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Dams, Rivers & People

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Lead Piece

MASSIVE DAM TO FILL LEAKING BUCKETS

This is true story of a real city.

The city gets a lot of rain every year, more than sufficient for its needs, but it does not use that rainwater.

Not long ago, it had hundreds of water bodies, but it has destroyed most of them and continues to destroy the remaining ones.

There is a massive river flowing through the city, but the city has used up all its water and in fact made it a dirty drain, releasing untreated effluents of the city into the river.

Proper treatment of those effluents can actually make the wastewater fit for reuse for most purposes, but city does not bother to treat the wastewater properly. It has wastewater treatment plants, but they are functioning at less than half the capacity and even then are not treating the water sufficient to make the water reusable.

The groundwater levels once were very high in the city, but the city residents use it such an unsustainable pace that the levels are plunging at most places.

The city is also using up the flood plains, further endangering the groundwater recharge system. City planners are dreaming of taking over more are of the floodplain.

The city gets huge quantity of water from dams and rivers from long distances, equal to one of the highest quantity of water in the nation when compared on per capita basis. However, the official reports say that at least 40% of the water that the city gets is lost in the leakages. But city does practically nothing to fix those leakages. In fact the city water supply body does not have functioning meters at most bulk water lines, so it does not know where the water is lost.

The city now says that it needs even more water.

Logical next step would be to assess what is the least cost option for the city among the available options for meeting this additional perceived need, including options like fixing the leaks, rainwater harvesting, protecting the local water bodies, groundwater recharge, treating the wastewater, demand side management, ensuring the those using water beyond the minimum threshold level are charged at more than the cost price of the water and so on. But the city does not bother to do any such exercise (as it officially accepted under RTI), but it looks for the easy option of proposing a massive dam hundreds of kilometers away. The city is powerful enough to make the government cough up the Rs 4000 crores required for the new reservoir.

So what is the problem?

Well, there are some small hitches: the new massive dam project is going to take up at least 2200 ha of land, will displace thousands of people from 37 villages, will destroy dense forests over at least 1300 ha including part of a wildlife sanctuary, affect a wetland that is declared Ramsar site and also has religious significance for the people, create a 35 km long reservoir, destroy the river and all the benefits that a river provides, will destroy the carbon sink (forests) and create a new source of global warming. In fact the Environment Impact Assessment of the project (p 149) accepts, “It was found that about 95.62 % Project Affected Families are not in favour of this project”.

Sounds incredible?

Well, as it was said at the outset, this is a true story. The city described above is our National Capital, Delhi. The dam in question is the proposed Renuka dam over Giri River (a tributary of Yamuna River) in Sirmour district in Himachal Pradesh.

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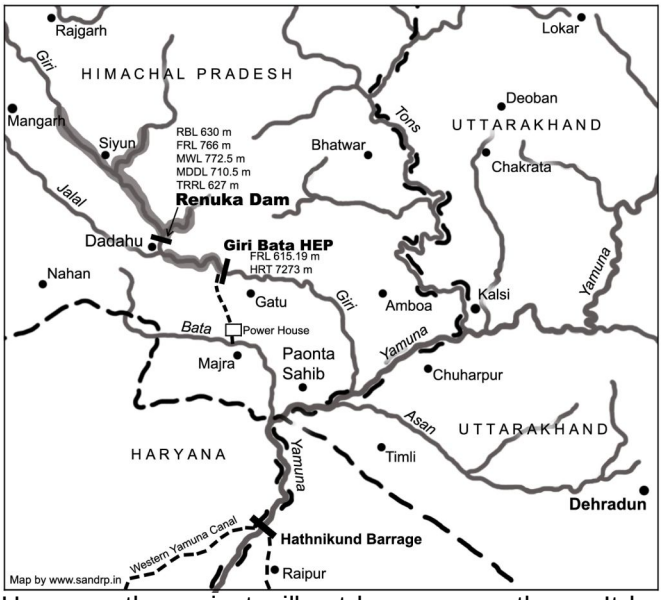

However, the project will not have a smooth run. It has yet to obtain the environment, forest, techno economic, planning commission and other clearances. In fact the very legal foundation of the project is non existent. The proponents claim that the project is a result of the May and Nov 1994 agreements between the upper Yamuna basin states of Himachal Pradesh, Uttar Pradesh (now Uttarakhand too), Rajasthan, Haryana and Delhi. However, according to the Union Ministry of Law and Justice, since Rajasthan, one of the party states, did not sign those agreements, the agreements are no longer legally valid. Haryana is already opposing the validity of those agreements and also the Renuka Dam. In Himachal itself, the Renuka Bandh Sangarsh Samiti and the Himalay Niti Abhiyan are opposing the project.

The social impact assessment of the project is incomplete without identification of all the land required for the project, including the area that will be affected at the maximum water level of 772.5 m, which is way above the Full Reservoir level of 766 m. The EIA has mentioned the submergence land only upto 766 m and not 772.5, even as the EIA mentions that the dam can store additional 7504 ha m between 766 m and 772.5 m. But EIA does not mention how much land will be submerged at 772.5 m, which all properties will be submerged at that level, what will be the back water impact at 766 m and 772.5 m and how many people will be further affected at such backwater levels. The EIA, for which the public hearing was held in Oct 2008, mentions the National R&R policy of 2003, when the current NRP is of year 2007. The EIA also does not include a number of other social impacts due to the project.

The oustees and displaced people of Bhakra, Pong and Kol, the large dams in Himachal built upto 50 years ago are still fighting for just rehabilitation. The Himachal Government has completely failed to deal with the issues of those displaced by these projects and thus it has no locus standi or moral right to displace any more people when it cannot deal with and resolve the problems of the existing displaced communities.

According to the Performance Audit report of the Delhi Jal Board for 2008, "Delhi has distribution losses of 40 *per cent* of total water supply which is abnormal and significantly higher than the acceptable norms of 15 *per cent* prescribed by the Ministry of Urban Development." Delhi gets around 950 million gallons water per day & the 40% losses amounts to about the same quantity that is proposed to be supplied from the Renuka Dam.

The Environment Impact Assessment of the project is fundamentally flawed in many respects, including some aspects described above, like not doing the options assessment or evaluating the value of the river flowing with freshwater or assessing the impact of the project on climate change and impact of the climate change on the project. The public hearing itself have seen violations with the local people not knowing about the public hearing, not getting the EIA documents in their local language, among others. Now the Himachal Pradesh government is applying emergency clause to acquire land for the project, in complete violation of legal norms and the Supreme Court orders.

Incidentally, the municipal corp officials call those who steal water from their pipes to sell it to others as water mafia. What would you call those who are pushing this project? One only hopes that better sense will prevail and the citizens & authorities in Delhi, Himachal Pradesh and elsewhere will not allow this project to go ahead.

"We (the dam-affected people) have decided to boycott the elections to lodge our protest against the construction of Renuka dam," said Yoginder Kapila, convenor of the Renuka Bandh Jan Sangharsh Samiti. At two polling booths near dam site in Sirmaur district, with over 450 voters, not a single vote was cast during the just concluded elections.

Recently, a detailed memorandum, signed by broad based groups including the affected people, have been sent to the authorities including the Prime Minister, saying why this project does not make any rational sense and should not be allowed to go ahead.

Incidentally, the municipal corporation officials call those who steal water from their pipes to sell it to others as water mafia. What would you call those who are pushing this project? One only hopes that better sense will prevail and the citizens and authorities in Delhi, Himachal Pradesh and elsewhere will not allow this project to go ahead.

SANDRP (An edited version in *Civil Society*, June 2009. For Press Release & memo on Renuka dam, see www.sandrp.in/news)

The UPA & NDA have poor track record on water issues But there is no way to hold them accountable during the elections

One of the important aspects of the general elections to elect the members for the 15th Loksabha that the country has just concluded is that it is supposed to provide an opportunity to hold the contesting parties accountable for its performance, errors of commissions and omissions. On water issues, the performance of the United Progressive Alliance over the last five years and that of the NDA earlier have been quite poor. And yet, there was little possibility of holding them accountable for that track record in these elections.

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There are many indicators of poor track record of UPA on water issues. The continuing spate of farmer suicides is significantly linked with the irrigation issues, where UPA's failure is clear. A SANDRP study in 2007 showed that after spending over Rs 99610 crores on big irrigation projects over the twelve years ending in 2004, the Net area irrigated by big irrigation projects has actually *dropped* by 3.17 million ha. More recent figures of the UPA years confirm this trend. These figures from the Union Agriculture Ministry contradicted the claims of the Union Ministry of Water Resources (MWR). The MWR has been claiming that the irrigation potential created and utilised has been increasing every year. Such a claim was necessary since most of the water sector budget from the union govt goes for funding big irrigation projects. Why should such projects be funded if they are not providing any additional benefits and on the contrary, the area irrigated by such projects is declining?

So in August 2007 the Union Ministry of Water Resources asked the four IIMs (Indian Institute of Management) to study what it called the discrepancy between these figures and also to study the gap between the potential and utilisation as in MWR's own figures. The final reports of the four IIMs were submitted in December 2008 and were made publicly available in March 2009. These reports support what SANDRP study had shown in 2007, that indeed there is increasing gap between the figures claimed by the MWR and the figures of actual irrigation from Ministry of Agriculture.

In fact, these reports also show the poor state of our record keeping in this vital area. The Indian Institute of Management, Ahmedabad failed to get irrigation data from the respective states in western India and concluded, "… either because they don't have such organized data or because, for some reason they did not like to part with their data."

What all this means is that UPA government's continued funding of big irrigation projects was clearly a wrong step. A very large proportion of water sector budget continued to go for such projects during UPA rule and the same wrong priorities continue for the ongoing 11th five year plan, formulated by the UPA govt.

India's real water lifeline is groundwater and whatever increase in irrigation areas and in agriculture growth that has happened over the last decade and a half, is largely from groundwater use. However, that lifeline is in precarious situation with levels falling at most places and quality deteriorating at many other places. The UPA government failed to achieve anything significant in changing that situation. There is no progress in achieving groundwater regulation. In the second half of its tenure, the UPA government did start a project on groundwater recharge, but that remains mostly unimplemented and in any case does not get the priority it deserves.

UPA government's track record in reversing the destruction of groundwater recharge systems and ensuring rivers flowing with freshwater, protection of lakes, tanks, and wetlands etc is miserable. Following large number of agitations, more or less to take the issue away from the opposition, UPA government decided to create the National Ganga River Authority. However, the notification constituting the authority shows that there is no hope from that initiative either, as it is in line with the failed attempts of the past in being top down, unaccountable, non participatory, centralized effort, with zero role for the real stakeholders. India still does not have a legal requirement for rivers to have freshwater flow to sustain the economic, social, cultural and environmental benefits from the flowing rivers. Indeed, our system has zero value for rivers flowing with freshwater flow.

On the controversial interlinking of rivers (ILR), the UPA government, in its Common Minimum Programme said, "The UPA government will make a comprehensive assessment of the feasibility of linking the rivers of the country starting with the south-bound rivers. This assessment will be done in a fully consultative manner." UPA government has clearly failed in this respect, there has been no comprehensive assessment "in fully consultative manner" or otherwise. Having been a member of the government's Committee of Experts on ILR since January 2008, I can say that this committee was not even consulted on crucial matters under its limited mandate, leave aside the question of it being a vehicle for such a consultative assessment. In fact members of this committee have been denied basic

information about river linking proposals and it has been a struggle to ensure even inclusion of these crucial issues in the minutes of the meetings. This can only be called pathetic performance on its declared programme.

The CMP also claimed to give *the topmost priority* to providing drinking water to all, but here again, its performance is far from encouraging. One of the useful steps in this regard would have been providing a legally binding right to drinking water, which the UPA did not provide. On the contrary, UPA has tried to push privatization of drinking water through the Jawaharlal Nehru Urban Renewal Mission. The number of uncovered and partially covered rural habitations under the drinking water has increased under the UPA regime. In fact, one of the biggest factors leading to deteriorating situation on this front is the pollution of water resources and here again the UPA government has completely failed to achieve any success in controlling pollution.

On the issue of flood control, the clearest indication of its failure is evident in the Kosi flood disaster in August 2008. Here the Union government, being the signatory to the Indo Nepal treaty regarding maintenance of the Kosi embankment that breached on August 18, 2008, is primarily responsible for the man made disaster that happened due to lack of proper maintenance of the embankment.

