Dams, Rivers & People

UPDATE ON RELATED ISSUES

SANDRP **VOL 1-ISSUE 10-11** **NOV - DEC 2003**

INDEX

ABOUT Dams, Rivers & People

The *DRP* will be available both in electronic (text and word versions) and printed versions. The *DRP* are also available at www.narmada.org/sandrp and www.janmanch.org/newsletters.

The suggested minimum annual contribution for the *DRP* is Rs. 100/-, which would cover the cost of printing and mailing. Please send your check/ DD in favour of YUVA, payable at Mumbai and send it to our Delhi address.

CONTACT INFORMATION: Himanshu Thakkar, Bipin Chandra, Himanshu Upadhyay, Ganesh Gaud, South Asia Network on Dams, River and People, C/o 53B, AD Block, Shalimar Bagh, Delhi 110 088. India. Ph: 2747 9916. Email: cwaterp@vsnl.com Web: *www.narmada.org/sandrp*

Comments on the ESIA of The Proposed Allain Duhangan HEP in Kulu district in HP

The World Bank has declared its intentions restarting the funding large dams in India. Recently the Bank also declared that it is planning to double its landing to India to USD 3 billion in a couple of years. The Bank has also declared its intentions of funding river-linking projects. Unfortunately, there are no "bankable" proposals available now. But the Bank's ongoing Water Resources Consolidation Projects in UP and Rajasthan and the upcoming Water Resources Restructuring proposal in MP may be used to achieve such an outcome. Unfortunately for the Bank, it all seems to be starting on the wrong foot. The first possible step the bank has taken in this direction is funding of the proposed Allain Duhangan Project in Himchal Pradesh by the International Finance Corportation, Bank's Private Sector Arm. The Project was to go to the Board for decision on Oct 31 2003. But violating all the norms and policies of the Bank, the local people had been provided no project documents in Hindi, the language they can use. Nor had there been any consultation with the local people. When SANDRP looked at the Environment and Social Impact Assessment (ESIA) of the project, the shoddiness of the ESIA was shocking. We have given below the executive Summary of the ESIA critique, the full critique can be obtained from SANDRP. In the meantime, on Dec 6, when some women of Prini near the project site were working in their fields, boulders showered around them from the ongoing road construction work for the project. They saved themselves with great difficulty and angry people got the work of road building stopped. This meand that even before the WB board takes decision on the project, the work on the project has started and started without the most basic safety norms. Following protest letters by affected people and supporting organisations like Navrachna, MATU, Manthan and SANDRP, the Board date has been postponed and new date is yet to be announced. The Bank has agreed to hold a public hearing in Jagarsukh village near project site in Kulu district on January 6 2004. However, affected people and supporting organsitions have made it clear to the Bank that this cannot be called a public consulation as the affected people even do not have the full ESIA documents in Hindi that is available to everyone else in English, as put up on IFC website. The public hearing can held only after about 60 days after full ESIA documents are available to the local people in Hindi. In the mean time a review of the ESIA documents revealed that this is clearly inadequate for a number of reasons given below in the executive summary. SANDRP and other supporting organisations have written to the Bank saying that only option left is to get a proper ESIA redone by a more credible agency. We are awaiting Bank response. What is clear from all this is that the Bank has learnt no lessons from the disastrous experience of funding large dams in the past and future of such involvement is not likely to be any different.

The Allain Duhangan Project (ADP) proposes to divert Allain and Duhangan, two tributaries of Beas river near Manali in Himachal Pradesh in North India for a 192 MW installed capacity hydropower project. The project that the International Finance Corporation, the private sector arm of the World Bank intends to fund will lead to destruction of what the ESIA calls "Pristine valley" of Allain and Duhangan. The project would also lead to destruction of habitat of a number of threatened, rare and endangered species for a project whose need, hydrology and benefits are in doubt, basic impact assessments have not yet been done, local people not even been informed about the implications of the project and No document have been given to the local people. Even the social impact assessments have not been done and most of the resettlement measures proposed are in violation of the World Bank norms. The project is thus in violation of many of the basic norms and policies of the World Bank and IFC.

The ESIA fails to say that the project has gone through outdated environmental sanctions and the project does not fulfil India's current environmental clearance norms, nor has there been any public consultation on the project as is required for any such project in India today.

The ESIA has shown its callousness at a number of places. The ESIA has lifted full paragraphs and statements from other documents without giving the source or saying this is a quote from another document. In fact through out the ESIA no source or reference given for any of the facts and figures given. The ESIA agency does not seem to have proper knowledge of the river basins or the dams in the Beas basin where the ADP is proposed. It does not know how many trees will be felled for

the project, even as it tries to give precise numbers for this. It does not seem to know basic norms like the per capita drinking water requirements.

The ESIA suffers from many fundamental problems. It shows its bias for the project and project proponents at numerous places. The ESIA in fact does not objectively look at the project benefits, and in stead exaggerates the project benefits. It tries to justify the project when an ESIA agency is supposed to assess the project impacts in an objective manner without assuming that the project will go ahead. In fact, ESIA is supposed to be a decision making tool and also supposed to include a crucial section on options assessment, to assess if the project is the best option.

