may be tapping groundwater accumulated over hundreds of years.

Once groundwater has been extracted from a deeper aquifer, its replenishment depends upon the inflow from

[1] An aquifer is described as a rock or rock material that has the capacity of storing and transmitting water such that it becomes available in sufficient quantities through mechanisms like wells and springs.

[2] Hard rock is a generic term applied to igneous and metamorphic rocks with aquifers of low primary intergranular porosity (e.g., granites, basalts, gneisses and schists).

the shallow system or from the surface several hundred metres above it. The path this water has to traverse is characterized by relatively unfavorable media, which greatly slows down the rate of groundwater recharge. This poses a severe limit to expansion of tubewell technology in areas underlain by these strata.

Similarly in the mountain systems, which comprise 16% of India's land area, effects of groundwater overuse do not take very long to appear. As the processes of groundwater accumulation and movement are vastly different in different geological types, the implications of any stage of groundwater development will vary significantly across types of geological settings. Clearly, therefore, a much lower level of groundwater development across 70% of India's land area (hard rock and mountain) could be as "unsafe" as a comparatively higher level in alluvial settings.

The fruits of India's development have been shared very unequally, especially in certain geographies (Adivasi enclaves, drylands, hills) and with specific social groups (Dalits, Muslims). In recent years India has witnessed the fastest growth of high net-worth individuals worldwide. In the same period in the "other India," across 200 districts, lakhs of people have committed suicide or taken to the gun.

A new definition of reform Such an institutional design hints at a completely new definition of "reform" for the neglected parts of India. Over the last 20 years, reform has been restricted to the corporate sector. But the large mass of this country will not benefit till reforms are extended to the public sector in rural development.

It is here that we need new institutional designs that will make the poorest people of India active participants in the development process. Perhaps the best example is provided by what is being attempted through MGNREGA (Mahatma Gandhi National Rural Employment Guarantee Act), which is clearly the most radically new programme ever conceived in the history of independent India.

The MGNREGA has given rise to the largest employment programme in human history and is unlike any other in its scale, architecture and thrust. Its bottom-up, people-centred, demand-driven, self-selecting, rights-based design is new and unprecedented. MGNREGA enjoins the state to provide a guarantee of employment to each rural household that demands work.

But it also demands of the people that they participate actively in the design and implementation of the programme. For only then will it realise its true potential. Thus far, the programme has suffered because it continues to rely on the same ossified structure of implementation that has failed rural development for six decades.

The programme demands a new imagination to be brought to bear on its institutional design. We need to empower the main implementing agency, the Gram Panchayats (GPs), with the requisite personnel and build their capacities so that they can make people aware of their entitlements, as also the unique demand-driven character of the programme.

And move people beyond their long-held belief that they will get work only when government decides to "open" work. We also need build GP capacities to enable them to develop detailed microplans that truly reflect the needs and aspirations of the people. Without this effort what is truly new about MGNREGA will not come into play. This empowerment initiative is what will strengthen the roots of democracy in India and place rural governance on a completely new and stronger foundation.

This demands lively partnerships with civil society organisations and research institutions who can provide critical inputs in each of these vitally important aspects. MGNREGA is also exciting because it has a self-limiting character which has not yet been adequately recognised. The ultimate potential of MGNREGA lies in a renewed focus on improving the productivity of agriculture and convergence to engender allied sustainable livelihoods.

Millions of small and marginal farmers forced to work under MGNREGA because the productivity of their own farms is no longer enough to make ends meet. Among agricultural labour households in India, the percentage of those who own land is around 50 in Rajasthan and Madhya Pradesh, 60 in Orissa and Uttar Pradesh and over 70 in Chhattisgarh and Jharkhand. And if we focus on tribals, the proportion shoots up to as high as 76-87 per cent in Chhattisgarh, Jharkhand and Rajasthan.

MGNREGA will become really powerful when it helps rebuild this decimated productivity of small farms and allows these people to return to full-time farming, thereby also reducing the load on MGNREGA. There are many such examples to be found under MGNREGA, although they still remain small in number.

For example, the First Annual Report of the National Consortium of Civil Society Organisations on MGNREGA (2009) reports that earthen dams on common land have recharged wells of thousands of poor farmers who earlier worked as labourers to build these dams. These farmers are now busy making a series of investments to improve their own farms. Rising incomes also improve capacity utilisation and happier expectations act as incentives for more investment.

Under MGNREGA, farmers have come back to land they long abandoned, as increased output, in an atmosphere of renewed hope, spurs further investment. Converging MGNREGA with other programmes for rural livelihoods would carry this momentum forward in a positive upward spiral, which will broad-base the growth process via downstream multiplier-accelerator effects.

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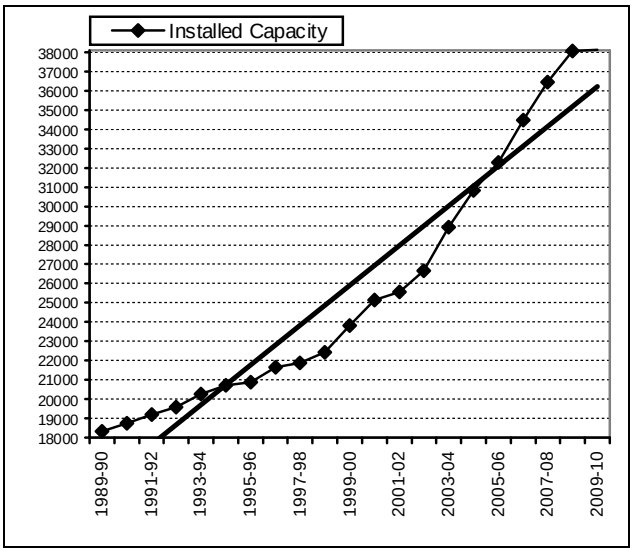
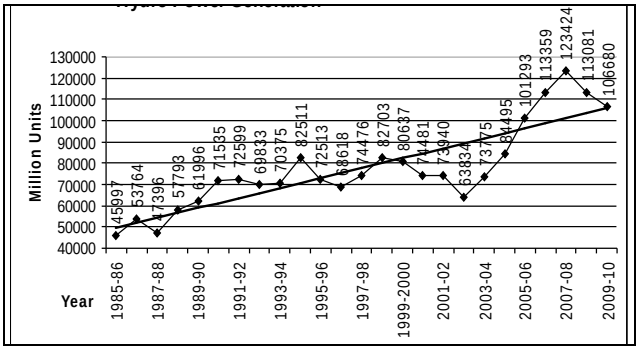
Latest data on Hydropower generation

Declining Generation of Big Hydro projects

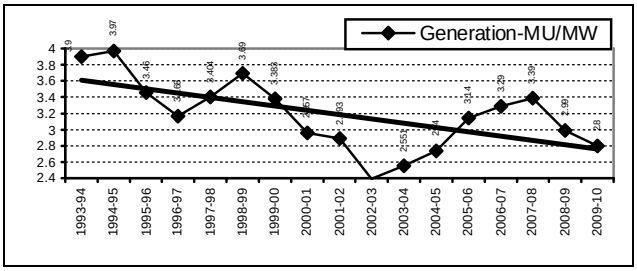
The Installed capacity (Mega Watts or MW) of big hydropower projects has been rising, it rose at a slower pace during 2009-10, by 84 MW, see the graph below. All figures in this analysis are from the Central Electricity Authority (CEA).



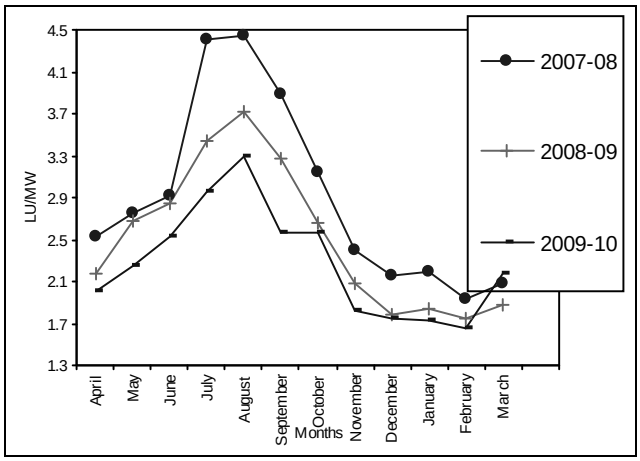
The annual generation from large hydro projects has been lower during the last two years (2008-09 and 2009-10), compared to 2007-08, even as installed capacity has been going up, see the graph below.



Most crucially, the annual generation per MW installed capacity continues to fall and there is a clear downward trend line as can be seen below. The unit of generation per MW installed capacity is useful for comparing the generation performance of hydropower projects across years, projects and basins, as we can see here.



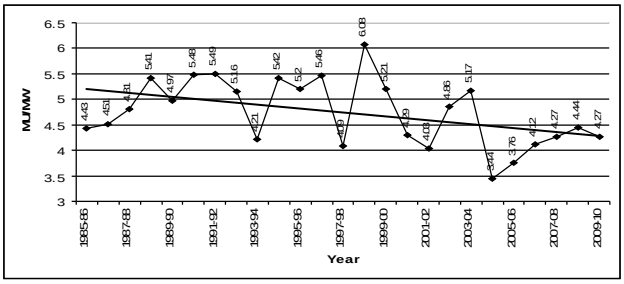
Similarly, the monthly generation too has been falling the last two years for all months, except March 2010, see the plot below.



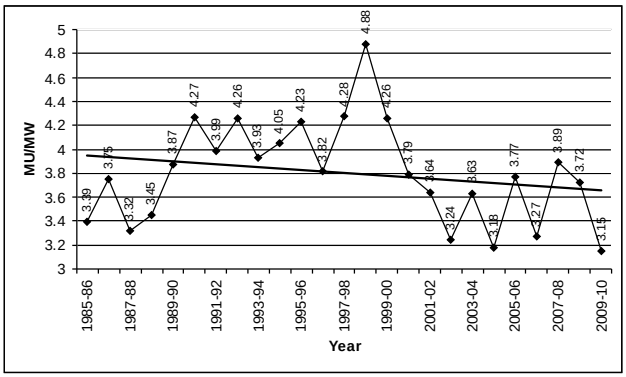
These graphs and figures therein also indicate that the issue of over 89% of operating hydropower projects generating at below the design generation figures and half of them generating below the 50% of design generating capacity remain valid. Moreover, the issue of how much of the power is generated during peaking hours also remain equally valid. These issues were highlighted in earlier SANDRP analysis, for more details, see: http://www.sandrp.in/hydropower/Diminishing_Hydro_Performance_in_India_May_2010.pdf. Unfortunately, no answers are available from the official agencies.

RIVER BASIN WISE ANALYSIS In order to understand this situation better we have also started doing river basin wise analysis. Here we are presenting how the generation is diminishing in the Sutlej, Beas, Ravi and Chenab River basins.

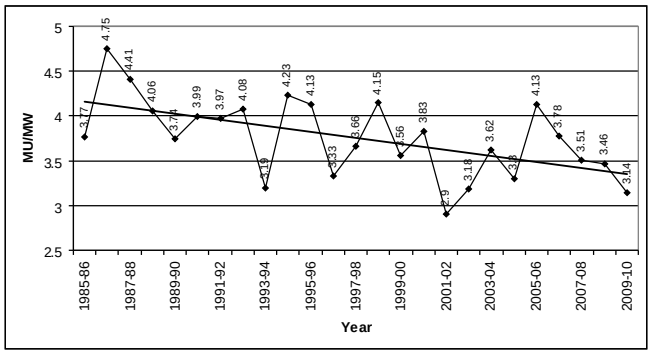
Sutlej Basin The existing operating hydropower projects (total installed capacity: 3556.8 MW) in the basin include Bhakra, Ganguwal, Kotla, AP Sahib, Sanjay Bhaba, Baspa, Naptha Jhakri and Ghanvi. While the basin in general generates at higher than National average, there is a clear downward trend and it is likely to become more pronounced as more projects are installed in the basin, as is evident from the graph below.