On the issue of flood control, the clearest indication of its failure is evident in the Kosi flood disaster in August 2008. Here the Union government, being the signatory to the Indo Nepal treaty regarding maintenance of the Kosi embankment in Nepal that breached on August 18, 2008, is primarily responsible for the man made disaster that happened due to lack of proper maintenance of the embankment. Moreover, the Ganga Flood Control Commission, a sub ordinate office of MWR, has been primarily tasked with ensuring proper and timely maintenance of the embankment. GFCC and MWR completely failed in this basic task, which lead to the unprecedented disaster. Similarly, the man made flood disaster in Mahanadi basin in Sept 2008 and in Surat in Tapi basin in August 2006 were due to wrong operation of the dams and the failure of CWC to prevent this and also fix accountability for these avoidable disasters reflects badly on the UPA performance.

On the burning issue of Resettlement and Rehabilitation, as also the related issue of Land Acquisition Act, the UPA has achieved little improvement, in spite of its declared intentions.

The UPA government had the unique opportunity to reverse the wrong policies when it formulated the National Water Mission under the National Action Plan on Climate Change. The UPA's MWR, in stead, has used the mission to push for more large dams, river linking plans and long distance water transfer plans. Here the UPA government also had the opportunity to ensure that man made flood disasters like the unprecedented floods in Surat in August 2006 due to wrong operation of Ukai dam, in Orissa in September 2008 due to wrong operation of Hirakud dams and in Bihar in August 2008 due to the criminal neglect of Kosi embankment are not repeated and in fact the guilty are punished. That opportunity has been lost.

Some among the UPA government functionaries are likely to argue that water is a state subject and the centre cannot do much. While water is indeed rightly a state subject (it would be better if water was a community subject, but the constitution has no such category while distributing the subjects), the centre has huge and very influential role and the UPA government has used that influence in completely wrong direction.

One should add that the right to information Act and the National Rural Employment Guarantee Act (NREGA) are the two positive contributions of UPA government and both potentially have positive implications for water sector. In fact, in case of NREGA, the priority given to the rural water works is particularly welcome. The potential of this positive step can be realized if there are enabling mechanisms to provide accountability mechanisms and to provide financial, technical and other help to the rural communities.

It is also true that the performance of the previous NDA rule was worse on these issues, but that is of little help for the people facing the consequences for these failures.

The UPA government had the most unique, once in a century kind of opportunity to reverse the wrong policies when it formulated the National Water Mission under the National Action Plan on Climate Change. The UPA's MWR, in stead, has used the mission to push for more large dams, river linking plans and long distance water transfer plans.

In spite of the glaring state of affairs, the elections are of little help in either holding the UPA government (and all its partners) accountable for its failures listed above, or ensuring better performance in future. In fact, these issues were not even at the forefront among the hot election issues.

This also shows how far we are from achieving a true democracy.

South Asia Network on Dams, Rivers & People

Will meeting electricity shortages lead to economic development?

Bharat Jhunjhunwala

Power required for economic development The environmental and cultural costs of nuclear, thermal and hydro power are often admitted. Question raised then is this: "Yes, these costs are there. But we need to supply electricity to our villages that are facing power cuts of up to 16 hours or more. We also need cheap electricity for our industries in this era of global competition. Therefore, we have to bear some of these costs in order to push economic development."

It is argued in this short note that a tradeoff is involved here between short- and long term economic growth. Under-pricing of electricity for economic growth provides short term economic growth but hits at long term economic growth.

It is argued in this short note that a tradeoff is involved here between short- and long term economic growth. Under-pricing of electricity for economic growth provides short term economic growth but hits at long term economic growth. The crucial question is whether we are willing to risk the long term existence of our civilization for short run gains of economic growth.

Pricing and economic growth The correct or 'efficient' price and quantity of a good is determined by equilibrium of supply and demand. Production higher- or lower than this level leads to inefficiency. We are trying to develop a market for trade in electricity in the country to attain this efficiency.

The market is driven by private costs only. The private costs incurred by the producer do not capture the total cost of production. Some costs are not accounted by the producer. For example, a cigarette producer does not pay for the higher incidence of cancer due to smoking. This cost of health is called an 'externality'. The Government intervenes and imposes taxes etc. to bring the private costs in line with the total costs. Taxes equal to the social costs must be imposed so that the quantity and price in the market reflects the true total costs incurred by the society and not only the costs incurred by the private supplier. Thus, the Government imposes high taxes on cigarettes, requires printing of a statutory warning and also orders the producers not to advertise this harmful product.

Section 61(c) of the Electricity Act, 2003 states: that "tariff to be determined (such that it) would encourage competition, efficiency, economical use of the resources, good performance and optimum investments." The efficiency, economical use of the resources and optimum investments are to be reckoned on total costs and not private costs because the objective of the government is public welfare, not private profit.

Importance of long term economic costs The importance of externalities is explained by a historical precedent. Our ancestors of the Indus Valley Civilization produced bricks, beads, wines, etc. for exports. They had to compete with producers in other countries. They cut the forests for fuel wood in order to keep the cost of production low. They failed to account for the externalities of increased sediment flow into the rivers, biodiversity, etc. In the result, the forests were cut, the rivers got filled with sediments, the level of river water increased, the cities got flooded and the entire civilization collapsed. They harvested short term gains from cheap fuel wood by ignoring externalities. This gain was undone by the long term loss imposed by these same externalities.

It is necessary, therefore, to account for the true total costs of electricity if we want sustainable economic growth.

Equilibrium of private supply and demand The task before us is to determine the correct requirement of electricity; and then produce that much power—neither more nor less.

First let us examine how the market works. The market takes into account only private costs that are incurred by the producer. The demand and supply of electricity on the basis of private costs is shown at 'Commercial Equilibrium' in Fig 1 below. The private producers are willing to supply increasing quantities of power as the price increases. The consumers will consume less quantity of electricity as the price increases. Equilibrium is reached at price P_2 and quantity Q_2. This quantity of power sold at this price will eliminate all shortages in the market and lead to highest short-term growth rate.

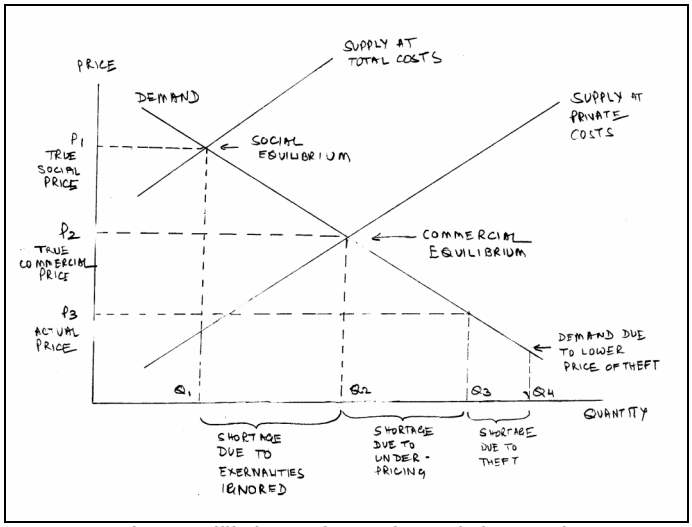

Fig: Equilibrium of supply and demand

The present political arrangement, however, does not allow electricity to be priced at P_2. The actual price charged from the consumer is lower, say P_3. In consequence, the demand for power is more, say Q_3. This leads to creation of shortage. The demand at this price is Q_3 but supply is only Q_2. In turn, the State Electricity Boards have to buy electricity at higher price and they incur huge losses. It will be obvious that producing electricity at the level of Q_3 is inefficient. We are using more electricity than is best for economic growth.

The situation is made worse by the pervasive theft. The price paid by the thief-user is a fraction of the already low official price of say Rs 2 per KwH. The cost to the thief-user may be only Rs 0.50 per KwH being the amount he has to pay to the lineman etc. Thus the demand of power is further increased to Q_4. Accordingly the shortage is increased.

The pivot of efficiency here is national economy, not producer's profits, hence efficiency has to be assessed as per social equilibrium. CEA must determine the total electricity to be produced after taking into account the externalities. The focus on 'equitable distribution' is a clear statement that objective of the Act is social welfare and not producing companies' profit.

Equilibrium of total supply and demand The social costs of generation of power are ignored thus far. We can include these costs by drawing another supply curve by including social costs.

Each of the sources of power has some externalities or social costs. Nuclear power has problem of storage of nuclear waste, risk of accidents and dependence on uranium imports. Thermal has the problem of carbon emissions, displacement during mining of coal etc. Hydro has problems of displacement, destruction of river, deterioration of water quality, methane emissions, submergence of forests, loss of biodiversity, reservoir induced seismicity, increased landslides, creation of virulent strains of malaria in reservoirs and loss of aesthetic and cultural values of free-flowing waters. A new supply curve of electricity is drawn after taking these various costs into account.

The social equilibrium of supply and demand of electricity is now attained at level Q_1. Long term economic growth is attained only of we produce electricity at this level and sell to the consumer at price of P_1. The 'shortage'—or the demand in excess of the social optimum is now increased to $Q_4 – Q_1$.

CEA's approach of meeting 'shortages' The 17th Electric Power Survey published by the Central Electricity Authority sets the aim of meeting and eliminating all shortage of power by 2012. This assumes that the demand of power as it exists today is 'true' or 'genuine' and has to be met for the purpose of economic growth. This is clearly not the case. The long term economic growth requires production of electricity to the level of Q_1 only. Production in excess of this is not efficient. Production of electricity to meet all current demand at the level Q_4 will hit at our long term economic growth just as it did for our ancestors of the Indus Valley. Political compulsions may not permit pricing of electricity at P_1, however. In this situation, the correct policy would be to actually produce power only at the level of Q_1 and allocate it between the rural and urban consumers and agriculture and industry administratively. In other words, the inefficiency must be limited to allocation between different users but not allowed to extend to the long term economic growth. Production above Q_1 will hit at long term economic growth even if it delivers short run economic growth.

Responsibility cast by Electricity Act 2003 The responsibility to determine the social equilibrium of electricity (and not commercial equilibrium) is cast upon the CEA in various ways by the Electricity Act, 2003:

1 The Preamble says it is an Act (for the) "promotion of efficient and environmentally benign policies." Similarly Section 23 requires the authorities to regulate supply, distribution and consumption of electricity "for maintaining the efficient supply, securing the equitable distribution of electricity and promoting competition." The pivot of efficiency here is national economy, not producer's profits, hence efficiency has to be assessed as per social equilibrium. CEA must determine the total electricity to be produced after taking into account the externalities. The focus on 'equitable distribution' is a clear statement that objective of the Act is social welfare and not producing companies' profit.

2 Section 61(c) says that tariff should be determined such that would "encourage competition, efficiency, economical use of the resources, good performance and optimum investments." Here efficiency and economical use of resources have to be assessed on the basis of social costs. Further, 'optimum investments' means that investment above a certain level will turn counterproductive. This optimum level would be determined by the total costs incurred by the society.

3 Section 61(d) requires the authorities to safeguard "consumers' interest and at the same time, recovery of the cost of electricity in a reasonable manner." This stipulation is made necessary because electricity is not priced in the market at its true cost. Therefore, authorities have to intervene to bring the under-priced regime as close to the social equilibrium as possible.

4 Section 73 (a) requires the CEA to "Formulate short-term and perspective plans for development of the electricity system and co-ordinate the activities of the

planning agencies for the optimal utilization of resources to subserve the interests of the national economy and to provide reliable and affordable electricity for all consumers." The explicit mention of 'short-term' and 'perspective' plans indicates that the lawmakers were aware of the necessity to make a perspective plan and then develop a short-term plan to reach us to the long-term destination. The explicit mention of 'national economy' again indicates that all costs incurred by the society in the production of electricity should be taken into account.

It will be obvious that the CEA's approach of generating as much power as dictated by existing shortages is not in tune with the Electricity Act, 2003.

It will be obvious that the CEA's approach of generating as much power as dictated by existing shortages is not in tune with the Electricity Act, 2003.

Special treatment to Hydro Power Section 8(1) of the Electricity Act provides special status to hydro-power. The CEA is required to examine that the proposed river-works will lead to the "best ultimate development of the river or its tributaries for power generation, consistent with the requirements of drinking water, irrigation, navigation, flood-control, or other public purposes."

The statement that hydro power should be generated in a way that is consistent with other public purposes puts a special responsibility upon the CEA to examine the various environmental aspects which are 'other public purposes'. Maintenance of water quality, control of methane emissions, submergence of forests, loss of biodiversity, increase in reservoir induced seismicity, increase in landslides, creation of virulent strains of malaria in reservoirs and loss of aesthetic and cultural values of free-flowing waters are all public purposes that the CEA is explicitly mandated to take into account.

The cycle of long-term destruction The present policy of the CEA of meeting existing shortages involves a regressive cycle of long term economic destruction. The steps are as follows:

1 Present demand is taken as final demand. The under-pricing of power that is leading to the generation of this huge demand is ignored. The long-term economic costs via externalities and destruction of environment are ignored.