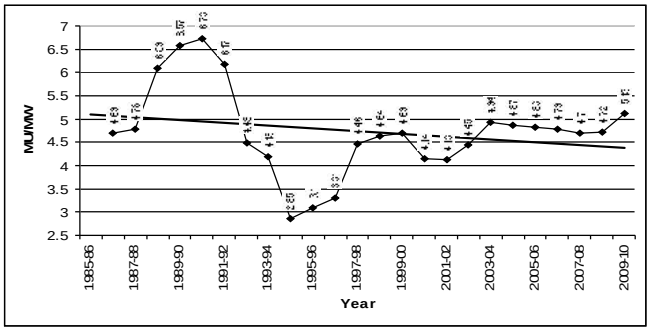
Beas Basin The current operating projects (2015.5 MW) in this basin include: Pong, Dehar, Shannan, Mukerian, Malana, Gaj, Bassi, Larji, Baner, Binwa and Kahuli. The graph shows that the per MW generation here too is showing a clear downward trend. Moreover, the per MW generation here is at much lower level than in case of Sutlej, though Beas basin generation is still higher than the national average. The lows are particularly pronounced in recent years, see the graph below.



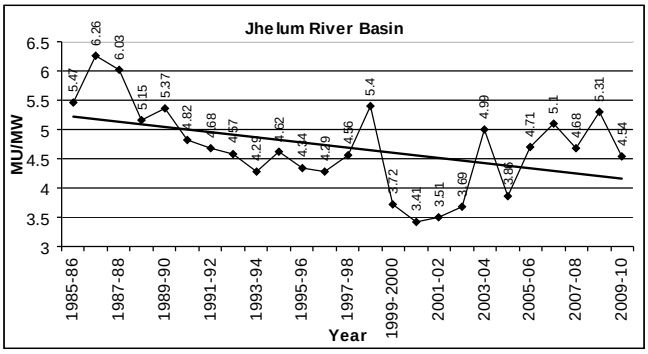
Ravi Basin The operating hydropower projects in the basin (1738.35 MW) include: Chamera I, Chamera II, Baira Siul, Sewa I, Ranjit Sagar and Upper Bari Doab Canal hydro project. The diminishing generation here is more pronounced than in case of Beas basin.



Chenab Basin The operating hydropower projects in Chenab basin (1565.14 MW) include: Baglihar, Salal, Dul Hasti, Chenani and Thirot. The diminishing generation figures are reflected here too in the downward trend-line.

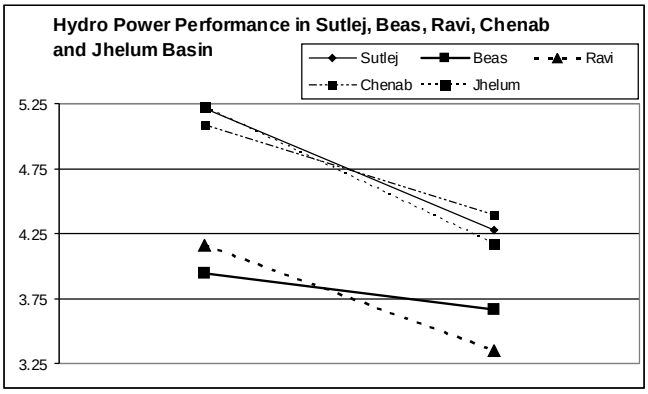


Jhelum Basin The operating hydropower projects in Jhelum Basin (736.6 MW) include: Mohara, Gandharbal, Uri, Lower Jhelum and Upper Sindh hydropower projects. The trend-line for generation per MW is again showing downward slope, showing that the generation has been diminishing over the years.



It is clear from the above graphs and analysis that the decline in per MW generation is observed in all the fiver river sub-basins of the Indus Basin. The Indus sub-basin generation is not analysed since in the Indus basin within India, there are only two small hydro projects.

In the graph below we have put the trend lines of generation for all the five sub basins of Indus basin given above separately. This helps get a picture of relative performance of the five basins.



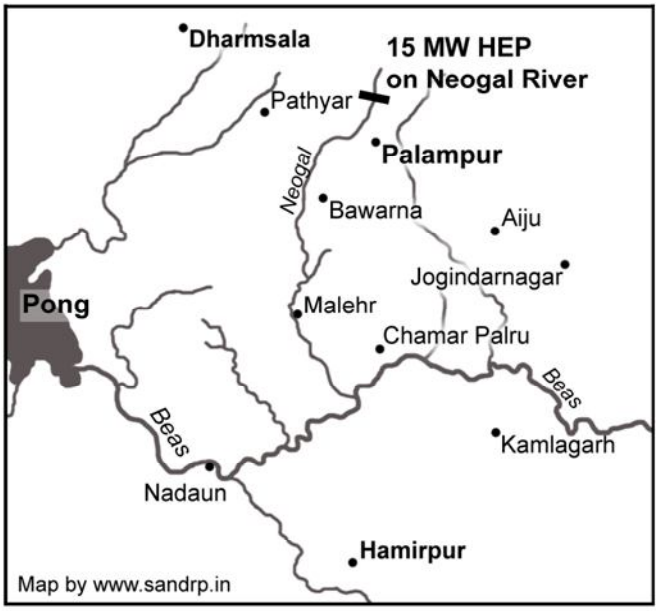
Since all these basins are also the focus of huge hydropower development currently and in near future, we hope this analysis would be used for taking more informed decisions and that such analysis will be done for all projects, basins, states so that necessary corrective actions can be taken. In any case, this indicates a need to review the installed capacities of the under construction projects and also clearly defined norms for future projects need to be put in place. The impacts of climate change and need to ensure freshwater flows in the river all round the year would make this imperative even more urgent.

SANDRP

WHY THE NEOGAL HEP DOES NOT DESERVE CDM CREDITS

This article is based on a submission to the United Nations Framework Convention on Climate Change on May 4, 2010, as to why the under construction 15 MW Neogal Hydropower project does not deserve the status of Clean Development Project. The submission was made by the Environment Research and Action Collective, Lok Vigyan Kendra, Palampur Welfare and Environment Protection, Himachal Angling Association, and other citizens. The submission highlights all the ills that affect most CDM hydropower proposals and shows why the project should not get CDM credits.

Located in the Kangra Valley of Himachal Pradesh, the Neogal is a perennial tributary of the Beas River. It originates from the Dhauladhar hills and is a snow and Rainfed River, forming the Neogal Watershed comprising of riverine terraces and plains fields as well. The key characteristic of the river is the heavy dependence on it for drinking water and irrigation. A traditional, well developed Kuhl (irrigation channel) system exists in the Palampur area, whereby villages have channelized water of the Neogal river for irrigation purposes. Almost 40 such large and small kuhls, managed as common property resources, have catered to the irrigation needs of over a 100 villages in the watershed. Apart from this, Palampur town and villages upto 30 Kms downstream – close to 30000 population depend on the water of the Neogal River and Bohal spring (originating in the same watershed) for drinking. Close to twelve water supply schemes are being run by the Irrigation and Public Health Dept on the river.



The Beas River and its tributaries are considered to have the potential to generate 4500 MW of power, most of which is now being tapped by way of 23 Large, Small and micro hydel projects on the river. These projects are in various stages of planning, construction and operation and will have far reaching impacts on the ecology as well as local livelihood systems of the region. Two of the projects, coming up on the Neogal River include the 15 MW project being developed by Om Power Corporation and another 4.5 MW project by the Astha group of companies. Both the projects are currently under construction but the 15 MW project has been in the centre of controversy for a long time for several reasons – Initially its inability to take off on time as planned and post construction because of the degree of damage done to local water supply systems and the Neogal riverine ecology.

The project is a run of the river scheme with a 3.5 km long headrace tunnel. The Techno-Economic Clearance to the project was first accorded in 1991-92 by the CEA. At the time the project was planned by the Himachal Pradesh State Electricity Board. The MoU was signed with M/S Om Power Corporation in Aug. 1993. Implementation Agreement was signed in July 1998. Draft PPA between the company and the HPSEB has been signed in Dec. 1993. According to news reports, the State Cabinet approved the termination of implementation agreement signed with the M/s OM Power Corporation Ltd as the company had failed to start the construction.

However, it was through exercising influence in the upper echelons of the Central and State government that the company managed to get the project re-allotted to itself despite, a two time rejection of the re-allotment proposal.

Impacts and the Situation on the Ground Adverse Impacts on residents near project site: The location of the project site is in the lower slopes of the Dhauladhar Range of the region. The area is significantly forested with Oak, kail, chir pine and cedar trees. The forests are used by Gaddis for grazing their sheep, though habitation is sparse in the region. There are about seven households located close to the power house site with Surdi village being the most impacted as a result of the dust, landslides (due to construction of road), loss of grazing land (due to unapproved dumping of debris) and also due to the loss of some of their land for the road construction. While they were compensated for the land, there has been no compensation/ mitigation for the various other impacts these 7 families have been facing.

Some of these people, especially the household of Kamla Devi, live in constant danger of boulders rolling down the deep gully that has been formed due to unscientific dumping of debris and passes just next to the habitation. Another of the critical impacts was

destruction of their water tank as a result of the debris from the road construction. Another 30 families in Saan Village (also part of Bundla Panchayat) are being affected by the dust.

Blockage of Irrigation Channels The more serious impact of the road construction and the resulting landslides has been on the several irrigation channels and water supply schemes which have got blocked or damaged due to the debris and loose falling boulders. The Kirpal Chand Kuhl and the Diwanchand kuhl have been the most affected. The two Kuhls together meet the irrigation needs of over 100 villages. These have either become heavily silted or have been blocked or dried up. For the last three years the Irrigation and Public Health Department, which officially governs these channels, has billed an amount of Rs 3 crores as penalty to the project proponents, who have paid up only about 9 lakhs as of today which has been utilised for some repair work. The bigger question, however, will be of supply of water to these two major kuhls, which draw their water from the location between the two projects (Om and Astha). It remains to be seen if there will be enough water to cater to the Hydropower project requirements as well as those of the drinking and irrigation water supply schemes.

The more serious impact of the road construction and the resulting landslides has been on the several irrigation channels and water supply schemes which have got blocked or damaged due to the debris and falling boulders. The Kirpal Chand Kuhl and the Diwanchand kuhl have been the most affected. The two Kuhls together meet the irrigation needs of over 100 villages. These have either become heavily silted or have been blocked or dried up. For the last three years the Irrigation and Public Health Department, has billed an amount of Rs 3 crores as penalty to the project proponents, who have paid up only about 9 lakhs.

Impact on Drinking Water Quality and Supply The Neogal river water is also supplied exclusively to ward No 6 and 7 of the Palampur municipal area. The damage of the water supply systems by the project, around last year and before that had caused a shortage in local supplies. But more crucial is the question of clean water. The waste from the workers colonies of the project at the power house as well as the tunnel site is flowing untreated into the Neogal River and contaminating the water. The heavy siltation and muck in the water, especially during the monsoons makes the river highly turbid and the water dangerous for drinking despite filtration. The forests of the Dhauladhar range and the Neogal river need to be protected and conserved to ensure clean and sustained water supply but the project has disturbed the balance of this area. The Palampur Citizens Environment Welfare Forum as well as residents of the Bundla Panchayat and users of the kuhls have raised these issues over the last three years.

Deforestation and Muck dumping in forest areas While the Forest Clearance granted to the project in 2004 gave permission for felling of 660 trees and diversion of 15 hectares of land, there has been a substantial amount of destruction as a result of unscientific debris dumping during the road construction by the project. The damage to the ecology is clearly visible as eyesores on a verdant landscape from distance of Kilometres away. In June 2009 the project was fined an amount of Rs 12.9 lakh for the damages caused to the forest areas due to the muck dumping and land slides.

While several promises and tall claims of eco-restoration efforts have been made, on the ground there has been virtually no mitigation to ensure stabilisation of the land slides through check walls or vegetative measures.

Can such a Project claim CDM benefits? While there is a general concern about Hydropower Projects being touted as “green and clean” by developers in a bid to claim CDM benefits, even as the social and environmental impacts loom large, in this particular case the concerns are graver. This is because the project is being built of a river that people are very strongly dependent upon for their drinking water and livelihood needs.

The Neogal River forms an integral part of the landscape and life of the Palampur subdivision of the Kangra Valley which the project proponents have completely ignored.

In fact, in their Environment Impact Assessment report as well as the PDD (Project Design Document) they conceal very important facts about the environmental and socio-cultural importance of the river for the local people.

The information in PDD is seriously problematic The Project is not contributing to economic and social wellbeing as claimed. To establish that the project will contribute to the social well being of the region the proponents claim “Majority of the population in the project region depend on the agriculture and animal husbandry. Their economic earning is very low. Basic infrastructures such as roads, schools, hospitals, healthcare facilities, drinking water facilities are very poor”.

These claims are highly problematic. There is hardly any population at the project site itself. Most of the communities inhabit downstream areas of the site – they have substantially better standard of living and access to infrastructure than many other regions of Himachal Pradesh and India. Palampur town is the centre, with

several education institutions like the HP Agriculture University, Institute of Himalayan Bio-resources and Technology, Indian Veterinary Research Institute, Indian Grass and Fodder Research Institute and many schools. The town has a vibrant economy with many of the villagers from the nearby areas, being employed in offices or business. The claim that the proponents will bring 'development to the area's false and misleading.

The proponents state "1.5% of the project cost would be allocated for Local Area Development by the project proponent to take up improvement measures in education, healthcare facilities, welfare facilities, preservation of culture etc." It needs to be stated that in the last three four years no such activity has been undertaken by the project proponents in the area. Local people have no idea about the Local Area Development Fund. Even the damages caused to the pipelines and irrigation channels, were paid by the company only after there were protests and agitations and the government was put under pressure. Despite the damages claimed by the Irrigation and Public Health Department to the tune of Rs 30 Millions, the company has deposited only Rs 0.9 million with it.

Adverse environmental implications The project proponents to justify their claim for CDM state "Presently major portion of energy requirement of the region is met from fossil fuel based power generation". This is a blatant lie.

Palampur gets its electricity supply from the Dehar Grid station which in turn gets its supply from other hydropower projects situated in the state.

On the environmental impacts the PDD states "There would be minor environmental impacts due to the construction of the project activity. In order to offset environmental impacts associated with the project activity, various environmental mitigation measures are proposed in the EIA". The extent of impact has already been spoken of in the section on impacts. There has been no effort by the Project proponent to carry out mitigatory measures.

In one section of the PDD the proponents claim that there are "No fish in the Neogal River". This is another blatant falsehood. The Neogal river has been listed by the Himachal Pradesh Fisheries department under its 'Negative list for Hydel Projects" and for "in situ conservation". Rich in oxygen, the cold and limpid water of this river and its minor tributaries used to abound with species like the schizothorax, locally called 'Gungli'. Other species like the snow trout and minor carps were also abundant in the Neugal. Due to excessive soil erosion and unscientific muck disposal during the construction of this project the riverine ecology and benthic fauna has been severely impacted in the last four years. While the NOC (No Objection Certificate) has been granted by the department for the project – the decision is seemingly more subjective than based on environmental appraisal. This issue has been raised in several reports.

The project area is culturally rich The Project Proponents also falsely claim that there are "No religious sites or places of cultural importance in the area" They seem to have completely missed the various religious sites and temples – like Jakhni Mata, Vindhyavasini temple, Bundlamata temple and Neugleshwar Devta that exist close to the river and are culturally very critical for the people of the region.

The Project is not Additional Let us look at some of the important dates in the life of this project:

- **1991-2** The Techno Economic Clearance to the project was first accorded by the Central Electricity Authority. At the time the project was planned by the Himachal Pradesh State Electricity Board.
- **Aug 1993** The MoU was signed with M/S Om Power Corporation.
- **July 1998** Implementation Agreement was signed in.
- **Dec 1999** Draft PPA between the company and the HPSEB has been signed. However, according to news reports, the State Cabinet approved the termination of implementation agreement signed with the M/s OM Power Corporation Ltd as the company had failed to start the construction. However, it was through exercising influence in the upper echelons of the Central and State government that the company managed to get the project re-allotted to itself despite, a two time rejection of the re-allotment proposal.
- **2004** Forest clearance obtained

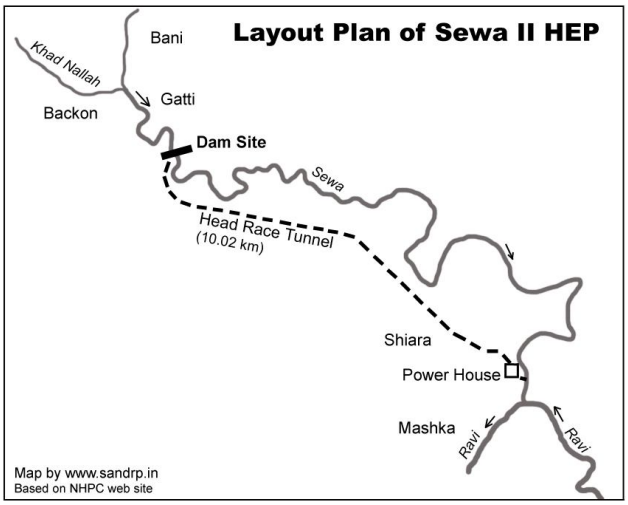
It is clear from the above timeline that the project was under planning, consideration and active implementation much before the possibility of CDM credits became a reality in mid 2005. At no stage during the project planning, appraisal, techno economic considerations was the issue of need for CDM credits to make the project viable was either considered or mentioned. The project from this point alone, is non additional. Moreover, the project uses business as usual technology, with no additional or new features, and scores of such projects are already being constructed and operated in India without CDM credits. Thus the project is clearly non additional.

It further needs to be emphasised that with changes in climatic conditions the water flow of the Himalayan rivers, especially, snow fed and rain fed rivers has been declining steadily over the years. The water flow measures used by these hydro projects have not taken into account these important realities while planning projects on rivers that already have a high level of dependence and are becoming a scarce resource. This places doubts on the technical feasibility of hydropower projects planned on Himalayan Rivers. This needs to be also examined by the CDM approval Board. ~~~~

NHPC's 120 MW Sewa HEP in Ravi Basin in J&K:

HOW NOT TO DEVELOP A HYDRO PROJECT

The 120 MW Sewa II Hydropower project, under construction by the NHPC Ltd in Kathua district in Jammu & Kashmir seems to have seen all the worse aspects of hydropower development. It has already had huge time over run, cost over run, repression of local people and labour, poor construction, and very poor future prospects. The question is, will there be any penalties for the NHPC?



The construction on the project on Sewa River, a tributary of Ravi basin in Basholi tehsil of Kathua district started in 2001. It was expected to be completed by 2006-07, but latest indications from CEA (Central Electricity Authority) and NHPC suggest that now it may be commissioned in 2010-11, which means a time over run of 5 years. It has seen the cost over run of 53.12% already. The cost has gone up from Rs 665.46 crores to Rs 1018.98 crores. Incidentally, this cost comes to close to Rs 8.5 crores per MW, one of the highest in India, the cost is likely to go up further considering the further delays and leakages.

The latest, much delayed schedule of the project was to commission it by March 2010, but a Central Electricity Authority (CEA, apex technical organisation of Government of India) report dated 270210 said, "However, due to leakage in Head Race Tunnel, HRT had drained. Rectification of HRT is in progress." Earlier, Greater Kashmir reported on Feb 14, 2010 that the HRT near Adit IV had developed leakage.

In Feb 2008, the Projects Monitor reported, "At a recent meeting, the utility (NHPC) informed that apart from technical problems in the headrace tunnel, the progress had suffered due to go-slow tactics of contractor's labour and problems created by local people." The way NHPC wanted to tackle the local people was interesting, "NHPC has also asked the power ministry to direct the J&K government to deal with the problems created by the local people."

Interestingly, the contract for the civil works including the construction of the 53 m high dam and 10.02 km long HRD were given to a Joint Venture involving the Gammon India Limited, which has by now become known for large number of failures including the metro mishaps in Delhi and flyover collapse in Hyderabad, including others. Earlier update from the CEA reported on 300909, "Poor geology in HRT and small dia i.e 3.3 m of HRT affecting progress of works." And on 011206 CEA reported, "Formation of cavity in Face-III and Face-IV of HRT. Works restarted after re-routing of HRT."

The People's democracy reported in its July 11, 2004 issue, "The dam, disilting chambers and headrace tunnel were allotted to Gammon India and the powerhouse to Patel Engineering. They, however, further sublet the work to numerous smaller contractors. The total workforce at the different sites is approximately one thousand. This subletting style of construction is a new phenomenon, introduced in the last 5 or 6 years. It is highly exploitative in nature, as the main contractor keeps a profit of 10 to 15 per cent of the contract bid, deploys very little staff (out of which, more is of managerial nature), and provides the big construction machines to subcontractors. After ensuring his share of profit, a subcontractor then sublets the work to some other contractor and he, in turn, sublets the work to yet another firm. Thus, at every turn, the firms ensure their respective shares of profit by progressively reducing the workers' wages and facilities. This is the reason that, despite their mutual contradictions, the company and the contractors are found united against the workers." The People Democracy goes on to describe in detail the kind of the repression that the area saw in June 2004.

Here it is very relevant to note that the power generation performance of the 9 MW Sewa III HEP, downstream from the Sewa II HEP, is very poor. Its design 90% dependability generation is 36 Million Units, which means it should have generated more than that amount of power in 90% of years. It was commissioned in 2003-04 and its highest ever annual generation has been just 12 MU. In 2009-10, it is likely to reach a new low of 4.41 Million Units. This shocking underperformance is likely to repeat for the Sewa II, since to a large extent this shows the poor water availability, which will affect the upstream project too. This indicates that the Sewa II is unlikely to achieve the projected annual generation of 533.32 MU at 90% dependability.

All this also goes to show the very poor project appraisal by the NHPC, but unfortunately, no one is likely to be held accountable for the crores wasted and river, land and livelihoods destroyed.

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RIVERS, PEOPLE AND CLIMATE CHANGE IN SOUTH ASIA

Introduction[3] The countries of South Asia share cultural, social, political and geographical links. Rivers are one of the most important common resources of the region. The region also shares some of these rivers with other nations beyond its political boundaries. Rivers help share water services, biodiversity, climate and livelihoods for millions of people. Rivers are also crucial for the water, energy, food and agriculture security for the people of the region.