2 Production of electricity is sought to be increased to meet this demand.

3 Yet more long-term economic costs are imposed on the society through this increased production of electricity.

In this way ignoring social costs becomes a gateway to the imposition of yet more long-term social costs leading to a regressive cycle.

Answer to shortages This short paper had started from the question how to supply electricity to our villages that are facing power cuts of up to 16 hours or more; and to provide cheap electricity to face competition from other countries. The answer to this is at two levels.

1 Level 1: The ideal solution is to produce electricity equal to Q_1 and provide to consumer at price P_1. The demand will become less and long-term economic development will also be secured.

2 Level 2: The second-level solution is to produce electricity equal to Q_1 so that long term economic development is secured. Then administratively allocate the power between competing users as best as possible. This will lead to sub-optimal economic growth but still ensure long term economic sustainability.

The underlying idea is that long term economic growth and sustainability stands at a higher pedestal than short-term economic growth. If we are not willing to price electricity at its correct social price then inefficiency is inevitable. The choice then is between (1) producing more electricity, ignoring social costs and risking the existence of our civilization; and (2) accepting lower short term growth rates due to administrative inefficiencies in allocation of power. This means that we should live with shortages to ensure survival of our civilization.

Counterargument 1: Impact on the poor Counterargument is that the policy of pricing power at price P_1 will impose huge burden on the poor who do not have the capacity to pay.

The solution is to enhance the capacity of the poor to pay higher price of power by putting in place economic policies that generate employment and that increase price of agricultural produce suitably.

The impediment in implementing this scheme is the middle class which will have to pay higher price of electricity, higher wages to the maid and higher prices of food.

Counterargument 2: Global competitiveness Counterargument is that Indian industries will have to pay true price of electricity at P_1 while our global competitors will be paying lower price at P_3. This will price our goods out of the global market.

The solution is to impose higher import taxes and to provide export subsidy. This will maintain high price of electricity and other goods within the domestic market while enabling our producers to compete globally. Our long term economic growth will be secured while the short term economic growth will be somewhat reduced because we will loose access to cheap foreign goods made from low-priced electricity. We must focus on long term economic growth first and short-term economic growth later.

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Water Is an Important Election Issue

 Bharat Dogra

Pushpendra is a social activist based in Banda district of Uttar Pradesh who has been involved in several struggles relating to drought-relief and water rights. Here he tells Bharat Dogra why water and drought-proofing should be important issues in these elections.

Tell us about your efforts to link water-related issues to the election campaign.

We've been working on water & drought related issues, and we realise that as we come nearer to the voting day, the importance of water-scarcity as an election issue will grow. This is true for our area, but this is also true for a significant part of India. It is a good time to take the issue of water to the candidates and secure commitments regarding water-rights & giving top priority to essential water needs of people.

With this thinking a number of social activists and organisations have got together to identify *Jal Prahris* in 588 villages of 14 districts in Uttar Pradesh & Madhya Pradesh. These water right guardians along with other villagers will be taking an 11-point charter regarding water needs, rights and related issues to various candidates & obtaining their commitments. We hope that the commitments will have at least some positive impact on water and drought related policies and programmes.

What is the existing water situation in your area?

We have faced a severe water-scarcity in recent years, a situation that will be repeated this summer. Also, we have gigantic govt schemes which promise a lot but actually involve a huge waste of resources. So many dams have been built in this area, but the net result is increased water scarcity. The proposed Ken-Betwa River Link Scheme will probably cause even greater ecological disruption than the earlier dams, and there is very little chance of the promised benefits being realised. The people of the villages likely to be affected by that project told me that they have the most fertile land in the region. Such fertile land should never be submerged.

The traditional water sources have been mindlessly neglected & destroyed. Even the highly publicised development programmes like land consolidation work ignored traditional water-bodies and contributed to their rapid decline and destruction.

How should our priorities change?

We need to review costly gigantic projects like river-link schemes. Secondly, the money saved by avoiding such projects should be placed in the hands of village committees for protecting traditional water sources, conserving water in other ways, for planting indigenous species of trees, for cleaning and repairing the existing canals. We ought to understand the indigenous system of conserving water so that we can learn from it and our work is in conformity with local conditions and needs.

WATER SECTOR

Recent Supreme Court Order Recognizing the people's concern and partial inability of the government system to provide minimum safe drinking water to the entire population in every nook and corner of the country, the apex court has (through its order on March 26, 2009 by the Supreme Court Justice Markandey Katju in S*tate of Orissa vs. Government of India & another*) not only shown its serious concern but clarified that water is a fundamental constitutional right of the people and it is the duty of the governments to provide water to the entire population. The apex court has given its verdict, even to dislodge the government if it fails to provide water to its people. Every one, in the country should be grateful to the apex court who has reestablished the human dignity through fresh interpretation of the constitution. The apex court has desired that a committee of experts be appointed by GOI and the committee should undertake studies to develop strategy to resolve water crises in the country.

In my view, the water crisis is the outcome of wrong water vision adopted since 1947. National Water Policy 1987 or 2002 re-emphasised the prevailing vision. Basic human needs such as drinking water and water for livelihood were not on the agenda of the Ministry of Water Resources (MWR) nor were they effectively and adequately prioritised in the policy. The commitment to meet the above narrated basic needs was missing.

The other serious lacuna on the part of the MWR was to adopt the defective, outdated dam model of early 20th century which functions on the partial fulfillment of needs of the land, works on external catchments rain support, establishes imbalance between water equity of catchments and commands and is incapable of providing water to every nook and corner of the country to meet the minimum basic human needs including environmental flow – the key issue, the apex court has highlighted in its judgment. Let us think of the functions of the proposed committee. The key strategy is likely to be as given below-

1. Work on the Universal Water Availability Model to ensure minimum water (to meet the basic human needs and environmental flow) and water equity to the entire population and organisms living in every locality.
2. Revise vision of National Water Policy 2002 to suit to the Indian environment, culture & meteorological complexities (climate change threats). Let interventions be area specific, ensuring water adequacy.
3. Rename the MWR. Call it Dam construction Ministry. Rather reconstitute the MWR under Social Justice Ministry. Keep a Committee of experts who will monitor the implementation of Universal Water Availability Model in the country and provide support for schemes to achieve the goal as desired by the Supreme Court.

K.G.Vyas, Former Advisor, Rajiv Gandhi Watershed Mission, Rural Development Department, GOMP, Bhopal

CLIMATE CHANGE UPDATE

Climate refugees (already) from Bengal In eastern India, the 62-year-old retired schoolteacher Jalaluddin Saha is experiencing climate change first hand. So are the other 8,000-odd residents of Baliwara and other villages in the little island called Mousuni, facing the Bay of Bengal at one of the numerous mouths of the Ganga River. One-third of their 10-km by two-km island, one of the 12 sea-facing islands of South 24 Parganas district has been submerged by the rising sea in the last 10 years. The next island, Gorumara, has already been abandoned to the waves. (IANS 050409)

Over consumption or over population? Stephen Pacala, director of the Princeton Environment Institute, calculates that the world's richest half-billion people — that's about 7 percent of the global population — are responsible for 50 percent of the world's carbon dioxide emissions. Meanwhile the poorest 50 percent are responsible for just 7 percent of emissions.

For a wider perspective of humanity's effects on the planet's life support systems, the best available measure is the "ecological footprint," which estimates the area of land required to provide each of us with food, clothing, and other resources, as well as to soak up our pollution. This analysis has its methodological problems, but its comparisons between nations are firm enough to be useful.

They show that sustaining the lifestyle of the average American takes 9.5 ha, while Australians and Canadians require 7.8 and 7.1 ha respectively; Britons, 5.3 ha; Germans, 4.2; and the Japanese, 4.9. The world average is 2.7 ha. China is still below that figure at 2.1, while India and most of Africa (where the majority of future world population growth will take place) are at or below 1.0. Given existing income inequalities, it is inescapable that over consumption by the rich few is the key problem, rather than overpopulation of the poor many. Overpopulation is not driving environmental destruction at the global level; over consumption is. (The Guardian 170409)

Agriculture and Climate change Today, agriculture contributes about 14 percent of annual greenhouse gas emissions, and land-use change, including forest loss, contributes another 19 percent. The relative contributions differ dramatically by region. The developing world accounts for about 50 percent of agricultural emissions and 80 percent of land-use change and forestry emissions. (IFPRI briefing, March 2009)

The carbon and climate change The world must burn less diesel and wood as the soot produced is accelerating the melting of ice in polar and mountainous regions. The soot, also known as 'black carbon', from engines, forest fires and partially burned fuel was collecting in the Arctic where it was creating a haze of pollution that absorbs sunlight and warms the air. It was also being deposited on snow, darkening its surface and reducing the snow's ability to reflect sunlight back into space. "The principle (climate change) problem is carbon dioxide, but a new understanding is emerging of soot," said Al Gore. "Black carbon is settling in the Himalayas. The air pollution levels in the upper Himalayas are now similar to those in Los Angeles."

The impact of the soot is as significant as it is surprising — it was not mentioned as a warming factor in the UN's major 2007 report on climate change. A study this month indicates that soot from industry, cars, farming and wood fuel burning has been responsible for half the total temperature increases in the Arctic between 1890 and 2007. Temperatures there are rising twice as fast as anywhere else on the planet, making it the region worst affected by climate change.

All the world's icy regions were experiencing rapid and dangerous global warming. "The cryosphere — the frozen water part of the Earth — is disappearing. Global warming is causing the permafrost to thaw. It contains more carbon than anywhere else and the risk is that it releases methane. That has the potential to double the global warming potential in the atmosphere," Gore said.

Norwegian foreign minister Jonas Store said action on black carbon was even more urgent than that on CO2: "Even if we turn the rising curve of greenhouse gas emissions in the coming years, the reduction will not occur quickly enough to preserve the polar and alpine environments. We must address short lived climate pollutants such as black carbon."

The soot debate But soot clears out of the atmosphere in a matter of weeks whereas CO2 hangs about for a long time. So, by leaving CO2 in the atmosphere and removing the soot, what kind of time are we really buying? CO2, the number one concern in global warming bears the single largest onus for global warming with a 40% contribution. Black Carbon from all sources - cookstoves, diesel engines and coal plants - claims 18%.

To grudge the Third World poor their daily bread so that the First World can run its Hummers and air-conditioners hardly seems right. It may be time for working towards 'environment with a human face.'

Glaciers Glaciologists working in Latin America, Nepal, China and Greenland all reported at the meeting in Tromso that glaciers were losing ice more rapidly and becoming less thick as a result of global warming. Dorthe Jensen, from the Niels Bohr Institute in Denmark, said: "In the last five years we have seen many ice streams double in speed. Their floating snouts have moved back 30km. We never imagined the ice discharge would change so much."

Glaciers in the Himalayas and on the Tibetan plateau, from which 40 per cent of the world derives its fresh

water, are retreating fast, said Yao Tandong, a researcher with the Chinese academy of sciences. "This is causing severe social problems as lakes get bigger and people are forced to move. Himalayan glaciers are mostly retreating at an accelerating rate."

The meeting also heard, in a new report from the international Arctic Monitoring and Assessment Programme, that climate change was now affecting every aspect of life in the Arctic. Norwegian, Canadian, Russian, US and other polar scientists reported that, in the last four years, air temperatures have increased, sea ice has declined sharply, surface waters in the Arctic ocean have warmed and permafrost is in some areas rapidly thawing, releasing methane.

The report's main findings are:
Land Permafrost is warming fast and at its margins thawing. Plants are growing more vigorously and densely. In northern Alaska, temperatures have been rising since the 1970s. In Russia, the tree line has advanced up hills and mountains at 10 metres a year. Nearly all glaciers are decreasing in mass.

Summer sea ice The most striking change in the Arctic in recent years has been the reduction in summer sea ice in 2007. This was 23 % less than the previous record low of 5.6 m sq kilometers in 2005, and 39 % below the 1979-2000 average. New satellite data suggests the ice is much thinner than it used to be. For the first time in existing records, both the north-west and north-east passages were ice-free in summer 2008. The 2008 winter ice extent was near the year long-term average.

Greenland: The Greenland ice sheet has continued to melt in the past four years with summer temperatures consistently above the long-term average since the mid 1990s. In 2007, the area experiencing melt was 60 per cent greater than in 1998. Melting lasted 20 days longer than usual at sea level and 53 days longer at 2,000-3,000m heights.

Warmer waters: In 2007, some ice-free areas were as much as 5C warmer than the long-term average. Arctic waters appear to have warmed as a result of the influx of warmer waters from the Pacific and Atlantic. The loss of reflective, white sea ice also means that more solar radiation is absorbed by the dark water, heating surface layers further.