Until large dams and diversion projects are planned or built, normally, one does not see any discord in sharing of rivers. The sharing of the Ganga Rivers between India and Bangladesh post Farakka is one example. Till recently, the Barak River shared between India and Bangladesh did not see any discord. Now that India is planning its largest water storage reservoir till date on that river, the river has become a means of discord not only between India and Bangladesh but also within India.

In the context of threat of climate change impacts, the sustainable existence of rivers has become even more important. In every sense, thus, it seems rivers should be a means of sharing, spreading and sustaining accord.

Unfortunately rivers these days are more known for creating discord, as can be seen from the statements of Government representatives across the region. Even if one were to put aside the completely false and unacceptable war mongering that some of these statements indulge in with increasing frequency, there is no doubt that the sharing of river waters has huge potential to create and accentuate discords. The role of civil society groups in the region becomes important in this context.

Impact of climate change on Rivers in South Asia Climate change impact on rivers will be felt in multiple ways:

- Melting Glaciers will have significant impact in flow of rivers across a year and over the years. Major impact will be in the non monsoon flow regime of the rivers. For example, it has been found that the average contribution of snow and glacier runoff in the annual flow of the Sutlej River at Bhakra Dam is about 59%, 41% being from rain. The average snow and glacier contribution in the annual flows of the Chenab River at Akhnoor was estimated to be 50% and for the Ganga at Devprayag was about 30%.[4] These figures give some indications about the extent of impacts due to glacial melting. There could be some not so noticeable increased glacial melt-runoff initially, but significant decrease eventually.
- Broadly, climate change is likely to affect the hydrological cycle[5], which will result in (i) more rainfall in lesser time, increased frequency of high rainfall events; (ii) decrease in number of rainy days; (iii) overall increase in precipitation; (iv) increase in runoff but less ground water recharge; (v) increase in flood events particularly of flash floods; (vi) increase in gap between rainfalls in monsoon, increase in drought like situations; and some other related issues like (vii) increase in landslide events in hilly areas.
- The warmer climate would also mean increased water needs for all activities, thus there will be more extraction of water from the hydrological cycle, impacting the water availability in nature in general, including in rivers and aquifers.

When do rivers start being seen as a source of discord? Until large dams and diversion projects are planned or built, normally, one does not see any discord in sharing of rivers. The sharing of the Ganga Rivers between India and Bangladesh post Farakka is one example. Till recently, the Barak River shared between India and Bangladesh did not see any discord. Now that India is planning its largest water storage reservoir till date on that river, the river has become a means of discord not only between India and Bangladesh but also within India.

The abysmal performance of the Teesta Barrage project in West Bengal can be seen from the following figures from the Comptroller and Auditor General of India as of March 2004:

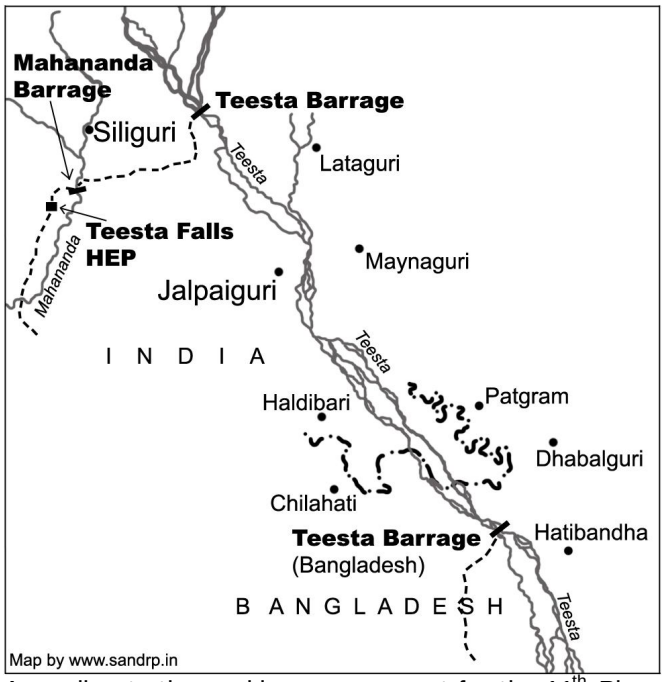
Project	Latest est. cost	Pre AIBP Expd. Incurred	Expd incurred under AIBP	Ultimate irrigation potential	Pre AIBP Potential created	Potential created under AIBP	Total Potential utilised	Potential Utilised created under AIBP
Teesta Barrage	1177	553	367	527	73.37	45.74	66.2	9.25

(Cost in Indian Rupees Crore, Irrigation figures in '000 ha)

[3] Note prepared for the India Climate Justice Group by South Asia Network on Dams, Rivers and People (SANDRP) for the workshop in Delhi on April 21, 2010

[4] "Dams, Rivers & People", Feb March 2010, page 16

[5] See for details: *There is little hope here: India's National Action Plan on Climate Change,* SANDRP, 2009



According to the working group report for the 11th Plan, the project was started in the 5th Plan (1974-78), and the latest estimated cost is Rs 2068 crore, the balance cost at the end of the 10th Plan (March 2007) was Rs 1017.04 crores, out of which the 11th Plan proposed to allocate Rs 410 crores, which means the project won't be completed at least till March 2012. What this means is that over three decades after the work on the project started, it had not achieved irrigation of even 15% of its projected command area of 5.27 lakh ha.

The project is thus a big failure in achieving the expected irrigation benefits. Reports from Bangladesh suggest that the Bangladesh Teesta barrage has also failed to achieve the promised irrigation. So in a nutshell, the river has been destroyed, (incidentally, the Teesta barrage project of India also seeks to transfer some water from Teesta to Mahananda river, but it is not clear how much water and with what objective) huge costs have been incurred, and discord has been created, where none seem to exist earlier.

This is typical scene in such projects. With the construction of a large number of hydropower projects in the Teesta river basin in Sikkim and West Bengal, conflicts over Teesta waters is likely to escalate in years to come.

The Teesta Barrage project (of India) is thus a big failure in achieving the expected irrigation benefits. Reports from Bangladesh suggest that the Bangladesh Teesta barrage has also failed to achieve the promised irrigation. So in a nutshell, the river has been destroyed, huge costs have been incurred, and discord has been created, where none seem to exist earlier.

As even a mainstream business newspaper editor like Swaminathan S Anklesaria Aiyar has now[6] acknowledged, "What this (India-Pakistan) debate (on Indus Water Treaty) misses is that dam-based canal irrigation is an obsolete, wasteful 19th century technology that cannot meet 21st century needs". But the countries in the South Asian region continue to pursue the failed big project agenda, neglecting the concerns of the poor, the needy, the environment, the climate and the future generations and create more conflicts.

There are other possible reasons that can also create river discords, including: Hydropower projects, Pollution, increasing urbanisation, excessive and unsustainable groundwater extraction, sea water ingress, among others. Lack of consideration of equity within and across borders is also one of the root causes of discord in sharing river waters.

Increasing role of Corporations The involvement of private companies in hydropower and other water related projects in India, Nepal, Bhutan and Bangladesh is increasing. Some of the big businesses involved include: The Tata Group, GMR, Reliance, Jindal, Jaiprakash and Athena amongst others. Since corporate bodies have little accountability to the people and since their accountability to the state is also on weak and State itself is largely acting in the favour of corporate bodies as against the interests of the people, such involvement of the private companies in river management is likely to create more problems.

Possible flashpoints in near future:

HYDRO PROJECTS ON THE INDUS BASIN:

- India's mad rush for hydro projects in the Chenab, Jhelum and Indus basin is likely to destroy the rivers within India and beyond. On the other side, Pakistan is also in this race to the bottom. In this context, a good example is the case of Kishenganga hydropower project taken up by India and the Neelam Jhelum hydropower project being taken up by Pakistan, in the same basin. Both are in a race to establish who has developed the project first, so that the other country's project can be shown to be illegitimate under the Indus treaty. This is happening to the exclusion of the interests of the people and environment on both sides of the border.
- There is a lot of noise being made in the media in Pakistan in recent months about how India is violating the Indus treaty, stealing Pakistan's share of water,

[6] See *Checking the Indus* in the Times of India, April 11, 2010

diverting water illegally, drying up and desertifying the downstream country and so on. Most of these statements seem lacking in substance as to where is India taking the diverted water and so on. However, we can note some genuine grievances of Pakistan. According to former water resources minister of Pakistan, the downstream country does not have right to know the gauge level and regular inflow and outflow figures from hydro projects in India. Without these figures, Pakistan cannot ascertain if India is adhering to the Indus Water Treaty (IWT) stipulations.

- Secondly, it is claimed in a recent article *War or peace on the Indus* by Prof John Briscoe of Harvard University,[7] that in its judgement on Baglihar hydropower case, "The finding of the neutral expert was essentially a reinterpretation of the Treaty" by removing the restriction on live storage at a hydro project and also allowing gates. This claim does not seem to be sound. The second claim of the article that, "This vulnerability was driven home when India chose to fill Baglihar exactly at the time when it would impose maximum harm on farmers in downstream Pakistan" is also not entirely correct. However, though the Indian government claims that it followed the treaty obligations while filling the Baglihar reservoir, Sanjay Baru, editor of *Business Standard*, in a letter to Briscoe agreed, "The treaty permits India to complete the initial filling of any dam before 31st August. The Baglihar dam was filled before the 31st (August). The treaty also requires that during filling, the flows at Marala must be not less than 48000 cusecs; I believe this was not met on only ONE day during the filling when the flows at Marala did drop to 28000 cusecs." So there does seem to be some violation here.
- However, the debate in Pakistan on this issue seems to be more of rhetoric and less of substance. As Khalid Hussain, eminent journalist from Pakistan noted, "A lot that has appeared in Pakistani press is factually incorrect, for instance the "theft" of water by India. It is sad that none of our reporters have ever asked the IWT bureaucrats if theft was taking place then where was India taking the stolen waters?" More importantly, the debate there seems to miss the real inequities in that country between regions and between people.
- On Indian side, the role of the government and the media is worse in terms of not highlighting the real costs and impacts of the big hydropower projects that India is taking up and the questionable benefits of those projects, particularly for the local people.

However, the debate in Pakistan on the India Pak Indus River Sharing issue seems to be more of rhetoric and less of substance. As Khalid Hussain, eminent journalist from Pakistan noted, "A lot that has appeared in Pakistani press is factually incorrect, for instance the "theft" of water by India. It is sad that none of our reporters have ever asked the IWT bureaucrats if theft was taking place then where was India taking the stolen waters." More importantly, the debate there seems to miss the real inequities in that country between regions and between people.

RUSH FOR BIG HYDRO IN NEPAL There is a big push for large hydro projects in Nepal, many of them are being pushed by India for the latter's energy requirements. These projects could create conflicts within Nepal and also between Nepal and India in future.

- **Pancheshwar** A 6480 MW dam proposed on the Mahakali River on the Indo-Nepal Border has created tensions and opposition across the border. A Mahakali "treaty" was signed between the two nations in 1996, but the legal validity of the treaty has remained controversial in Nepal. More recently as per a Rediff[8] story, "Nepalese Maoist leaders led by Ishwari Bhattarai are now up in arms against the Pancheshwar dam claiming the proposed dam was not in the interest of people of the landlocked nation. Bhattarai has also threatened to commit suicide over the issue. A series of public rallies are being organised against the dam in Nepal."
- **Kosi** This well known flood prone river flows from Nepal to India and when the Kosi embankment breached inside Nepal border on Aug 18, 2008, leading to unprecedented floods in parts of Nepal and large parts of Kosi basin in Bihar, in the initial days, both countries blamed each other for the mishap. However, even today no one has been held responsible for the mismanagement of the maintenance of the Kosi embankment that led to the breach. Now India and Nepal are discussing a gargantuan and unviable dam on the Kosi River for flood control. This dam is yet to be initiated, but if ever undertaken, it will invite greater disasters in the Kosi basin.

RUSH FOR BIG HYDRO IN BHUTAN There is a push for big hydropower projects in Bhutan, mostly for export of generated power to India. These projects are increasingly likely to create conflicts within Bhutan and across the border in India. There have earlier been reports suggesting that there have been instances when sudden release of water from Bhutan projects has led to floods in India.

[7] http://www.sacw.net/article1391.html, accessed on April 12, 2010

[8] http://business.rediff.com/report/2010/apr/12/maoists-cast-shadow-over-pancheshwar-dam-project.htm?invitekey=b0f8eb498700391d9f8a817a56444120, accessed on April 12, 2010

The risks of real problems are likely to increase further with the proposals also to build big storage projects like the Sankosh project in Bhutan.

BANGLADESH AND NORTH EAST INDIA India sees a potential to build upto 50 000 MW of installed capacity hydropower projects, including storage hydropower projects in North East India. These projects are likely to create significant downstream impacts within India and further downstream in Bangladesh, creating fresh conflicts between the two nations. The projects would also create big social and environmental impacts in India and Bangladesh and also destroy the rivers, forests and rich biodiversity and livelihoods for millions of people. All this is bound to create fresh conflicts in the region.

- **Tipaimukh** India is planning to build India's largest water storage capacity dam on Barak River that flows from India into Bangladesh. This project is to come up in an ecologically fragile, erosion and landslide prone area, seismically one of the most active areas and would submerge and destroy rich biodiversity in over 25000 ha of forests. It would be one of the most destructive projects of its kind and is likely to create fresh conflicts within India and between India and Bangladesh.
- **India Bangladesh Rivers** India and Bangladesh share 54 rivers, but there is no treaty on any of the shared rivers between the two countries, except the Ganga water treaty of 1996, which is basically for sharing the water during five lean season months. There is no serious attempt at arriving at treaties on rest of the rivers and there is no involvement of people in the Indo Bangladesh Joint River Commission and other related bilateral arrangements.

OTHER ISSUES

- **Interlinking of Rivers** India has plans to link 37 of its rivers. This is to be done through some 30 projects, in the name of transferring water from surplus to deficit basins. This is a completely unviable, undesirable project and besides creating big impacts within India, it would also create international problems. There have already been big protests in Bangladesh against the project.
- **Possible Chinese diversion** The Chinese government has often declared its intention to divert the Brahmaputra (basically Siang River, one of the main tributaries of the Brahmaputra) river to North China before the river enters India. The work on this project is yet to start and China has denied that the project is being taken up.

However, at the same time, the Indian government is pushing more big hydro projects in Arunachal Pradesh, claiming that these will help establish India's prior use rights over the waters of these rivers when China does decide to take up its North South diversion project. However, such a push for big hydro in Arunachal Pradesh under the bogey of Chinese plans is only likely to worsen the situation for the people of Arunachal Pradesh and also for downstream areas in India and Bangladesh.

THE WAY AHEAD

Share Information One of the first steps required in this regard is to share available information on the various aspects of shared rivers. The policies of the governments of the region are not the same every where, but they are generally not very helpful in this regard. There is need to share available information about various aspects of rivers, including the perspectives, policies, plans, projects, socio-cultural significance of rivers and its uses across the region.

One of the first steps required in this regard is to share available information on the various aspects of shared rivers. The policies of the governments of the region are not the same every where, but they are generally not very helpful in this regard.

Need for a Himalayan policy:

"An international peace park has been proposed in Siachen glacier so that each (India and Pakistan) army can pull back from their high altitude posts and, thereby, reduce casualties and damage to environment… the problems still persist because the governments (India, Pakistan and China) have not funded a system of monitoring or for enforcing regulations."

Steve Swenson, working on a book documenting his 30 years of climbing in Kashmir in the Karakoram mountains[9]

Considering that the countries in the region share the Himalayan watershed on which numerous big and small rivers and millions of people and biodiversity depend there is an urgent need to have a regional Himalayan Policy for the common good of the people of the region. In view of the crisis of climate change this need has become even more acute. Today, there is no such policy and each country is developing projects on their own, and many of the so called development projects are actually accelerating climate change impacts. One instance of this was cited above in terms of the race to the bottom in development of hydropower projects and dams. Hundreds of such projects are constructed, or are under construction or are being planned across the countries in the region[10]. These projects, along with their paraphernalia of roads, townships, mining, tunnelling, muck dumping, blasting, diverting of rivers and dams are

[9] The Times of India, April 14, 2010

[10] See *Mountains of Concrete: Dam Building in the Himalayas* by Shripad Dharmadhikary, Dec 2008, published by International Rivers

cumulatively having huge, though as yet unquantified impacts on the glaciers, forests, aquatic and terrestrial biodiversity and thereby impacting the climate as well. All this makes the need for a Himalayan policy very urgent.

Flood forecasting One of the areas where information sharing is immediately required is in the area of sharing information about forecasts related to floods in the shared rivers. The governments in the region seem to have a number of agreements to share information in this regard, including Pakistan-India, Nepal-India, Bhutan-India, Bangladesh-India and China-India. Unfortunately, the shared information in this aspect is not in the public domain. We need to push to ensure that such shared information must be in public domain immediately. At the same time, there is a good case to initiate sharing of such information even outside government. An interesting example in this regard is given in the Box below.

River Basin friends: People-driven flood forecasting

The River Basin Friends is a people's network of more than 300 organisations located in the Ganga-Brahmaputra-Meghna basin. Official flood forecasting from the central government is often insufficient to predict impacts at the local level, and the information cannot usually reach people in vulnerable locations. So River Basin Friends began its own initiative to commence an early flood warning mechanism which reaches people all the way downstream in Bangladesh. It has more than 1,000 members of different disciplines, living in different parts of the basin, each of whom helps circulate flood forecasting messages from upstream locations to downstream locations, using phones and email. People in the central hub in Assam collect information from different sources, and the peoples' network in upstream locations of the Brahmaputra basin process and analyze it. The final flood early warning messages are then formulated for different vulnerable locations and disseminated to these locations. This has been going on quite effectively at least for the last three years. More in-depth study of this remarkable initiative needs to be done, as it has the potential to provide lessons for many other communities[11].

Transparency and Participation in River Governance There are elaborate, mostly bilateral inter-governmental mechanisms on governance of water and rivers in a number of cases in the region. A brief description of such mechanism is available on the website of the Ministry of Water Resources, Government of India, see: http://wrmin.nic.in/index2.asp?sublinkid=365&langid=1&slid=368. These pertain to the bilateral arrangements of India with Pakistan, Bhutan, Bangladesh, Nepal and China. These arrangements include basin level commissions, minister level committees, officer level committees, project specific commissions and so on. Unfortunately, there is practically no transparency in the functioning of these mechanisms, nor is there any role for any concerned actors outside the government. In governance of rivers, waters and related projects, there should be no doubt that people in general have the right to know what is going on in these committees and commissions.

Recently the need for such public participation was acutely felt in the aftermath of the Kosi Disaster on the Indo-Nepal border in August 2008. During the initial period after this disaster struck, there was the usual blame game between India and Nepal, showing how the bilateral committee had failed to achieve the maintenance of the embankment that breached with the flow of water in the river less than 1.5 lakh cusecs (Cubic Feet per Second) even as the design capacity of the embankment was over 9 lakh cusecs. In the days that followed, it become further and acutely clear that if there had been some credible, independent non government people on the Indo Nepal Kosi committees, that may have ensured that the embankment is properly maintained, and the embankment may not have breached at least on that particular occasion. However, the non government actors in the region have not been able to create sufficient pressure on the govts to achieve any success in this matter.

Indeed there is no doubt that efforts are required from all countries and quarters to ensure that rivers indeed remain a means of sharing peace, accord and sustainable life and livelihoods. For that a sustained effort is required, from all concerned, particularly those from outside the Governments.

Recommendations of the WCD The report of the World Commission on Dams, made public in November 2000 offers a useful framework to start the discussions for sharing rivers in the region. The Nepal, Pakistan and Indian Governments participated in the work of the WCD and many others in the region also participated in the WCD process. Some of the relevant guidelines from WCD report in this regard include[12]

- National water policies make specific provision for basin agreements in shared river basins. Agreements are negotiated on the basis of good faith among riparian States. They are based on principles of equitable and reasonable utilisation, no significant harm, prior information and the Commission's strategic priorities.

[11] *A Dam-Made Disaster: How Large Dams and Embankments Have Worsened India's Floods* by Himanshu Thakkar in "Before the Deluge: Coping with Floods in a Changing Climate", International Rivers, 2007

[12] http://www.unep.org/dams/WCD/report.asp, page 251, accessed on April 10, 2010

- Riparian States go beyond looking at water as a finite commodity to be divided and embrace an approach that equitably allocates not the water, but the benefits that can be derived from it. Where appropriate, negotiations include benefits outside the river basin and other sectors of mutual interest.

- Dams on shared rivers are not built in cases where riparian States raise an objection that is upheld by an independent panel. Intractable disputes between countries are resolved through various means of dispute resolution including, in the last instance, the International Court of Justice.

- For the projects on shared rivers, the necessary legislative provision is made at national and sub-national levels to embody the Commission's strategic priorities of 'gaining public acceptance', 'recognising entitlements' & 'sustaining rivers and livelihoods'.

The WCD report provides further description and details of these guidelines, these can be a possible starting point of discussion, providing useful initial framework.

Need for South Asian Mandela? John Briscoe, Professor of Environmental Engineering, Harvard University, better known in the region as a former Senior Advisor in the World Bank, stationed in South Asia for many years, has recently written a piece *War or Peace on the Indus?*, which is doing the rounds among the highest policy makers in India and Pakistan.

The article was sent for publication in *The Times of India* and *Business Standard* in India, but both rejected it, for the anti India bias in the article. Briscoe in the article suggests that what is needed is a person like Mandela or a Luis Inacio Lula (the Brazilian President) from India, when he finished the article with these words, "Who will be the Indian Mandela who will do this – for the benefit of Pakistanis and Indians – on the Indus?"

However, Prof Briscoe himself has had a rather questionable track record. Firstly, his former employers, namely the World Bank is known to have played key role in pushing destructive dam projects in the region and elsewhere and it is well known that Prof Briscoe was an enthusiastic advocate of that line. As we noted earlier, such projects many times have turned the tide in making rivers a means of discord rather than means of sharing and accord.

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So now Prof Briscoe pleading for peace on Indus sounds a bit strange when he and his employers were happy to sow the seeds of discord in the past. Secondly, after the WCD report was released, incidentally by Nelson Mandela in Nov 2000, the World Bank refused to implement the recommendations of the report.

To make it possible for the World Bank to refuse to implement the WCD recommendations, the then key World Bank officials played key roles to engineer an opposition to the WCD report from developing countries, including countries from the region by all the considerable means at their command. Prof Briscoe was part of this effort.

That way, he has played a crucial role in trying to destroy the potential use of WCD guidelines to reduce the discord that could emanate from shared rivers. Now, Prof Briscoe is asking for a Mandela from India to douse the perceived fire in the river. His call is thus lacking in credibility.

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The governments of the region also do not have policies or practices to ensure that rivers have freshwater all round the year. Thus, India does not mind drying up the river downstream of the various dams, hydropower projects and diversions.

It was interesting to know in that context that the recent India - Bangladesh Joint River Commission discussion on Teesta water sharing discussed a proposal to leave 20% of the water for the river. Provision for freshwater flow in rivers all round the year must be part of all international agreements.