Meanwhile, the collapse of the West Antarctic Ice Sheet - the 2.2 million-cubic-km ice sheet - will not raise global sea levels as much as previous projections suggest, a team of scientists has calculated. The world has three ice sheets, Greenland, East Antarctica and West Antarctica, but it is the latter that is considered most vulnerable to climatic shifts. Writing in Science, the researchers said that the demise of the West Antarctic Ice Sheet would result in a sea level rise of 3.3m. Previous estimates had forecast a rise in the region of 5-6 m. (The Reuters 010509, The Guardian 040509, BBC 140509)

DAMS

Corruption in AP Irrigation Projects It is not usual even for corrupt Governments to float tenders, open the bids, and then change the internal benchmark value to a higher level than the first figures by nearly Rs 400 crores. The YSR Government in Andhra Pradesh set a record of sorts when it did exactly that for the Sripada Sagar irrigation project in 2005. The tender process for the project for lifting water from the Godavari River for the irrigation of two lakh acres, was openly rigged, and despite strong protests the Reddy Govt continued to defend the blatant violation of rules.

The Govt floated a tender for the project in January 2005. The bids were opened in March '05, after which Rs 1,344 crores was uploaded on the internet as the internal benchmark on 15 March 2005 as the lowest bid. Two days later, it is learnt, the chief engineer issued telephonic instructions to the executive engineer, and the very next day the Rs 1,344 benchmark was cancelled and Rs 1,725 crores was uploaded on the internet as the new internal benchmark value. The tender acceptance letter was issued by the Principal Secretary, Irrigation Department to the consortium IVRCL SEW Navayuga.

Opposition parties alleged that this was open corruption. They also pointed out, in a letter to the Prime Minister that there was no change in the area of ayacut, number of tanks, pipeline, designs etc., and the hike in figure was totally ad hoc. The Prime Minister did not respond.

In 2007, a CAG report took a serious view of the corruption in irrigation, and said clearly that the estimates prepared by the contractors were at variance with each other. Despite this the consultants had not been made responsible for any of the deviations. The CAG report said that the procedure, through which the work was allotted, gave undue benefit to the contractors, and budget estimates had been inflated by Rs 349.85 crores. This did not elicit any action by the State Govt.

The corruption was visible from the preliminary stage. Documents prove that rules were flouted even at the pre-bidding stage to favour two companies that finally got the contract. A pre-qualification for participating in the bidding as advertised by the Government on 27-06-04 and 19-11-04 was that a company should have a consistent Rs 400-crore turnover for at least five years. For the consortium it was clarified that the lead company should meet this requirement, while the others should have a Rs 100-crore turnover for the same period of time. Despite this, a consortium of at least five companies that did not meet this requirement was given the contract.

In spite of these serious charges, these issues did not become big issues during the recent assembly and Parliamentary elections in Andhra Pradesh. This shows the failure of the opposition, media and also failure of our electoral process. (Covert Magazine, May 2009)

Sad state of Bhakra oustees even today The sad story of the 1.5 lakh oustees; the story of Om Prakash Chandel, a 70 years old male resident of the Bhakra village, who compares himself to great martyrs like Bhagat Singh and charges the Government of betraying him and his fellow villagers, is worth closer scrutiny. Behind all the talk of "temple of resurgent India" Chandel's tale lies unread. "*Na Ujadne ka pata, Na basne ka*." Chandel states ruefully . He also rues the fact that so many people were forced to leave their ancestral homes on the hills next to the life giving Sutlej River to arid areas like Hanumangarh in Rajasthan, Hissar & Sirsa in Haryana. Dissatisfied with the relocation package, lack of feasible livelihood options and hostile living conditions in these resettlement colonies, many oustees soon returned. The compensation package was far from just, stated Chandel.

The return to their ancestral land has however not resolved the problems, it has in fact compounded them. The residents of Bhakra village face movement restrictions due to security reasons, "the security here is tighter for us than at the Pakistan border" laments Chandel. The land that the people till comprises of what was formerly the 'gauchar' land of the village. It is hilly and not easy to till and with the gauchar gone the animals face a shortage of fodder. To add to the villagers' woes the government declared the area surrounding Bhakra dam a sanctuary in 1987-88. This crippled the local economy further as the people are unable to access the natural resources like fodder grass, fuelwood, etc. The dam and sanctuary put together have sealed livelihood options for the farmers here. The Government has given the people an option of fishing in the reservoir but the lack of access to markets means that there is not much profit to be had in fishing. Further, the population is vegetarian thus fish cannot form a part of their diet either. (http://nishad-vasundhara.blogspot.com)

Pong Oustees without electricity, basic facilities Kuthera village near Dhameta in Nurpur area of Kangra district is Surrounded by water in the Pong dam looks like a tiny island having population of 172 persons, but development for them means nothing as they do not even have the legal right on their ancestral land to live. They are living without the basic facilities like shop, dispensary, school and electricity. Children go to school in Dhameta village by crossing dam water on locally made boats. When the water level in the reservoir rises during the monsoon, it takes about one hour to cover a distance of about 3 km to reach Dhameta. No one from here has ever seen the college except for Raveena, daughter of Karam Singh, who is going to the college daily on a boat.

Harbans Singh, a 65-year-old resident, said that Kuthera was once a beautiful village having the most fertile land in Kangra district, but when the water reservoir was made in the early 1970s most of their land and adjoining villages submerged in the water. He remembers that the water first started rising in 1972 when his family left the village to stay at their uncle's house at Chata village. He said the people affected by the Pong dam were promised to get them settled in clusters (village wise) in Rajasthan, but no government or politician kept this promise to rehabilitate them.

Satya Devi, a local woman revealed that a hand pump was installed here only six years back for drinking water. Anil Kumar, another resident said they had voter identity cards and ration cards, but no legal rights of land as everything falling under the reservoir had been transferred to Bhakra Beas Management Board in the revenue records.

Kishori Lal, who had done 10+2, said he needed a domicile certificate to apply for a job, but the local revenue authorities did not recommend it as their identity had been deleted from the revenue records of their native village. The island has no dispensary and the people during emergency have to travel on boats to reach Dhameta to get treatment. During the rainy season, it becomes difficult for the people even to come out of their houses because of snakes that come out of the water and move freely on the island.

There is no electricity here and as such life comes to halt daily in the evenings. There are two TV sets in the village that are occasionally used on batteries to listen to news only. Few youngsters do have mobile phones, but they are used for emergency purposes only due to non-availability of power for recharging them. There are 110 voters on this island, which falls under Bari panchayat, but during the past three decades polling booth had never been set up here in the panchayat, assembly or parliament elections. (Pioneer 060509)

A village lost to the nation On a fine day in 1957, Nehru dedicated to the nation, the massive Hirakud dam, built on the mighty, turbulent Mahanadi River. By then, nearly 400 villagers, big and small, had already perished in the reservoir and more and more were going down as the water level kept rising to the maximum storage level of 630 feet. The excitement was there in the air, so was the feeling of loss among the villagers. Our village — Rampella — was among the first to vanish, situated as it was right on the bank of a major tributary to the Mahanadi, called 'Ib'. Ours was a big and a thriving village. The villagers were known to be proud of their lineage and claimed that the original name of the village was Ramya Palli, which meant 'the enchanting hamlet'. I vividly remember even after 52 long years, how the once bustling village turned into a ghost village within months. I saw women of displaced and departing families, simple rural folks, heads down and tears rolling, and retreating in halting steps.

In late summer when the reservoir level plummets to below 600 feet, our village or rather what is left of it pops up. Once we decided to go to the submerged village with our old parents who often told us about their 'dear old village' citing instances and anecdotes galore. Leaving our vehicle at a distance we walked over a fairly long

stretch of slush and sand and came upon our village that had risen from its watery grave. Taking the age-old temple structure as the reference point, we could locate soon the outlines of our house, room by room. And then the drama began. Both of us brothers moved around excitedly tracing the kabaddi and football grounds where we once as kids showed our grand little heroics. Then we soon noticed our mother sitting on the slushy ground of the 'bedroom' of the house that was, tears flowing freely, calling softly to my emotion choked father. They sat together in that room that had held them long and close. They also talked of how with the help of rudimentary herbs but mostly with fervent prayers, they protected us from all kinds of ailments — from malaria to cholera — and above all shielded us from that dreadful disease small pox that struck the village year after year. That was our life in a village now lost forever in the depth of the reservoir. As we were returning, I turned back for one last time. There lay the remnants of our village and our beautiful childhood, like a silhouette. Something ran through my spine and I felt a strong sense of loss. Choked with emotion, I was just thinking of those villagers who would have made the last walk from this village decades ago. (Krishna Chandra Pujari, www.expressbuzz.com, 180309)

Poll boycott in Chhindwara Around 30,000 voters in 32 villages of the district have decided to boycott the general elections due to lack of any rehabilitation. "The people, situated on the downstream of the Pench dam that gets submerged in during rainy season, have decided to boycott the polls," Kisan Sangarsh Samiti leader said. The displaced are not allowing politicians to enter their villages for electioneering. (The Hindu 140409)

Tribals, dalits most affected by water projects 32 lakh ha of revenue land has been acquired in Gujarat for various development projects in the last 57 years. Tribals & Dalits remain the most affected by the displacement by water projects, according to a recently published book, *Land acquisition, displacement & resettlement in Gujarat: 1947-2004*. The first study of its kind by Centre for Culture & Development Research says that displacement is creating a non-inclusive growth. Out of the total land acquisition, 61% is for the water projects. Conservatively, 432,636 families have been displaced, 59% by water projects. Inadequate R&R has left most of them landless, jobless & homeless says Lancy Lobo, the author. (Indian Express 16/4/09)

Karnataka Plans to desilt dams The govt is mulling over taking up desilting of major dams, said Minister for Water Resources Basavaraj Bommai. He said the capacity of most reservoirs had come down considerably due to silt. For example, in the Tungabhadra reservoir, the water level had been reduced by over 30 % due to the silt. A pilot project on desilting would be launched at Dhoopdal dam in Belgaum district. An Indian firm - RSVP and an Italian firm, which have demonstrated the hydraulic method of desilting, would take up the pilot project. "This is a big challenge for us. Once we receive a report on the pilot project, we will decide on extending it to other reservoirs. Karnataka will be the first state to do so," he added. The long-pending modernisation of Tungabhadra canal has started. The tender process for the Rs 192 Cr project had been completed in Feb. The work is to be completed by June end. He said that the govt was serious about its share of 24 TMC of water from the Polavaram dam that would be built across the Godavari River in AP. "A high level technical committee has been set up to advice the govt on the means of utilising its share of water," he added. Regarding modernisation of the KRS reservoir gates, he said the design had been approved. The work would commence after the monsoon. On the Upper Tunga project steps were afoot to remove the obstacles in the way of release of water up to 101 km by June end. (Indian Express 080509)

Kalpsar plans scaled down The plan to create a massive sweet water reservoir in the sea, by cutting off the Gulf of Khambhat by a massive dam, has been scaled down to increase its viability. The re-designed Kalpsar project will involve shifting the massive dam 15 km northwards. The decision to redesign the dam has been taken by the Gujarat govt following a report submitted by the National Institute of Oceanography, Goa. The new alignment of the dam — between Kalatalav village in Bhavnagar and Aladar village in Bharuch — will mean the length of the wall will be reduced from 64 km to 34 km. Till now, the project entailed building a 64-km dam from Hansot in Bharuch to Ghogha in Bhavnagar. But the NIO study suggests a smaller reservoir. The dam itself will pass through a partially submerged island Mal Bet, situated in mid-sea. Mal Bet will also ensure that the dam's foundations do not have to go too deep, thus reducing the costs. The redesigned Kalpsar would cost Rs 55,000 crore. Reclaiming & selling 2.2 lakh ha, to be made available along the banks of the closed gulf is claimed as a benefit.

Narmada canal to pump water into lake The Narmada River, which was supposed to bring in sweet water into the reservoir, has been left out in the new design. Instead, the plan is to build a new canal from the Narmada main canal to bring fresh water into the artificial lake during the monsoon. Water is also to flow into the dam from Sabarmati, Mahi & other rivers. The lake would have a longer life because of exclusion of the Narmada River, which would have brought 85 % of silt, it is claimed. The new design envisages a barrage near Bharbhut from where a new 35-km-long canal will be built to transport Narmada waters into the lake. The new design raises further doubts about its economic & hydrologic viability. (http://20twentytwo.blogspot.com 070409)

NEWS FROM THE NARMADA VALLEY

SC No to fill Omkareshwar dam to 193.3 m Directs GRA to redress grievances of PAFs

The Supreme Court, on May 13, 2009 turned down the prayer of the Madhya Pradesh Government to increase the water-level in the Omkareshwar dam from the present level of 189 m up to 193.3 m, thus submerging additional 25 villages. The Supreme Court stated that since a large number of grievances of the oustees are yet to be redressed, the Grievance Redressal Authority should redress the grievances and file a report in the High Court by the 20th of June, after which the High Court may take an appropriate decision.