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More AIBP Funds for SSP

7000 crores as Rewards for inefficiency, diversions, corruption?

Some recent news reports suggest that Planning Commission has approved the revised cost estimates for Sardar Sarovar Project at Rs 39240 crores and SSNNL (Sardar Sarovar Narmada Nigam Limited) officers hope to get Rs 7000 crores from central govt to complete canal construction. Planning Commission needs to provide much clarification since this year we have also witnessed a performance audit report on Accelerated Irrigation Benefit Program (AIBP), wherein CAG (Comptroller & Auditor General) has indicted SSNNL for diversion of central funds under AIBP as well as furnishing false Utilisation Certificates. It seems that the economists at Planning Commission have failed to learn lessons from Audit findings by the apex audit institution and have cared little to punish SSNNL for having breached accountability principles.

The recent performance audit on AIBP has shown that despite spending Rs 26719 crore (out of which Rs 16720 crore was Central Loan Assistance (CLA) and Rs 9999 crore was Grant) in last 13 years in various projects all over India, this centrally sponsored program has done little to create the envisaged irrigation potential and much less to put it to utilization. The CAG heavily criticized six states (namely Andhra Pradesh, Gujarat, Karnataka, Madhya Pradesh, Maharashtra and Orissa) for having cornered 75 to 85 percent of the AIBP grants released during the years 2005-'06 and 2007-'08. CAG audit scrutiny found that the performance of these states, in terms of completion of projects, was very poor.

CAG (March 2010 report, page 103) states that "till March 2008, the total investment in SSP was Rs 26353 crore of which GoI assistance was Rs 5140 crore". The MoWR (Ministry of Water Resources) website the figure of CLA released on SSP till March 2008 is stated to be RS 5124.46 crore and for the year 2008-'09 it is stated to be Rs 251.9 crore. SSP has been recipient of the highest amount of AIBP funds cornering more than 14% of total CLA, the grant component is additional.

CAG audit found that "SSNNL diverted Rs 1833.12 crore from AIBP funds during the period 2003-2008, meant for the development of main canal and distribution network to other areas of the project which led to the delay in creation of irrigation potential". This latest audit finding needs to be read along with an earlier audit finding (see, CAG 2002: 56) that stated, "The funds released under AIBP were specifically meant for the construction of canal and distributaries; however, no such segregation of funds was made from 1998-'99 to 2000-'01 and the entire amount (Rs 1,077 crores) was provided to SSNNL (indicating diversion of AIBP funds for works other than the 'stated purpose')".

CAG (2010: 104) states that "during the period 2002-2005 SSNNL failed to utilize CLA worth Rs 1103 crore, out of the CLA of Rs 1898 crore it got from central govt".

CAG also reports that the latest cost estimates prepared by State Government for SSP in July 2007 was Rs 35,046 crore, and this estimate had not yet been approved when CAG finalized its performance audit report, concluding that "continued economic viability of SSP is thus not verifiable".

CAG has also noted that the lowest link of canal network (minor and sub minors) is the most neglected part where the progress has merely been in the range of 16 to 28 percent, followed by branch canals that are completed in 60 percent length. CAG's indictment comes across in unambiguous terms when it notes that during the period 2003-2008, despite expenditure of Rs 4676 crore, the construction of earthwork, lining and structures lagged behind the targets.

CAG also exposed the manner in which SSNNL furnished false Utilisation Certificates to justify the AIBP funds worth Rs 675.20 crores that it obtained under the Drought Prone Area (DPA) component. Audit scrutiny revealed that irrigation potential proposed to be developed under DPA was pertaining to seven already constructed branch canals. The branch canals which were under construction when the DPA component was introduced, were at the same stage of progress, were still not complete, and no expenditure had been incurred on distributaries and other downstream networks pertaining to them. This implied that SSNNL used the funds provided under DPA in works other than those covered under DPA and SSNNL furnished incorrect Utilisation Certificates to GoI.

CAG also states:

- While seven branch canals were constructed under Phase IIA and IIB, between October 2001 and May 2008, constructed of their Distributaries had not been taken up as of December 2008.
- Construction of Distributaries in block 9A4 and 9A5 was completed in June 2002, however only 100 km out of 200 kms length of minors of these distributaries were completed. Even of these 100 kms, *water could only flow into 4.70 kms due to incomplete stretches*. As regards sub-minors of these blocks, 422 kms of sub-minors were constructed as of June 2008, against the envisaged 719 kms by July 2005. Even of these 422 kms sub minors, *water could flow only in 2 kms*. (*Emphasis supplied*).

CAG's Audit report for Gujarat (Commercial) for the year ending March 31, 2009 also has indicting comments on irrigation component of SSP. Planning commission and apex audit institution owe farmers of Saurashtra and Kutch an answer as to what they are doing to ensure accountability on the expenditure from AIBP funds?

Himanshu Upadhyay

CLIMATE CHANGE & WATER SECTOR

India's fresh emission estimates The government of India has released the report *India's Greenhouse Gas Emissions 2007*, prepared by *Indian Network of Climate Change Assessment*. This report released by the Union Ministry of Environment and Forests in May 2010 is a submission to the UNFCCC, updating the previous estimates for 1994. The report promises to publish updates of this every two years.

The report estimates that India's total NET emissions in 2007 were 1727.71 Million Tons (MT), of which the Energy, Industry, Agriculture and the Waste sectors contributed 58, 22, 17 and 3% respectively. The gross emissions were 1904.73 MT, the difference was taken care of by LULUCF (Land Use, Land Use Change and Forests). India's per capita emissions were 1.5 Tons. Energy sector emitted 1100.06 million tons of CO2 eq, of which 719.31 MT of CO2 eq were emitted from electricity generation & 142.04 MT of CO2 eq from the transport sector. Interestingly, the report says, "The crop land sequestered 207.52 MT of CO2 in 2007." It would be useful to see the details in this regard.

However the report has a number of limitations. In its estimations it does not mention emission due to reservoirs. About wetlands, it says, "Wet lands have not been considered due to paucity of data." The report also does not mention the contribution of different income class of people.

The report shows that the Net emissions have gone up by 40.63%, showing the Compound Annual Growth Rate (CAGR) or 2.9%. Among the sectors with high CAGR were the waste sector (7.3%), Cement (6 %) and, electricity sector (5.9%).

While releasing the estimates, Union Minister of state for Environment and Forests stated, "I look forward to INCCA's next major publication – a "4X4" assessment of the impacts of climate change on four sectors – water resources, agriculture, forests and human health – in four critical regions of India – the Himalayan region, North east, Western Ghats and Coastal India, which will be released in November 2010." Those reports should be very interesting. (http://moef.nic.in/downloads/public-information/Report_INCCA.pdf)

DAMS

Doubts about Polavaram's Power component The Andhra Pradesh officials have brought to the Chief Minister's notice the Power Finance Corporation's (PFC) doubts over setting up 960 MW hydel power project as part of Polavaram. The PFC sought to know whether drop in inflows into Polavaram would cut down power generation capacity to 450 MW after 25 years. The major irrigation minister, however, dismissed the apprehensions and suggested that tenders could be called for 960 MW itself. He is said to have commented that the state cannot afford to produce less power in the next 25 years despite having capacity because of anticipated fall thereafter. The major irrigation minister of AP said the Chief Minister wanted the new tenders to be opened by May 30 and agreements entered into with the agencies that would bag the contract in the first week of June and the project to be completed by 2014. However, a large number of petitions remain pending against the project in various high courts and also in the Supreme Court and also the upstream states of Orissa and Chhattisgarh remain opposed to the project. (Deccan Chronicle 110510)

'I feel anguished about Narmada': Jairam Ramesh The country's experience in implementing big dams, has been a painful one ~ in the case of the Narmada and Maheshwar projects, the track record in fulfiling promises made on environment clearance has been horrible, says India's Union Minister of State for Environment and Forests. Here we are carrying an edited part of the interview he gave to *The Statesman* on April 5, 2010, as it makes some very interesting revelations.

Q: MEF issued a circular on 18 March according to which now no consultant will conduct an Environment Impact Assessment (EIA) unless he/ she is accredited by NABET/QCI. This does not address the fact that companies are virtually conducting their own EIAs. There is no clause requiring an EIA consultant to be independent of a project developer. Isn't there a conflict of interest? **JR:** No, no. If I am putting up a steel plant, it is up to me to get an EIA done. It is easy for an environmentalist to criticise. My responsibility is to get an EIA done. Where is the question of a conflict of interest? There is no conflict of interest. There is a thing called trust. Environmentalists have a tendency to exaggerate and see imaginary devils.

Q: You mentioned only 22 villages affected by the Maheshwar (dam) project, out of which only one village has received resettlement. But there are many more villages that will be affected because the backwater survey has not been done. **JR:** Yes, there could be more because the backwater survey has not been done. We have to ask the CWC for the backwater survey. There are 3 issues: one is the backwater issue, second is the wildlife sanctuary issue – they are saying five are already there, we are saying we need two more ~ and the third is the fact that R&R has been completed in only one village. The track record in Narmada is very poor. Frankly as a human being I feel anguished about Narmada, as a human being. …you see the key was pari passu implementation. Pari passu has not happened. That is the fact. You cannot argue on that. You can argue why it is not happened that is a separate issue. But, if you ask me has pari passu taken place? I have to honestly answer no.

Q: Can you stop it at least till environment norms are fulfiled and equitable resettlement is completed? **JR:**

Yes, the only thing we can do is to stop it to make it pari passu. In both Narmada and Maheshwar the track record of fulfiling promises made to the country on environment clearance is horrible. …it is painful looking at our experiences in implementing Narmada which has been our best planned big dam project. I think it is basically because of the lack of sensitivity. We are basically insensitive to the plight of tribals in our country. Naxalism has not come about accidently. Naxalism is an off shoot of our insensitive and callous attitude towards tribal populations of India that we have taken for granted. Narmada is reflective of this callous attitude: 'oh what are these 20,000 - 30,000 tribals when so many millions of people are benefitting.'

Q: But now what about the future? How do we change this? What about Arunachal where there are so many dams in the works? **JR:** Well one thing about Arunachal Pradesh is that human population is sparse but the loss of biodiversity will be as bad as anything. There are a lot of questions on the issue of dams. What I can say is that I am proceeding very cautiously and slowly in clearing projects.

HEP on Narmada water release point for Ahmedabad? The Ahmedabad Municipal Corporation (AMC) plans to set up a 1.5 MW hydropower project at Chiloda where Narmada canal releases 150 million gallons per day water to Sabarmati River for the Ahmedabad city. The city currently pays Rs one per kilolitre with a 10% escalation per year. What these figures reveal is that all this water is being supplied when there was no allocation of water at all for this in the SSP project. The project that was justified in the name of Gujarat's drought prone areas of Kutch, Saurashtra and N Gujarat is now giving so much water to Ahmedabad city at throw away price, the regions in whose name the project was justified, cannot get their share of water. Moreover, Sabarmati River has dried up due to the Dharoi dam build over it, which is not allowing any water in the downstream areas. Now it seems that the AMC is assuming that they would permanently get this huge quantity of water, without which the hydropower project being planned would not be viable. The question is, who has ensured such permanent water supply to Ahmedabad from SSP and whose share has been cut in the process? (The Times of India 010410)

INTER STATE ISSUES

SC rejects TN objections on Mullaperiyar expert committee The objections raised by the Tamil Nadu against the constitution of an expert committee to decide on the Mullaperiyar dispute between Kerala and TN were rejected by the Supreme Court. The SC also found it shocking that the centre had refused to allocate funds for the committee and has given centre time till April 30 to constitute the committee. The committee to be chaired by former Chief Justice AS Anand is expected to give report in six months from the date of constitution. (The Pioneer 300310)

HYDRO PROJECTS

Ramesh errs in China on Brahmaputra hydro India's Environment Minister Jairam Ramesh's blunders in China have become famous. But one mistake that he committed there seems to have escaped media attention. While discussing the problems that India would face if China were to implement its Brahmaputra diversion project, he said (for example, the Hindu 100510), "The answer to the (problem) lies in India expediting its hydro projects in the Brahmaputra basin. India needs to be much more aggressive in implementing its own hydel projects so that our negotiating position vis-à-vis China improves." Ramesh is clearly wrong here.

Firstly, it is wrong for the environment minister to advocate expediting of environmentally destructive big hydro projects. A minister for environment and forests is supposed to work for the protection and improvement of environment and forests and not for expediting projects that destroy environment and forests. Secondly, he is not supposed to be advocating expediting of projects for which his ministry has not even given statutory clearances, which is indeed the case for most such projects in the Brahmaputra basin. Thirdly, even on merits of the argument, India expediting such projects is not going to be of any help with China when India has no formal treaty for sharing and managing the waters in Brahmaputra basin. On the contrary, if China diverts the Brahmaputra waters as feared, that will adversely impact generation performance of the projects of India on the diverted rivers.

Lastly, even if India were to have a treaty with China on sharing and managing Brahmaputra basin, Mr Ramesh should note that China is not particularly well known for good behavior in this regard. In case of Mekong basin, where again China is the upper riparian, the downstream countries have been suffering the adverse impacts of China projects in spite of the existence of an international Mekong Commission backed by Asian Development Bank, Japan and others.

Even more significantly, to push unjustifiable big hydro projects in the Brahmaputra basin under this China Diversion Boggy that India has been trying, would actually destroy the people, environment, rivers and peace in the North East. It is well documented how the unjustifiably displaced people of Tripura by the Dumbur dam there was the most important catchment for the militant struggle there. It is also useful to note that the main issue that took the minister to China was the cooperation on climate change. Incidentally, the Brahmaputra hydro projects would actually be having big adverse impacts on Climate change due to the destruction of the biodiversity, forests, rivers and so on. Even from this specific point of view, the Ministers' advocacy on big hydro is at cross purposes with his main agenda in China. One expects better response from India's Environment and Forests Minister.

HYDRO PROJECTS IN HIMACHAL PRADESH

Landslide strikes Chamera III HEP Equipment and machinery worth Rs 50 lakh were damaged and five workers were injured when a landslide triggered by heavy rains hit the dam site of Chamera III hydropower project in Chamba district of Himachal Pradesh on May 19, 2010. Private company HCC is carrying out the civil work of the project on Ravi River in Bharmour area. (PTI 200510)

Parbati HEP delayed due to contractual issues NHPC's 800-MW Parbati hydro power project in Himachal Pradesh has been delayed due to contractual disputes and would now be commissioned by March, 2013. As per the data available on the company's website, the 4x200 MW Parbati project was scheduled to be commissioned in the current XIth Five Year Plan period (2007-12). "We got stuck in November 2006, due to trouble with the tunnel boring machine (TBM). We have refurbished the entire TBM at our cost," CMD NHPC S K Garg told reporters. "Certain contractual issues are involved. We are trying to resolve the issue and very soon the issue with the contractor would be resolved," Garg said. (PTI 250510)

THE DAM INDUSTRY

Om Metals Infra and its gate business With about 3,000 MW of hydroelectric power development projects in its books, Om Metals Infraprojects is now looking at expanding its hydro-mechanical gate manufacturing business. The hydro-mechanical equipment relates to the vertical and radial gates fixed on to dams and barrages of hydroelectric power projects. This is a niche segment where two players – Om Metals Infrastructure and Texmaco – rule the roost. Om Metals expects business to rake in over Rs 200 crore in 2010-11.

The company picks up EPC (engineering procurement and construction) contracts for the hydro-mechanical portion of dams and barrages, excluding civil construction which is about 70-75 per cent of the project value. Mr Amitava Ghosh, President, HME and Structural Business, says the company has a 60 per cent market share in the segment. With many hydropower projects coming up, the company anticipates sizable demand in the domestic market and from Nepal, Bhutan and Bangladesh as well.

"For the time being, the production is addressing our EPC contracts but we will soon look to market the gates and penstock (a pipe or conduit used to carry water to a water wheel or turbine that generates power in a hydroelectric project) in India and abroad and expand our capabilities to cranes tailor-made for hydro projects," says Mr Ghosh. For the quarter ended December 2009, Om Metals recorded total income of Rs 44.20 crore and net profit of Rs 7.47 crore. For 2008-09, revenues were Rs 104 crore and net profit Rs 25 crore.

Mr Ghosh says the company's gate manufacturing facility in Kota is capable of producing 1,000 tonnes per month; Siliguri (West Bengal) 200-300 tonnes a month; Kathua (Jammu) 100- 200 tonnes a month; and Jaipur 200 to 300 tonnes. The gates weigh over 35 tonnes each and a tonne of the finished product costs Rs 2-2.5 lakh. Manufacturing is labour-intensive as it requires bending 45-50 mm thick steel sheets and welding them to form a radial configuration. The hydraulic cylinders that operate the gates are imported from Europe.

Om Metals is developing the 800-MW Koldam project, the 60-MW Kurichu Dam in Bhutan and a 1,000-MW hydro project. It is also working on projects in Assam, Andhra Pradesh, Maharashtra, Himachal Pradesh and Uttarakhand, besides Vietnam. Major clients are NHPC, NTPC and the North Eastern Electric Power Corporation. The company is importing ASTN-grade steel from Japan and Europe to manufacture the gates and penstock. It is now looking at boiler-grade steel in India to substitute imports but this will depend on specifications that promoters draw up for contracts. (The Hindu Business Line 310310)

WATER POLLUTION

Textile Units in Pali-Barmer destroy land, water The polluted water effluents from the over 2000 Textile Units in Pali and Barmer districts in Rajasthan have created a total destruction of Rs 175 crore in last 15 years as per a report prepared by the National Productivity Council. The assessment was done for the Rajasthan Environment Dept as per the directions of the High Court. The report is yet to be accepted by the department. The report has recommended compensation for the affected farmers. The factories have been releasing untreated effluents directly into the rivers. The report has acknowledged that it has not been able to do assessment of some of the actual losses. (Dainik Bhaskar 040410)

AGRICULTURE

Record Rice production during Rabi According to the third advance estimates of agricultural production during the current agricultural year (Jul-June), the rice production in Rabi this year is expected to be highest ever at 14.53 Million Tons. This means that overall rice production during the year is expected to be 89.31 MT or 9.95% lower than the record annual production last year of 99.18 MT. (Financial Express 240510)

QUOTES

I feel that there should be a tax on the export of rice. Exporting rice is like exporting water.

Prof Abhijit Sen, Planning Commission member
(The Hindu 270510)

URBAN WATER SUPPLY

Experimental forest brings up groundwater levels in Bangalore A two acre experimental forest near Centre for Ecological Sciences in the campus of IISc in

Bangalore has brought the water level upto within 10 feet where earlier it was 200 feet deep. The native plants and plants from the western ghats were planted in the land, beginning in 1985. (Deccan Herald 030410)

WATER SECTOR

Bharatpur water in legal tangles The Rajasthan government has announced that the Keoladeo National Park, which has been grappling with acute water crisis for the last few years, will start receiving a regular supply of water from the Chambal River by June 2010. Rajasthan Water Resources Minister Mahipal Maderna made this commitment in the state Assembly, "We will not allow it to lose its world heritage site status," he said. Apart from it, the state government has also prepared a Goverdhan Project, under which, the park will be provided 350 million cubic feet water annually through underground pipelines. The government has also sanctioned an amount of Rs 56.22 crore for the project. However, the project is caught in legal hurdles right now.

Minister of State for Forests Ram Lal Jat told the Assembly that though a provision was made in the tender to use the PVC pipes, the PHED's technical advisory committee recommended use of the GRP pipes and a revised tender was mooted accordingly. However, after the earlier bidders challenged the proposed change, the process of issuing tenders for laying the GRP pipelines for supply of water to the park has been stayed by the High Court. (Tribune 050410)

BHUTAN

Clouds over SJVN projects A possible joint venture partner in Bhutan's hydropower plans, Sutlej Jal Vidyut Nigam ltd (SJVNL), is currently under media scrutiny in India. The World Bank, having downgraded its 412 MW Rampur hydel plant in Himachal Pradesh for tardy progress and slack management, Bhutanese government officials said they would study in greater detail, SJVNL's other hydel projects and the current downgrading issue, before signing any joint venture agreements with the company. SJVNL is, at the moment, in the country preparing detailed project reports (DPRs) for the 600 MW Wangchu hydropower project in Chukha and 486 MW Kholongchu project in Doksum, Trashiyangtse.

Economic affairs secretary Dasho Sonam Tshering said, "These are some of the proposals, which are under discussion, but SJVNL is, at the moment, a consultant conducting DPRs funded by Indian government," he said. The World Bank, recently warned in its letter to the power ministry and state government that the project in Himachal might be delayed by three years. The bank has said that the vacancy of the SJVNL's two key directors' post of civil and finance, since April and November 2009, has prevented prompt decisions to resolve issues stalling progress. WB has identified civil works and community development as key areas that are lagging, and has also said that such vacancies would impact the company's projects in Bhutan and Nepal.

While DPRs for Kholongchu project started in early 2009, SJVNL also started preparing DPRs for Wangchu project in March 2010. The government found that Wangchu project was unfeasible for a storage scheme, in which the stored water could be used during winter. The project will now be a run-of-the-river scheme, similar to Kholongchu project. The Kholongchu project is estimated at Nu 25.2B and Wangchuu Nu 33.6B. (Kuensel 190510)

NEPAL

Focus on reservoir based projects Nepal Electricity Authority (NEA) has put its focus on reservoir-type projects. It has prioritized different reserve-type projects to generate 1600 MW electricity by 2017. Bishnu Bahadur Singh, director at the Project Development Department of NEA, said NEA has recently adopted a new strategy which focuses on the development of reservoir-type projects. "We will build some attractive reservoir projects on our own and encourage international parties to assist in the development of hydropower sector in Nepal," he added.

NEA has identified six projects -- Upper Seti (127 MW), Nalsyaugadh (400MW), Tamor Reservoir Project (380 MW), Trishuli (37 MW), Tama Koshi V (87 MW) and Budhi Gandaki (600 MW) - which can be developed as reservoir-type projects. Singh said Japan International Cooperation Agency has showed interests to conduct feasibility of some reservoir-type projects like Nalsyaugadh and Budhi Gandaki. A taskforce at the Ministry of Energy has recently given permission to develop Budhi Gandaki in public-private-partnership model. Singh said the feasibility study of Upper Seti project has been concluded and they have entered into an agreement with Asian Development Bank (ADB) for detailed design of the project. ADB has agreed in principle to provide $5 million for the project. The government has so far provided Rs 50 million for the project, which is expected to generate power by 2014/15. The government has formally asked the Chinese government to help construct the Nalsyaugadh project based in Jajarkot. (Republica 040510)

PAKISTAN

Pak notice to India on Kishanganga Pakistan has acted on its threat to move the International Court of Arbitration seeking a legal interpretation of the 1960 Indus Water Treaty over the 330 MW Kishanganga project in Jammu and Kashmir. The move acquires significance in view of it being the first time that either side has taken recourse to the Court of Arbitration under the Treaty. Pakistan has reportedly appointed Jan Paulson, an international arbitration expert and Justice Simma of the International Court of Justice as its two

representatives for the Court of Arbitration and asked India to appoint two arbitrators by the third week of June 2010. This envisages a total of seven members in the Court, two each from India and Pakistan and three neutral umpires, to interpret the Treaty and Kishanganga's legal standing.