The M.P. Government had challenged the Order of the M.P. High Court dated 16.03.2009 in a Special Leave Petition in the Supreme Court praying that water level in the Omkareshwar dam should be permitted to be increased from 189 meters to 193.3 meters, in order to provide water for irrigation and drinking water purposes. The NBA submitted photographs in the Court through which it was clear that the canal of the Omkareshwar dam has not been dug even at the dam site and in the initial reaches, therefore there was no question of providing water though the Omkareshwar canal, and the contention of the State Government in this regard is completely baseless, and an attempt to completely mislead the Hon'ble Court. Senior Counsel for the NBA also stated that R&R entitlements are yet to be provided to thousands of oustee families. He also informed the Hon'ble Supreme Court, that the electricity production from the Omkareshwar dam has been over target in the last two years, and the pure profits after taxes generated in the last three years was over Rs. 1000 crores, thus, the State and the Corporation were not making any losses whatsoever. They said in the circumstances, it was clear that the villages cannot be permitted to be submerged until all R&R entitlements are provided to the oustees.

After hearing Counsel for both sides, the bench of the Supreme Court comprising of Chief Justice of India, Shri K.G. Balakrishnan, Justice Shri P. Sadashivam, and Justice Shri Deepak Verma refused to give permission to fill the Omkareshwar dam up to 193 meters, and said that since it was clear that a large number of grievances of the oustees were pending, the Grievance Redressal Authority should redress the same and submit a report by the 20th of June 2009, after which the High Court could pass appropriate directions. (NBA PR 140509)

MP HC: work on Maheshwar HEP to cause no submergence The MP High Court has allowed the Maheshwar Hydro project to carry out its ongoing construction and rehabilitation works provided that none of 61 villages which are likely to be affected partially or completely, face submergence during the course of construction works. Hearing plea of the NBA, the bench of justice AK Patnaik and Justice Ajit Singh gave this order. The order was reiterated on May 18. The dam wall has been raised to 145 m. The Full Reservoir Level is 162.76 m and maximum water level is 165.8 m. Less than 3% of the people to be affected have been resettled so far as per the official reports. The company told the Court that it will install gates at the dam only after September because of the arrival of rainy season next month. The High Court acting in its ruling on Feb 18 had directed the project authority not to stop flow of Narmada water till further order and not to purchase private land directly from the affected persons. The High Court in its May 5 ruling had asked the project authority to purchase private lands from the farmers through consent award as per the provisions of the Land Acquisition Act so as to maintain transparency and avoid controversy. The High Court held that the direct purchase of oustees lands through sale deeds was in contravention of the R&R Policy and therefore of the fundamental rights of the oustees under Article 21 of the Constitution. The Court also held that the terms of the agreement which the Company compelled the oustees to sign which stated that after sale of their lands, they would not longer be entitled to any R&R benefits including land and other grants was exploitative of the oustees. (UNI 060509, Central Chronicle 140509, NBA PR 180509, Dainik Bhaskar 190509)

Stay on submergence in Upper Beda dam On May 6, 2009, the Madhya Pradesh High Court has directed that no lands and villages in the submergence area may be submerged by the Upper Beda dam. The Upper Beda dam is one of the 30 large dams being built in the Narmada valley, and 14 villages, mostly tribal, are affected by this dam. For the last 13 years, the villagers of the area have been fighting for their rights. During the hearing, the NBA, the petitioner, pointed out that the State Govt had itself admitted that the villagers have not been rehabilitated with agricultural lands and with other R&R entitlements as per the R&R Policy and even land acquisition has not been completed. The High Court directed that the State Govt should ensure that no lands or houses should be submerged in the forthcoming monsoons. The High Court bench comprising of Chief Justice AK Patnaik & Justice Ajit Singh also directed that the back-water surveys should be done of all the affected villages, that the process of land acquisition and R&R should be expedited, and Family Lists should be immediately prepared. (NBA PR 190509)

Repression against the Lower Goi Dam affected Over a hundred adivasi women and men, were beaten up and the whole of the dam site area was turned into a terror zone with the deployment of a large contingent of the police on Feb 27, 2009 in the Lower Goi Dam area, 25 km from Badwani in Madhya Pradesh. Section 144 Cr.P.C has been indefinitely clamped on the entire area since the 27th February. This is because the people have been protesting against this unjustifiable project. The proposed command areas is already irrigated and better options are available (NBA PR 130309)

SARDAR SAROVAR PROJECT NEWS

Corruption in R&R in SSP: Court orders inquiry In the matter of rampant corruption in virtually every aspect of rehabilitation of the Sardar Sarovar Project affected persons, Justice Shravan Shankar Jha Commission of Inquiry is carrying on its investigation into the hundreds of fake registries and corruption at the resettlement sites. The inquiry was constituted by the Order of the Jabalpur High Court dated 21-08-08 in a petition filed by the Narmada Bachao Andolan. Now the Supreme Court has, while hearing an appeal filed by the Government of Madhya Pradesh on May 11, 2009, stayed and modified the Order of the Jabalpur High Court dated 24-04-2009 in which the High Court had issued a stay on the cash and cheque disbursement of livelihood grant owing to corruption. A Bench comprising Chief Justice KG Balakrishnan, Justice P Sathasivam and Justice BS Chauhan has now ruled that "hitherto no rehabilitation grant - whether by cash or cheque-based shall be given without the scrutiny of the Justice Jha Commission".

Pronouncing yet another interim order, the High Court Bench comprising Chief Justice A.K. Patnaik and Justice Ajit Singh has directed that, "Justice S.S. Jha Commission shall, according to the directions of the Supreme Court, keep up its role of monitoring and scrutiny in the disbursal of every kind of rehabilitation grant and shall immediately begin investigation and take appropriate action on all the cases of irregularities and corruption pointed out by NBA to this Court. All the Respondents including the Government of Madhya Pradesh and the Narmada Valley Development Authority shall file their responses to all the Interim Applications filed by the NBA in detail and the Narmada Control Authority shall file a separate affidavit and response".

The MP Govt, on the other hand, is continuing with its approach of siding with the corrupt and the guilty and in fact intimidating those who are genuinely exposing corruption. The Narmada Control Authority, which is supposed to be an independent statutory monitoring and regulatory authority has, till date, not filed any response / affidavit in the case which is going on for almost 2 years, while the Government is trying to debunk the evidence of corruption being exposed by NBA. (NBA PR 130509)

SC upholds the order of the MP HC on Right to Peaceful Protest The Supreme Court has on March 27, 2009 admitted the case, and given an interim Order directing the Govt of Madhya Pradesh to pay 50% of the compensation amount i.e. Rs. 5000/- to each of the Narmada Satyagrahi within 4 weeks. This was in response to an appeal filed by the MP Govt against the Judgement of the MP High Court (Principal Bench: Jabalpur), where it upheld the right of the petitioners to be compensated for the illegalities involved in the brutal police action and ordered a compensation of Rs. 10,000 to be paid to each Satyagrahi. The money to be recovered from GoMP and the responsible SDM of Badwani.

The case in MP HC was regarding incidents in July 2007. The SSP affected adivasis and farmers: women, men and children of District Jhabua (now Alirajpur) and Badwani had camped at the Govt lands of Krishi Vigyan Kendra as Satyagrahis, demanding the right to land for rehabilitation and right to life. During the peaceful Satyagraha, they cultivated the land, without destroying anything belonging to the Govt agency. When 91 of the Satyagrahis were arrested on 25th July 2007, the women were manhandled and unjustifiable excessive force was used by the MP police. The satyagrahis arrested under Sec 151 IPC were lodged in jail illegally without review even after 24 hours. The 5 days jail period for all and 3-5 days jail to senior NBA activists Ashish Mandloi & Medha Patkar maliciously invoking old cases was questionable and so was the whole procedure followed during the arrest with the use or brutal force and molestation of women. The incidents and the role of the State was questioned through a letter sent by Medha Patkar and 25 women from the Indore District Jail which was admitted by the MP HC as a Public Interest Litigation (NBA PR 270309)

SSP allowed to store more water in summer The Sardar Sarovar Construction Advisory Committee has allowed Gujarat to store a higher volume of water in the Narmada dam than hitherto was the case. Till now, during summer, Gujarat was keeping the minimum water level in the dam at 111 m. This has been raised to 113.63 m, which would mean more water can be stored for the summer months. The decision will also mean that Gujarat would be able to further increase the flow of water into the canal from 2,000 cubic feet per second (cusecs) to 5,000 cusecs. The arrangement, which begins with immediate effect, will continue till June-end. It would help farmers to draw water directly from the canal as the government, on the poll eve, removed the curb it had imposed two years ago on illegally lifting water directly from the Narmada main canal by using diesel pumps. Farmers' diesel pumps were confiscated in Mehsana and Banaskantha, causing widespread displeasure. The decision would help farmers in areas where the canal is ready but the channels have not been built. In fact, this is also an admission by the Gujarat Govt how poor is the progress in building canals in Gujarat. It also exposes Gujarat Govt's claims about the irrigation achieved from SSP. (TOI 230409)

SSP Command Area work continues to stagnate According to the latest quarterly report for the quarter ending on March 31, 2009 from the Gujarat Government's Sardar Sarovar Narmada Nigam Limited, Command Area Development work has been completed in 3.32008 lakh ha, which is a mere 531 ha above the figure given in the previous quarterly report. This shows the low priority that the state govt accords to this task and it also shows that the state govt has no case for demanding increase in height of the dam. In fact there is almost no progress in any of the component of the project in the quarter. (The Times of India 050509)

SSP EXPERTS' COMMITTEE ADVISES MoEF NOT TO PERMIT ANY FURTHER CONSTRUCTION

Official report raises serious questions about ability & intentions of CWC and NCA

The officially appointed Environmental Expert Committee under the Chairmanship of Dr. Devendra Pandey, Director, Forest Survey of India to review the studies, planning and implementation of environmental safeguards for Sardar Sarovar and Indira Sagar Projects has submitted its Interim Report to the Ministry of Environment and Forests (MoEF).

The Report dated 13th Feb 2009 has exposed the false claims of the Governments of Gujarat and Madhya Pradesh as also Maharashtra related to the full or substantial compliance in various aspects.

The Report dated 13th Feb 2009 has exposed the false claims of the Governments of Gujarat and Madhya Pradesh as also Maharashtra related to the full or substantial compliance in various aspects including catchment area treatment, compensatory afforestation and down stream impacts, command area development, archaeology, health impacts, and seismicity.

In its Interim Report, the Committee has concluded that "a study of the available documents, coupled with the Committee's interaction with the Project Authorities/ affected people / representatives strongly suggested that there were major shortfalls in compliance with the prescribed environmental conditionality and requirements".

The report of the official committee has also rejected the report of the NCA appointed Committee on Back Water Levels as the report used parameters in violation of CWC guidelines and NWDT award. In fact the Backwater study should have been completed 20 years back, but is still remains to be completed. This in what the project authorities claimed as *the most studied project*.

The committee has also rejected the report of the NCA (Narmada Control Authority) appointed Committee to ascertain the Back Water Levels (BWL) on the following grounds.

"(i) Firstly, because the award directed that calculations of Back Water Levels be done resulting from the Maximum Water Level of 140.21 m (460 feet) at Sardar Sarovar dam. However, the computation for Back Water Levels by the NCA (June 2008) has been done with the maximum level of 137.17 meter at the dam site.

(ii) Secondly, the Back Water Levels calculations are to be carried out by the Central Water Commission (CWC) as per the award and not by a sub-committee of the NCA even if one member in the sub-committee is from CWC as has been done in the instant case.

(iii) Since SSP is designed & constructed for discharging the highest flood (30.7 Lakh cusecs), calculations of BWLs for the observed flood of 24.5 Lakh cusecs (reduced to 16.9 Lakh cusecs upon routing) are not applicable.

(iv) As per the award of NWDT and stipulations of clearances (environment, forests and investment) accorded to the project by the Central Government, the E & R planning needed a higher level of flood protection. Thus the use of outflow of moderated flood from ISP of 10 Lakh cusecs for determining of BWL by the NCA sub committee is unsafe for planning of R&R and environmental issues as the rehabilitation and environmental safeguard measures have to be complied with respect to submergence caused by Back Water of highest flood."

Moreover, the committee noted "The revised Back Water Level calculations of NCA have many technical infirmities as indicated below.

(i) The report has used the highest flood at SSP to be 24 Lakh cusecs which is lower than 24.5 Lakh cusecs worked out for a return period of 100 Years. The highest flood for spillway design has to be the probable maximum flood for a dam of this size for a return of 10,000 years as specified under CWC guideline.

(ii) Against HEC IIB model used by CWC in its report of 1984 BWL calculation, present study by NCA has used Mike-11 model (one dimensional analysis) on the ground of this being more advanced and robust. Such a model is applicable where the river valley is long and narrow and the flood wave characteristics over a large distance from the dam are required to be calculated. Whereas in the present case, the submergence in SSP is wide spread to 1.77 km average width away from the main stream involving 245 villages.

(iii) Further, the strength of the MIKE 11 model lies in the application of its several modules, which require elaborate data collection and are compatible with Geographic Information System through which the map of the areas to be submerged can be generated and used for planning purposes.

Normally calibration of the model has to be done by simulating observed flows and matching simulated levels with observed levels at a number of locations. However, the NCA report has used only one location (at 224 kms upstream) which is highly inadequate. If the anticipated flood arrives following the construction of piers it may lead to disaster in the affected areas upstream.

These remarks by the official expert committee in fact raise very serious questions about the Narmada Control Authority and the Central Water Commission. Implicitly, the NCA and CWC have also been charged with doing all this to ensure that less area is shown in submergence zone, less people are shown as affected, less number of people need to be rehabilitated and the dam construction can be pushed ahead without rehabilitation of people.

(iv) The NCA report has used single module Mike-11 model with input values of routed observed flood (less than 100 years) instead of routed design flood (1000 years). The model thus estimates lower submergence compared to the BWLs determined by the CWC in their report of 1984 (corresponding to 100 years) and much lower submergence to the levels stipulated by the NWDT award (1000 years). It is to be mentioned here that in the year 2005 CWC carried out similar study using Mike 11 model for Indira Sagar Project with routed design flood (1000 years) which has not been accepted by Hon'ble High Court of Madhya Pradesh, Jabalpur Bench in a PIL filed against this report (in case No WP 322 of 2005 dated.08.09.2006 2006(3) MPJR 218) and CWC has been asked to carry out the study again. The flood actually submerged more villages than could be explained by the study through Mike-11 model.

(v) Further, the values of various coefficients and parameters deduced in this study are at variance with the parameters adopted by the CWC in their report of 1984. The study also mentions that these values are yet to be firmed up/ notified by the CWC. The CWC in their study of 1984 on BWLs calculation has adopted Coefficient of rugosisty 'n' to be 0.028 for river channel, 0.06 for over bank and Eddy loss coefficient 'K' as 0.3 for gradually diverging reaches and 0.1 for gradually converging reaches, whereas the NCA report of June 2008 has used 0.024 for rugosity 'n' for river channel and 1.5 times of it (0.036) for over bank. This results in a lower computed value of the submergence level."

These remarks by the official expert committee in fact raise very serious questions about the Narmada Control Authority and the Central Water Commission. The NCA and CWC are not only charged with using technically wrong model and values, they have also used values that are in violation of their own guidelines and also the legal stipulation of the Narmada Water Disputes Tribunal Award. More seriously, NCA and CWC have also been charged with doing all this to ensure that less area is shown in submergence zone, less people are shown as affected, less number of people need to be rehabilitated and the dam construction can be pushed ahead without rehabilitation of people. In fact the Backwater study should have been completed 20 years back, but it still remains to be completed. This in what the project authorities and proponent have been claiming to be *the most studied project*.

Both CWC and NCA function under Union Ministry of Water Resources and Ministry also need to explain this state of affairs in these apex organisations. These are indeed very serious charges against these organisations that are supposed to play the role of most important, apex technical bodies.

Both CWC and NCA function under Union Ministry of Water Resources and Ministry also need to explain this state of affairs in these apex organisations. These are indeed very serious charges against these organisations that are supposed to play the role of most important, apex technical bodies.

The Expert Committee has advised the MoEF not to permit further raising of the dam height even through construction of piers and bridges, which are to precede erection of 17 m high gates on the present dam wall (122 m).

The Committee also has noted that "the recommendation for raising the Sardar Sarovar dam height upto 121.92 m by the Environment Sub Group on 6th January, 2006 was despite the fact that full compliance with the stipulated environmental conditions and requirements was admittedly not there. It is evident from the Minutes of the said meeting that the ESG recommended raising of height with the assurance that the pending work would be completed. However, there is no evidence or verification reports to indicate compliance".

These remarks by the official committee also raise the issue as to how effectively the Environment Sub Group of NCA, chaired by Secretary, MoEF, is performing the statutory role given to it by the NWDT and the Supreme Court. MoEF also has a lot to explain. (The interim report of the Expert Committee dated 130209, NBA PR 230409)

HYDRO PROJECTS

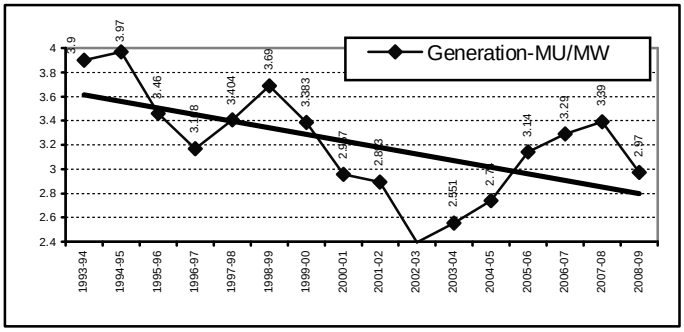
DIMINISHING RETURNS FROM BIG HYDRO:
LATEST FIGURES CONFIRM THE TREND

India's installed hydropower capacity as on March 31, 2009 was 38060 MW, up about 1592 MW in last one year. The capacity addition during the year has been at the following projects: Teesta V (capacity added: 340 MW, Sikkim), Baglihar (450 MW, J&K), Balimela (75 MW, Orissa), Varahi (230 MW, Karnataka), Ghatghar (250 MW, Maharashtra), Maneri Bhali II (152 MW, Uttarakhand), Priyadarshini Jurala (78 MW, Andhra Pradesh), Loktak (5 MW added to existing project, Manipur), Sheetla (3.6 MW, Uttar Pradesh), Pahalgaon (4.5 MW, J&K) and two small projects (8 MW, Arunachal Pradesh).

The trend line in this graph clearly indicates that power generation per MW installed has been decreasing and the fall is about 20% in these sixteen years. This falling trend is relevant across basins, states, sectors, kinds (storage or run of river) and age of projects.

The Big hydropower projects in India are still considered good in itself by most mainstream development players, including those in the Ministry of Environment and Forests. No questions are asked about the performance of the projects, set up at colossal financial, social and environment costs. We had shown in the past (see for example p 10-11 in June-July 2008 issue of *Dams, Rivers & People*) how the power generation performance of these projects is far from the optimum level or way below the promised figures. Here we revisit this issue, reviewing the figures from the just concluded year.

In the graph below, we have plotted the annual power generation from India's hydropower projects, per MW of installed capacity in each year for the years 1993-94 to the just concluded year 2008-09. The trend line in this graph clearly indicates that power generation per MW installed has been decreasing and the fall is about 20% in these sixteen years.



All figures in the above graph are from the various reports of the Central Electricity Authority (cea.nic.in).

After 2002-3, there is some rise in the generation However, even after this rise since 2002-3 and fall in the latest year, the per MW generation in the last year was 25% lower than the per MW power generation in 1994-5. This is very huge reduction & should warrant a study to understand why this is happening.

This falling trend is relevant across the basins, states, sectors, kinds (storage or run of river) and age of projects, though there are some differences in slope of the graph, level of generation, etc. Elsewhere in this issue, we have provided the graph for generation performance for NHPC projects, where too this falling trend line could be seen.

Here it may be noted that hydropower generation is also dependent on rainfall. The period we are looking at, has generally seen above average national rainfall, the rainfall in 2008 monsoon was 98% of the normal monsoon, very near the normal rainfall. In more than half the years under question, the rainfall has been around average or above average.

It is high time that the Central Electricity Authority, Ministry of Power and others get this trend examined through a credible, independent review. Lessons from such a review should be part of the decision making process for future hydro projects.

In fact the total generation in 2008-09 (with year end installed capacity of 38060 MW) was 113081 Million Units, *down* from 123424 Million Units in 2007-08 (with year end installed capacity of 36468 MW). In fact the 2008-09 generation was below the 2006-07 generation figure of 113359 Million Units, even though the installed capacity at the end of 2006-07 was 34476 MW, about 3600 MW below the March 2009 installed capacity.

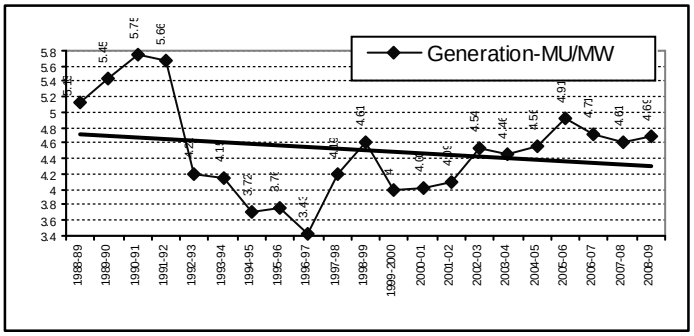
Some of the possible reasons for this trend include: some rather unviable projects or unviable capacities being added, the old projects not being maintained properly, the siltation of dams and over development in some of the river basins, increased use of water in the basins among others.

It is high time that the CEA, Ministry of Power and others get the reasons for this trend examined through a credible, independent review. Lessons from such a review should be part of the decision making process for future hydro projects. Currently, without the benefit of such an analysis, we are pushing for unviable projects with huge externalized costs, borne by the local communities and future generations. (SANDRP)

NHPC's Underperformance in Power generation

NHPC Ltd, previously called National Hydroelectric Power Corporation, is the main vehicle of the Government of India's plans to implement large hydro projects in the central sector. The company, set up in 1975, has current installed capacity of 3663 MW, spread over eleven projects in six states. So over the 34 years of its existence, it has achieved around 108 MW of installed capacity per year. It has a Joint Venture called the Narmada Hydroelectric Development Corporation with the Madhya Pradesh government, with total installed capacity of 1520 MW. However, the company has ambitious plans. A dozen projects with installed capacity just over 4600 MW are under implementation and many more in pipeline. However, there has been little attempt at systematic, independent appraisal of the company's performance. Here we attempt at providing a snapshot of the company's performance on power generation front.

In the graph below we have plotted NHPC's annual power generation in Million Units per MW installed capacity. We have used only official generation figures



from the Central Electricity Authority. We can see from this plot that there is a clear downward trend line in NHPC's power generation performance. The 21 year figures that we have used here is a long enough series to capture NHPC's power generation trend. The trend line also possibly indicates something about the company's future performance.

Promise Vs Actual Generation We also assessed NHPC's power generation performance in another way. The hydro projects are sanctioned based on certain power generation promise. This promise is captured in the figure of power to be generated by the project proponent as 90% dependable generation figure. What this figure means is that the project is supposed to achieve that level of generation or higher level in at least 90% of the year. Our analysis of NHPC projects' actual power generation, as against the promised generation is given in the table below. All figures, including the design 90% dependable generation figures have been obtained from the Central Electricity Authority. In case of some of these projects (e.g. Baira Siul, Loktak, Tanakpur projects), the installed capacity has been changing. We have proportionately changed the design 90% dependable generation.

Project (installed cap, MW)	Design 90% dependable generation, MU	Actual 90% dependable generation, MU	% under performance	% years when generation below 90% design generation
Bairasul (198)	779.28	606	22.24	58.33
Chamera (540)	1664.56	1990	(over) +19.55	00
Chamera-II (300)	1499.89	1372	8.53	100
Salal (690)	3082	2305	25.21	50
Uri (480)	2587.38	1954	24.48	58.33
Loktak (95)	443.6	405	17.39	29.17
Rangeet (60)	349	304	12.89	66.67
Tanakpur (120)	525	408	38.99	100
Dhauli Ganga (280)	1907	1117	41.43	100
Dulhasti (300)	1134.69	Analysis not possible since the project is in operation for only two years.		
Teesta V (510)	2573	Analysis not possible since the project is in operation for only One year.		

A few noteworthy observations from the above table:

✓ None of the NHPC projects have achieved generation at the promised level, with the exception of Chamera project. For Chamera, when one compares the design 90% dependable generation figure with that of the upstream Chamera II project, we find that indeed, Chamera's design generation figure seem rather low when one also considers that a number of additional streams bring water to Chamera, including Baira-Siul.