The Court of Arbitration route is taken only when the issue does not pertain to a technicality and concerns the legal disputes over the interpretation of the Treaty itself. Pakistan is learnt to have sought legal interpretation on two major parameters concerning the diversion of Kishnaganga water for the power project in Jammu and Kashmir. First, it has sought the legal interpretation of India's obligations under the provisions of the treaty that mandates India to let the water of the Western flowing Indus Basin Rivers (Chenab, Jhelum and Indus) go to Pakistan and whether or not the Kishanganga project meets those obligations.

The move comes after Pakistan had conveyed to India in July 2009 that the Permanent Indus Commission under the Treaty had failed to resolve the differences between the two countries. This virtually binds India to appoint its representatives since not exercising this choice would imply no representation for India. (Indian Express 260510)

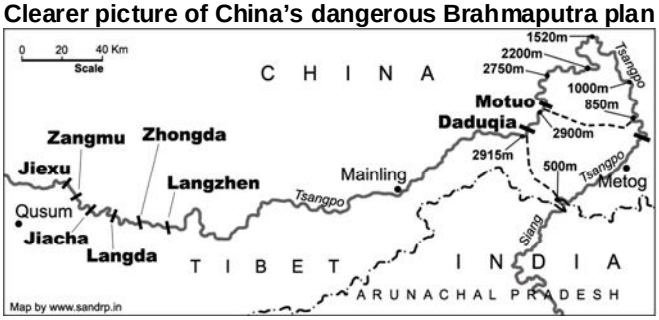
Pakistan asks WB not to fund India hydro on Sutlej
Pakistan has gone to the World Bank in an attempt to block the 775 MW Luhri HEP being planned in Himachal Pradesh on the Sutlej. Pakistan has accused India of not abiding by the Indus Water Treaty of 1960 and wants all its water concerns to be addressed before the Bank goes ahead with the funding of Luhri HEP. "However, the obligation by India with regard to western rivers (Indus, Jhelum, Chenab) — the waters of which have been allotted to Pakistan — are not being met in letter and spirit of the treaty," said the Pakistani government in its April 19 2010 letter to the Bank. Even though the Sutlej is one of three eastern rivers awarded to India under the treaty, Pakistan has indicated to the Bank that Delhi should take its (Pakistan's) views on projects coming on the eastern rivers.

Pakistan has no 'locus standi' on the issue, an official in India's Ministry of External Affairs said, "India is allowed to tap all 33 million acre feet of water from the eastern rivers. It still allows 3 maf to flow into Pakistan. Though the treaty even allows India to compensate for this 3 maf with water from the western rivers, Delhi hasn't thought in this direction". Pakistan also said India has raised "objections against the construction of Bhasha dam and its funding by the World Bank in Indus River," which along with two other western rivers, are awarded to Pakistan under the treaty. (The Hindustan Times 260510)

Objections to Nimoo Bazgo HEP During Indo-Pak Indus commission meeting in Islamabad, Pakistan has raised objections to the design of the project, saying it violates the Indus Water Treaty. The HEP is under construction in Ladakh region in India on Indus River. (Asian Age 310310)

CHINA

Clearer picture of China's dangerous Brahmaputra plan



A clearer picture of China's dangerous Brahmaputra plans is now emerging. A map of what is likely to happen on the main stem of Siang River upstream from where the river enters India is given in the map above. This is based on the blog site: http://tibetanplateau.blogspot.com/2010/05/damming-tibets-yarlung-tsangpo.html, where more details of the hydro projects in Tsangpo River, as it is known in Tibet, including operating, under construction and planned and actively considered projects are given. There was a detailed report on this issue in the Guardian newspaper on May 24, 2010. China has denied any such plans, but such denials are not credible, considering the past experiences.

The Chinese sources indicate two possible options for the hydropower project on Tsangpo, as indicated above. The one at a site called Motuo is expected to have installed capacity of 38000 MW, tunnel length of about 45-50 km and will use altitude difference of 2050 m. The other option at Dadugia will have installed capacity of 43800 since it will be able to use a greater altitude difference of 2445 m, with longer tunnel and possibly a little less water availability. However, since the tail race of this option ends in the river rather too close to the Indian Border, dam proponents in China are pushing for the Motuo Option. This is first part of the project. The second part, if taken up, will involve a huge reservoir downstream from the rail race tunnel of Motuo Option. This reservoir than is likely to be used for diverting water the stored water to Northern China.

The six proposed run of the river hydro projects upstream along Tsangpo would collectively generate 3000-4000 MW according to some sources. Among these, on being confronted by the Indian authorities of evidence of the construction based on remote sensing pictures, the Chinese have accepted that the construction on the 510 MW Zangmu project is on. The Chinese sources indicate that the construction of these projects can be seen as precursor to the building of the Great Bend project, since it will help create necessary infrastructure and also power source.

In a written answer in the Rajya Sabha regarding the Chinese plans to divert water from the upper reaches of Brahmaputra, Minister of State for Power Bharatsinh Solanki said (UNI 190410) no specific study had been

made to assess the impact of the proposed diversion of 40 Billion Cubic Metre Brahmaputra waters for Xiangiang and Gansu (Gobi Desert). A Technical Group headed by Member of Central Water Commission was constituted to study the implication of possible diversion of Brahmaputra water by China. It had observed that diversion would be through a carrier system of 800 km in length to irrigate arid regions of upper Yellow river. The Minister said no specific information was available on China's plan to divert Brahmaputra. China has been officially denying since 2000 that it proposes to build a dam or divert waters of Brahmaputra, Solanki said.

However, generally the response of the Indian establishment has been rather inactive, naïve, weak and fearful from what appears in public domain and in case it is also non transparent. However, the stated public response that India needs to expedite hydro power projects in the North East is not at all helpful, since it will actually destroy the lands, forests, rivers, biodiversity, livelihoods of people and also a future heritage. More importantly, it is not going to be helpful in countering China plans to divert Tsangpo.

It is worth noting that while Indian govt has been opposing the Chinese plans due to its possible downstream impacts, it is not even accepting the possibility of such downstream impacts of its own projects within India. In fact, the govt has gone so far as to oppose the locus standi of downstream communities when they tried to challenge the environment clearance of some of these projects. It also does not help that while India shows concern of the impact of the Chinese plans on downstream India, when it comes to the impacts of India's plans to construct its largest reservoir ever on the Barak River in Manipur, it says the project will have no impact on the downstream Bangladesh. Such doublespeak won't help India's own cause if China does decide to take up the Brahmaputra plans.

The Qinghai Earthquake and Dams Another terrible earthquake has struck China. The 7.1 tremor with an epicenter near Jiegu in Yushu County on the Qinghai Plateau has killed at least 400 people. According to Chinese news reports, the Changu (Old Zen) hydropower dam was damaged by the earthquake, and is "at the risk of collapse at any time." Yushu County, on the upper reaches of the Yangtze River, is a hotbed of planned dam building. As we know from over 100 documented cases around the world, high dams can trigger earthquakes. There is strong evidence linking the devastating Sichuan earthquake of May 2008 to the Zipingpu Dam. The serious seismic risks call for utmost caution in building high dams in Southwestern China.

Several very large dams are currently being built on the middle reaches of the Yangtze, downstream of Yushu County. There are also plans to build at least 81 large dams on the upper reaches of the Yangtze, the Mekong and the Salween rivers in Qinghai Province and Tibetan Autonomous Region. Two hydropower projects – Nieqiahe and Lagong – have already been built on the Upper Yangtze in Yushu County. Eleven more hydropower projects are under active consideration on the same stretch of the river. In addition, the 302-meter-high Tongjia Dam is being considered as the starting point of the Western route of the South North Water Transfer scheme in Yushu County. China's older dams have a very bad safety record. Between 1954 and 2003, 3,484 of the country's 85,300 dams collapsed.

Given the experience with earthquakes and dams, high dams in seismically active regions such as Southwestern China should only be built if (1) the seismicity around the dam sites is continuously monitored, (2) water levels are not allowed to fluctuate quickly, and (3) all buildings in the reservoir areas are seismically retrofitted before the reservoirs begin filling. As Chinese geologists said, none of these conditions are currently fulfilled in Chinese dam projects. (International Rivers 140410)

THE WORLD HYDRO

Fishers Fight for Healthy Rivers The fishers of the world are fighting mad. Rivers and the lakes they feed on are drying up, partly due to climate change and drought, but also because large dams are holding back their waters. These formerly self-sufficient people want their rivers back, and they're raising issues about it around the world. Recent protests in Thailand, Kenya and California have focused attention on the ecological and social risks of dam-building and water diversions on the Mekong, Africa's Omo River, and the once-fishy rivers of northern California.

Dams do great harm to downstream ecosystems, and the people who depend on them. These people are rarely counted in the official census of dam-affected people when a big dam is being built. In some cases, the impacts can be severe for hundreds of miles downstream, often affecting more people than the reservoir itself. Some rivers have gone dry below dams for miles - the Colorado in the U.S. and the Yellow in China are just two examples of major rivers that no longer reach the sea because their waters have been dammed and diverted. Central California's San Joaquin River was another such example, but in this case there's a happy ending in the works: a major effort is underway to restore the river and its once-prized salmon runs. Just last week, once-dry sections below Friant Dam were flowing with water for the first time in decades.

Ethiopia is building a huge dam on the Omo River, with little thought to how it will impact half a million river-dependent people living downstream. Particularly outspoken have been Kenyan farmers and fishers who live around Lake Turkana, which could dry up if the dam is completed. Across the globe, the mighty Mekong, which supports the world's largest inland fishery, is in big trouble from one of the worst droughts in 50 years. Many local people suspect dams are playing a role in worsening the situation. (Lori Pottinger in Huffington Post 030410)

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Public-Private Partnerships in Water Sector: Partnerships or Privatisation?

New Publication - Booklet, Pages - 144, Contribution - Rs 150.
Publisher: Manthan Adhyayan Kendra, Badwani

Public-Private Partnerships (PPPs) are supposed to provide solutions to many of the existing problems related to infrastructure projects – in both execution and operation. Currently, there are PPP projects in almost all the sectors including roads, ports, airports, water, sewerage, solid waste management and transport among others. It is, therefore, important to do a reality check on PPP projects and their efficacy in addressing the problems faced by the public sector water supply services and other infrastructure sectors as well.

The report looks at various aspects of PPPs, beginning from why PPPs have come to be regarded as the major approach for infrastructure development in the country, the circumstances that lead to the change in approach from direct privatisation to public-private partnerships, the current status of the PPP projects that are being executed in India, especially in the water sector, to the current estimates and projections of investment requirements for infrastructure development in India by governments and International Financial Institutions (IFIs).

The report analyses the arguments given in favor of PPPs, the structural issues with PPPs and the larger governance issues associated with PPPs like transparency, people's participation, access to information and regulation. It also looks for evidence and experiences of PPP projects in various parts of the world. It draws lessons that need to be learnt and cautions that need to be taken on board when advocating PPPs in public services like water and sanitation. The report also studies the impact of the PPPs on some of the social obligation issues like the responsibility of provision, service delivery and equity when the private sector is involved in delivery of public services like water.

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