✓ When one looks at the last column, one realizes that at least three projects (of the nine projects for which this analysis is applicable) have *never* achieved the design 90% dependable generation figure. Four other projects have not achieved that figure in 50% or more of the years.

✓ In case of five of the nine projects, the under performance is more than 20%, for two of the projects more than 35%.

This kind of under performance in power generation should shock anyone. Unfortunately in India, this kind of analysis is not even done, leave aside the question of holding people accountable. It should be noted here that these projects have been constructed at huge social, environment and economic costs and the project authorities must be held accountable for such gross under performance.

What we have attempted here is to provide only a snapshot of the company's power generation performance. NHPC's performance in other relevant areas of social, environment, economic, financial, governance, safety or technical issues is not even mentioned here, we can only add that available indicators are not particularly positive.

(SANDRP analysis by Swarup Bhattacharya and Himanshu Thakkar)

New Union govt to push NHPC IPO The newly elected Congress led Union govt is likely to push for the Initial Public Offer (IPO) by NHPC ltd at an early date. Last time, the IPO got stalled in Sept 2008 due to unfavourable market conditions. Then, the investment bankers suggested the price of Rs 15.4 per share, but the govt wanted the price to be Rs 25 per share. The plan is to offer 1677.3 million equity shares of Rs 10 each, including govt selling 559.1 million shares held by it and fresh issue of 1118.2 million shares.

The issue needs to be completed before August '09, since the current permission by the Securities and Exchange Board is likely to expire in mid Sept. If the issue if not completed by that date, the company will have to issue a fresh prospectus, which would push up the cost in terms of fees paid to SEBI and the investment Bankers. Considering the market conditions and need for making an attractive offer, the price is likely to be lower than Rs 25 per share. A meeting has been called with the investment bankers SBI Cap Markets, Kotak Mahindra Capital Company and Enam Securities to discuss the issue. (Business Standard 200509)

SC upholds Kuther HEP allotment The Supreme Court has upheld the Himachal Pradesh govt decision to allot the 261 MW Kuther Hydro project to JSW Energy. This was in response to a petition by the DSC-Himal Hydro Joint Venture, challenging the HP govt decision.

In Oct 2005, the HP govt had invited global bids for the proposed project on Ravi River in Chamba district. In Dec 2006, the state govt allotted the project on Build Own Operate Transfer basis to a Joint Venture of construction and engineering firm DS Constructions Ltd, Himal Hydro and General Construction Ltd of Nepal. The selected bidder was required to deposit an upfront payment of Rs 10 lakh per MW, payable in three installments, the first 50% at the time of allotment. When the JV failed to make the payment in time, HP govt cancelled the allotment and allotted the project to second best bid of JSW. The JV had first challenged this decision in the High court, but High Court had upheld the HP govt decision. (Financial Express 210509)

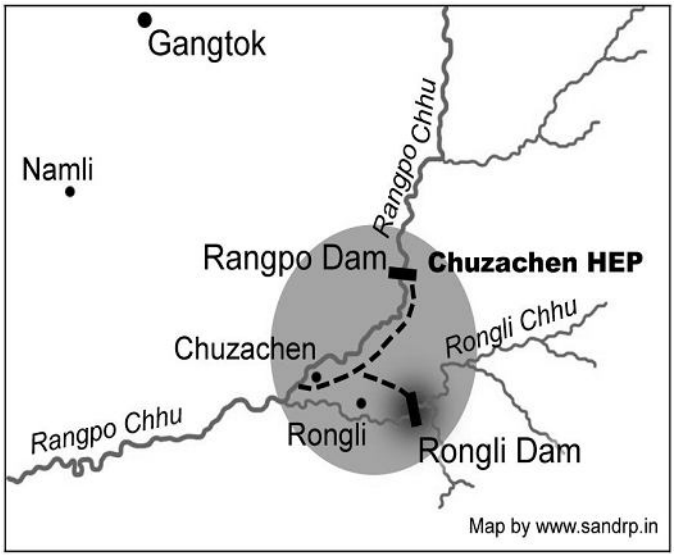
UKD HC: Ganga Basin authority to decide about Bhagirathi hydro projects The Uttarakhand High Court has decided on May 18, 2009 that the National Ganga Basin Authority, chaired by the Prime Minister, may take decision about cancelling or restarting the hydro projects on the Bhagirathi river. Thus, the stay imposed by the HC earlier on Govt of India letters of Feb 5 and Feb 19, 2009 stands vacated. The Ministry of Power, Govt of India had issued these letters following the indefinite fast launched by Prof G D Agarwal against the hydropower projects on Bhagirathi River between the river stretch from Gangotri to Dharasu. The Letter of Feb 5, 2009 said that the Minimum flow of water from the NTPC's under construction Loharinag Pala project will 16 cubic meters per second or as mandated by the Ganga River Authority and that "the Govt of India confirmed that no further hydro projects shall be undertaken on river Bhagirathi". The letter of Feb 19, 2009 said "in continuation of our letter of Feb 5, 2009, and… it is decided to suspend work on Loharinag-Pala Barrage Project on Bhagirathi River immediately". Prof GD Agarwal broke his fast following issue of these letters. However, soon there after, following a petition filed by Rural Litigation and Environment Centre, the High Court had imposed a stay on those two letters, thus paving the way for continuing work on the Loharinaga Pala Project. Now with the new decision by the High Court bench of Chief Justice VK Gupta and VK Bist, the stay on the orders on those letters have been removed, the work on the Loharinag Pala Hydro project should be stopped.

The Court has also suggested that the Ganga Basin Authority may appoint an expert committee in four weeks to take a decision on the projects on Bhagirathi River. The Expert committee can submit the report to the authority in about two months, and thereafter the Authority can take a decision in this matter.

Reliance power gets 4 HEPs in Arunachal Reliance Power company has bagged four large hydropower projects in Arunachal Pradesh: 1200 MW Kalai-II on Lohit River, 500 MW Emni, 420 MW Amulin and 400 MW Mihudon (all three on Mithun River) through competitive bidding process. The bidding parameters were the amount of free power and the upfront premium. The company already has the 1000 MW Siyom and 700 MW Tato II in Arunachal Pradesh and 400 MW Urting Sobla in Uttarakhand. The company is also in talks with the Canada based Hydro Quebec. It is interesting that a company that has ZERO experience in hydropower projects is getting these massive projects, but the media does not raise any questions about this serious anomaly. (The Hindustan Times, Business Standard 210509)

Chuzachen HEP dam collapses At least 12 labourers were washed away in East Sikkim when an under-construction dam of the 99 MW Chuzachen HEP collapsed at about 9:00 pm on April 16, 2009. At least 12 bodies were trapped in a tunnel between Lamaten and Rolleck areas and 10 bodies were recovered, but the toll could be higher as it was not clear how many labourers were at work at the site. A one km tunnel was flooded after the collapse.

Superintendent of Police M S Tuli said that they have registered a case under section 304(A) of the IPC against the private developer and another company to which the dam construction work was awarded for causing unintentional death of the labourers. As per the preliminary information, the labourers were working in the coffer dam in the night shift when the dam suddenly burst "due to a rise of water level of Rongli River triggered by heavy rainfall", it is not known if there was any heavy rainfall in the area before the accident. The dam was being built by Gati Infrastructure Ltd, a courier company that has no experience in dam building.



The project has two intakes: one on Rangpo Chhu and another in Rongli Chhu, each with a dam and headrace tunnel; the two tunnels then join together to form a common headrace tunnel. The project got environment clearance on Sept 9, 2005. Chief Minister of Sikkim laid the Foundation Stone for the Chuzachen HEP on February 6, 2007. In Sept 2008 the project applied for CDM under UNFCCC status. In fact, during the public hearing for the project on Sept 30, 2004, "Several people expressed fear about disaster that may happen due to the tunnel passing through Rongli bazaar as the area is vulnerable to land slides. They desired that tunnel should be shifted", as noted at the Project Design Document submitted for the CDM status.

Salient Features of Chuzachen HEP

Installed Capacity	99 MW (49.5 MW X 2)
Rangpo Dam	
Dam Type	Concrete Gravity
Height	48 m
Rongli Dam	
Dam Type	Concrete Gravity
Height	41 m
Head Race Tunnel	
For Rangpo Dam Length	2578 m
For Rongli Dam Length	2258 m
Common Headrace Tunnel Length	3225 m

This is not the first such disaster at a hydropower project, but one in a series of large number of incidents. In the past, those responsible have got scot-free, due to which the project authorities continue to work in manner with no concern for the safety of the workers, surrounding communities or the environment. All concerned must be held accountable for this disaster, along the contractor building the project. (http://www.ddinews.gov.in 170409, 180409, http://www.gatiinfra.com/Chujachen.htm 170409, http://www.uniindia.com 170409, PDD of the project submitted for CDM status, among other references)

AGRICULTURE

Fertilised soil contributes most to global warming Fertilizer use is a problem, and to increase productivity, the Centre should focus more on farmer and soil health instead of the fertilizer use, according to Amit H. Roy, president, International Center for Soil Fertility and Agricultural Development. Delivering a lecture on 'Soil health for sustainable food security: issues and options' at the M.S. Swaminathan Research Foundation. Dr. Roy said the subsidy was actually creating an increased reliance on nitrogenous fertilizers. "The efficacy of urea and other fertilizers has come down from around 60 kilograms of grain per kilogram of nitrogen applied to around 25 kilogram of grain per kilogram of nitrogen applied in the last 30 years or so," he said, quoting official figures. In wetland rice farming, two bags of urea were wasted for every three bags that were used as fertilizer. This was because farmers were being indiscriminate in their use of the fertilizer. In addition to the unnecessary wastage and the damage to soil health, he said that fertilised soil contributed the most to global warming. (The Hindu 070409)

WATER BUSINESS

World's Third Largest Industry In *Planet Water: Investing in the World's Most Valuable Resource* (John Wiley & Sons, pp 352, price $ 39.95), the author Steve Hoffman, a resource economist with 25 years of experience in the water industry says that water industry is the world's third largest industry, after Oil & Gas and electricity generation. This USD 830 billion per year industry, Hoffman says, is about water "resource that defines the twenty first century" and that "is the world's most valuable resource". Prophetic statements from business people are often self serving statements, as is apparent, when he says, "since our future depends on looking at the glass half full" any suggested change in water management "necessarily equates to opportunity". His book is called as "a guide for investing in water as a thematic strategy". He of course understands that market treats Oil, the commodity and water, a resource very differently. Hoffman sees increasing trend toward market based water regulations where he accepts a role for NGOs in every aspect of the industry. Some mercy, one must admit. (Business Standard 210509)

WATER SUPPLY SECTOR

JNNURM projects in water sector The vast majority of the projects (302 of 461) and amounts (Rs 37848 of 49422 crores) sanctioned under the Govt of India's Jawaharlal Nehru National Urban Renewal Mission are in water sector, as can be seen from these figures.

Sector	Projects	Cost of projects
Water Supply	140	18325
Sewerage	99	12117
Drainage	59	7289
Water body preservation	4	117

(Financial Express 190509)

SOUTH ASIA

BANGLADESH

Call to stop building Tipaimukh dam

Politicians and environmentalists have protested the Indian govt's move to build a dam at Tipaimukh on the river Barak, saying that it would seriously harm the environment in Bangladesh, the 12 northeastern districts of Bangladesh would be worst affected. A meeting was organised by Angikar Bangladesh on the banks of the Surma River in Sylhet city in Bangladesh. "Implementation of the said project, mainly aimed at producing electricity, would cause a disastrous situation for the Meghna basin, especially the greater Sylhet region, during the dry season due to large-scale withdrawal of water of the Barak River in the upper stream. Also there are apprehensions of recurrent flooding during the monsoon due to possible release of water," a senior official in the Bangladesh Water Development Board said. The Barak River bifurcates as Surma and Kushiyara while entering into Bangladesh.

At another meeting organised by Bangladesh Paribesh Andolan, they called on India to cancel the decision and reach a mutually agreed solution through talks with the lower riparian country on the possible adverse impacts on the environment.

Meanwhile, the Bangladesh media reported first official acknowledgement by Indian envoy about the plans to build "simply a hydraulic power plant" and "the barrage will capture the water and will release it as well" and that Bangladesh need not fear as there will be no adverse impacts here. These statements, as reported in the Bangladesh media, would fall into the category of what he called "spreading misleading and distorted information on the issue". The fact of the matter is that Tipaimukh is one of the biggest water storing dam project that also has the objective of flood control, besides hydropower. It is surprising why the Bangladesh govt is acting as so ill informed about this project. (The Daily Star 230409, Bdnews24.com 200509, bssnews.net 200509)

BHUTAN

HCC wins contract on Punatsangchhu-I Hindustan Construction Co has won a major package of tunneling and hydro-mechanical works for the 1200 MW Punatsangchhu-I hydropower project. The contractor won the Rs 688 Cr contract to be completed in 66 months for the project. The plant is being built on the river Punatsangchhu in Wangdue Phodrang Dzongkhag in the west of the Himalayan country. It is the first of 10 hydro power projects to be developed jointly by India and Bhutan by 2020, and which are to have combined installed capacity of approximately 11500 MW. HCC is to excavate the headrace tunnel, surge shaft, butterfly valve chamber, pressure shafts, power house and tailrace tunnel on the project.

Recently, Larsen & Toubro was awarded a Rs 1245 Cr contract to build the dam for the project as well as a diversion tunnel, intake and desilting arrangements, including hydro-mechanical works. The contract period is also 66 months. Engineering and design consultant is WAPCOS Ltd. The contract awards for HCC and L&T follows their recent completion of works on the 1,020MW Tala project in Bhutan. Last year, Tata Power Trading Co and SN Power announced plans to work together on hydro power project development in Bhutan as well as Nepal and India. SN Power is a joint venture of Norwegian utility Statkraft and compatriot Norfund, a risk capital investor.

In India, HCC in recent months was awarded contracts on the Kashang, Kishanganga and Teesta VI hydro power projects. (International Water Power Journal 300409)

ADB & Austria to fund 114 MW Dagachhu HEP The Asian Development Bank and Austrian export credit agency (OeKB) are supporting a $201.5 million 114 MW Dagachhu hydropower project that will produce energy for export to India. The plant will cost $201.5 million to be split 60:40 between debt and equity. ADB will provide a 30-year, $51 million loan from its ordinary capital resources and a 32-year, $29 million loan from the Asian Development Fund. Additional financing of $55.5 million is expected from the Austria's OeKB, along with $45 million from the Bhutan govt, and $21 million from India's Tata Power Company.

The project will also support a rural electrification programme using hydropower and solar power. The project is expected to install over 100 solar power systems generating energy for off-grid rural users including schools, health clinics and other community facilities. Additional assistance to help build the capacity of power sector agencies involved in the project is also being provided, with ADB's Regional Cooperation and Integration Fund granting $888,000 and ADB's technical assistance funding programme providing $600,000.

The project is Bhutan's first public-private partnership for an infrastructure project and will receive an ADB grant of $25.2 million, $6.7 million from the Bhutan govt and $1 million from the Asian Clean Energy Fund, subject to Japanese govt's approval. The state-owned Druk Green Power and Tata Power have set up a joint venture company for the Dagachhu project. The Austrian Government will support engineering implementation of Dagachhu hydropower development. The project is seeking a clean development mechanism status on a cross-border basis. The govts of Bhutan and India have already approved the project's CDM eligibility. (Trade Finance Magazine 311008)

Tala HEP handover The 1020 MW Tala hydropower project was officially handed over to the commercial management of Druk holding and investment and Druk green power corporation on April 8. Work on the Tala project began in 1997. The power station with six units was fully commissioned in 2007, with the first unit commissioned in July 2006. The project was completed at the cost of over Nu 40, 000 million. (Kuensel 130409)

THE NEPAL PAGE **Climate Change Could Derail Hydro Hopes** Since the hydrological cycle of the Himalayan region is becoming increasingly unpredictable as a result of global warming, many of the hydro plants are producing at less than their capacity.

The climate experts do say that the massive change in the hydrological cycle worldwide is a direct result of global warming whereby extreme weather conditions have not just become more frequent but also more severe. Ajaya Dixit of the Institute for Social and Environmental Transition-Nepal, for example, says that the rain patterns will get more erratic. In the face of such prognosis, building more hydropower plants in Nepal might not seem like the best idea.

Dixit says the erratic rainfall will affect the hydropower plants in three major ways: First, extended dry periods will reduce water flow, thereby severely reducing the power generation at the hydro projects. The next two effects have to do with floods. Climate change also means an increase in the number of water-related disasters and thus power plants, which will be first in line should disaster strike, are the most prone to damage. And finally, flash floods can also clog up the reservoirs with sediments and reduce their water-holding capacities. "The whole case for constructing huge hydropower plants rests on the assumption that climate is constant; but that assumption has been disproved many times over now. Thus if we are to draw conclusions from the more solid assumption--that climate has changed and will continue to change--we can only conclude that our existing power plants will not just produce a lot less energy than their capacity but will also face much greater risk from environmental disasters," says Dixit. (www.myrepublica.com 170509)

Award of Arun III to SJVN challenged In a hearing at the Supreme Court in Nepal, Jindal Steel and Power Limited (JSPL), an Indian company accused that the govt's decision to award the development of 402 MW Arun-III hydro project to Sutlej Jal Vidyut Nigam, a public sector Indian company was flawed and smeared of corruption. JSPL said that the decision to award the project to SJVN under the build, operate, own and transfer arrangement breached the predetermined criteria and normal rules of bidding.

In Dec. 2006 the govt had floated a global tender for private companies for the Arun-III project. A Minister-level decision on Jan. 5, '07 changed the criteria allowing public sector companies to bid. Jindal claims that this decision is illegal. SJVN, a joint venture of the Govt of India and the Govt of Himachal Pradesh, had signed the MoU on March 2, '08 with the govt of Nepal for the Arun-III. It had bagged the project after competing in a global tender. JSPL moved the court in April '08.

Of the nine bidders at least three Indian companies -- GMR, JSPL and SJVN - had strong bids. The highest bidder, GMR, which had offered 24 % free energy to Nepal, had withdrawn its claim over Arun-III after bagging the 300 MW Upper Karnali project. As per the govt regulation one company is awarded only one hydro project. JSPL was the second highest bidder with 21.9 %. Citing this, JSPL has claimed that the govt cannot award the project to SJVN, a company which offered only 4.5 % free energy in its "initial bidding". However, SJVN later increased its offer to 21.9 %, which Jindal has said, was illegal as it breaches bidding rules.

JSPL also argued that SJVN, being a govt company, cannot be awarded the project under BOOT agreement. BOOT was applicable only to private companies. "If the project has to be awarded to a public undertaking like SJVN, Nepal should strike the deal as per the Article 156 of the Interim Constitution, which requires an approval by at least two-thirds majority vote in the Constituent Assembly," said JSPL lawyer. The govt has said that its decision was based on the Clause 35 of the Electricity Act 2049BS. (Kantipur 110509)

GMR project in fresh trouble From April 26, the villagers in west Nepal's Dailekh & Accham districts have forced GMR to halt the work on the 300 MW Upper Karnali project, saying the company failed to meet their demands. They are seeking jobs for locals & compensation for the community forests that would be destroyed for the project. The villagers are also demanding the construction of a bridge and a telephone tower. Both the govt and GMR failed to meet the villagers' demand within the given deadline of mid-April. In Jan '08, GMR won the contract to develop the project. In Feb '09, the locals had obstructed the work. In March '08, two individuals moved court against the awarding of the contract on the ground that hydropower being a matter of national interest, the interim govt should have taken the approval of parliament first. Though Nepal's Supreme Court refused to stay the work, GMR still faces severe opposition. (IANS 280409)

Norway interest in Tamakoshi III HEP SN Power, a Norwegian public-private venture in international hydroelectricity, has conducted the feasibility study on the proposed 600 MW Tamakoshi III Hydro Project. Prime Minister Dahal's visit to Norway has increased the company's prospect to seal the project deal. The Prime Minister said that Nepal is willing to award the project to SN Power on a condition that the new project will be unlike the 59 MW Khimti Hydro Project that turned out to be a costly deal for Nepali side. Yngve Tradel of SN Power said that the company will begin work at Tamakoshi III if the Govt of Nepal provides the project license. The company got a survey license this month for Tamakoshi III, so it can proceed with more studies for the $1.5 billion investment. (Kantipur 010409, 020409)

West Seti The ADB tentative Board date for consideration of funding USD 45 million loan for the controversial West Seti hydropower project is extended to Sep 29, 2009. The project is to be appraised between 28 Jun 2009 and 07 Jul 2009. (www.adb.org)

THE CHINA PAGE

China's 2008 earthquake was due to Big Dam: Chinese Scientist

Soon after the magnitude-7.9 Wenchuan earthquake in May '08, geologist Fan Xiao uttered publicly what many anxious scientists were discussing privately: Could a large dam near the fault have triggered the devastating quake?

The 156-m-high Zipingpu Dam began to fill in Dec '04, and within 2 years the water level had risen to 120 m. Following normal operation, the reservoir's level dropped as water was released downstream during the winter and early spring 2008 and was at a low level when the Wenchuan earthquake occurred. Removing the pressure of several hundred million tons of water on a slip thrust fault like Longmenshan may have destabilized it, increasing the risk of a rupture, argues Fan, a senior engineer at the Sichuan Bureau of Geology and Mineral Resources in Chengdu. Reservoir-induced seismicity is an accepted phenomenon, but Wenchuan's magnitude was much higher than that of the biggest earthquake previously linked to a dam, a magnitude-6.5 temblor in India in 1967 that killed nearly 200 people.

Fan, a senior engineer at the Sichuan Bureau of Geology and Mineral Resources in Chengdu asserts that Zipingpu Dam, just 5.5 km from the quake's epicenter, may have caused the Longmenshan fault to fail decades or even centuries earlier than it might have without added stress. Fan's outspokenness has provoked the wrath of hydropower proponents.

Fan asserts that Zipingpu, just 5.5 km from the quake's epicenter, may have caused the Longmenshan fault to fail decades or even centuries earlier than it might have without added stress. Fan's outspokenness has provoked the wrath of hydropower proponents and scientists who rule out a Zipingpu-Wenchuan link.

"Scientific issues are open to discussion. But hydropower companies—it is fair to say they are not happy with me" says scientist Fan Xiao.

Here is what Fan said in the interview: "According to the State Council, every dam higher than 100 m and with a capacity of more than 50 million m^3 of water must have a special monitoring system to detect slight tremors. Zipingpu has such a system. A reservoir-triggered earthquake should have more foreshocks than a natural earthquake. Last fall, a paper in *Geology and Seismology* reported that before the Wenchuan earthquake, there were many small foreshocks around the dam. This activity correlated to changes in the reservoir's water levels.

The earthquake swarm near Dujiangyan [a town near the epicenter badly damaged in the quake] in Feb '08 was spectacular. There were about 200 small earthquakes, including five bigger than magnitude 3 during the evening on Feb 14. Many people in Dujiangyan ran out of their homes. Then there was another swarm at the end of Feb & early March between Dujiangyan and Pengzhou. All these earthquakes happened when the water level in Zipingpu reservoir was low. SSB [Sichuan Seismological Bureau] has data that would let us examine this more closely. In Oct '08, SSB's director promised to release the data. I hope this happens soon.

There are many dams planned or under construction in seismic areas in west China. Jinping on the Yalong River is especially worrying. When it's finished, it will be one of the highest dams on Earth—305 m high—and it will accumulate four times as much water as Zipingpu. It's in an earthquake-prone area [of southwestern Sichuan]. Last year, SSB found that the dam's developers hadn't yet established the required monitoring system.

There's no possibility to delay or stop building dams, even in high-risk areas. What we can do is raise building standards and improve monitoring of foreshocks. Early warning might give people a chance to escape. Scientific issues are open to discussion. But hydropower companies—it is fair to say they are not happy with me." (Science Magazine 080509)

China - Dangerous Dam to be blasted A large chunk of a 30.5 m high dam in south China's Guangdong Province was found to have broken off recently, posing grave danger to a major railway and people living downstream. The collapsed masonry work from the downstream side of the dam, holding over 0.2 million $meter^3$ of water, measures 12 m high, 7 m in width, 2 m depth. The danger was detected during a regular safety inspection of dams ahead of the flood season. Experts have decided to gradually release water from the dam before destroying it with dynamite. The water inflow into the dam will be controlled and the water level in the power station in the lower reaches will also be reduced to minimize the impact. (China Radio International 010409)

China plans, builds dams in Tibet China has built a dam with 185 Million m^3 storage capacity & 6 MW hydropower component at Senge-Ali in Tibet on the Indus River, without informing downstream India or Pakistan. Construction on Zangmu Hydropower project in the middle Brahmaputra region in Tibet has started. It has plans to build 59 reservoirs in the Xinjiang province to capture the water from the melting glaciers. (Guardian 020309, China Daily 030409, The News (Pakistan) 190309)

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