The ESIA shows that a number of studies that should have been part of or done before the ESIA has not been done at all. These include: Carrying Capacity, Cumulative impacts of dams and other developments across the basin, Assessment if the project will impact wildlife migration routes, Significance of Floods, Earthquakes and Landslides on the project and project impacts on such events, Disaster Management Plan, etc.

A number of studies done for ESIA are incomplete or misleading: Survey of Environmental aspects across a year, Full Social Impacts Survey, Base line study with respect to various ecological aspects, Impacts of a number of project components (as the project component details are yet to be finalised), including roads, transmission lines, the number of trees to be felled for the project, Downstream impacts, etc.

At a number of places the ESIA makes unsupported or wrong or contradictory statements. Examples include: “No NGOs”, “No common Property resources taken”, “No rare, endangered or threatened species in the project area”, etc. This critique shows these are all wrong.

Even with respect to the height of the various dams, the ESIA makes ambiguous statements like “likely to be”, “maximum height”, etc, all the heights, miraculously, is shown to be less than 14.5 mts, none shown above the deepest foundation level, which is against international norms. Possibly to escape some of the provisions that would be effective if the height if above 15 m.

The Options Assessment Section in the ESIA is a joke, to put it lightly. It does not assess the options available in Himachal Pradesh or Northern Region. In fact, the ADP is to lead to destruction of some of the options. Basic issues like Demand Side Management, Peak Management, Reducing T&D losses, improving end use efficiency, Increasing supply side efficiencies and exploring the generation options are not even mentioned in the ESIA.

The ESIA documents on IFC website are incomplete as a number of sections are missing and at other places the chapters have been left incomplete halfway though a sentence.

The ESIA fails to look at the track record of the RSWML that has built a 86 MW Malana HEP in the nearby area. The track record shows that the company has cheated the affected people, the project is performing very badly in terms of even the quality of construction and power generation and its environmental record shows callous disregard for environment and environmental norms. The project authorities, in fact tried to browbeat the affected people in a meeting held on Nov 13 in presence of the IFC persons who know the local language. That meeting was held subsequent to the October 2003 letters sent by the affected people and SANDRP with other NGOs, raising concerns about the fundamental violations in the project. In the meeting on Nov 13, the project authorities promised the affected people who had been called for that meeting that they will be provided with copies of all the ESIA documents in Hindi in a week or two, but those documents are still not given to the affected people. The project authorities have also promised the affected people in the meanwhile that a public hearing will be held in the village sixty days after provision of Hindi documents and that an independent will assess the public hearing. Only time will tell how many of those promises will be fulfilled. The project authorities, in the meanwhile showed total disregard of public safety when on Dec 6, 2003, boulders showered on unsuspecting women of affected villages. The enraged affected people had to demand that no project work be taken up till basic issues are settled.

Unless a fresh ESIA is carried out and completed by a more credible and independent agency, in close participation with affected people, the new ESIA documents are made available to people in the language they can understand and a public hearing held sixty days or more thereafter, supervised by independent panel gives support for the project, the World Bank/ IFC support for this project would seriously violate many key safeguard policies of the Bank as mentioned above. Under the current circumstances, the project would be neither be beneficial for the local people or for the state.

SANDRP

Ken-Betwa Link: Why it won't click

Bipin Chandra and Himanshu Thakkar of *DRP* have tried to put together available information on the proposed Ken-Betwa Link, one of the first links to be taken up under the Interlinking of Rivers Plan. We have also included information on the existing projects in Ken and Betwa basins to get a picture of what is the situation in these two basins. Readers are invited to provide further inputs and information they may have in this regard, so that we all can see this proposal in correct perspective.

Ken-Betwa Link Project (KBLP) is one of the links among 30 Riverlinks proposed by NWDA, involving MP and UP in the Bundelkhand region. A 73.2 m high Greater Gangau Dam (GGD) is proposed on Ken river near Daudhan village, on the border of Chhatarpur-Panna districts in Madhya Pradesh, 210 m to 2.5 km (as per different sources) upstream from the existing Gangau Weir. The water is to be transferred to Betwa river through a 212.4 km long concrete lined link canal which is to drop water in another proposed dam possibly in Tikamgarh district in MP upstream of Barwasagar reservoir in Jhansi district in UP. The project is supposed to strengthen the Paricha barrage canal system. Two power projects (30 MW and 20 MW) are also planned on the left bank of the proposed dam. However, the installed power capacity of the proposed project is 72 MW as per Task Force Chairman.

KBLP at 1st meeting of Task force At the very First meeting of the Task Force on Interlinking of Rivers (ILR) held on Feb 10 2003 it was decided that UP and MP may finalise and confirm their master plans pertaining to water resources development within a period of one and two months respectively so as to proceed further regarding KNLP. (GOI, MOWR, Monthly Summary for the Cabinet for Feb 2003) as per the latest available information, the Central Water Commission or Enginneers India Limited were to be given the work of preparing the Detailed Project Report for the Link.

Task Force According to the Chairman of the ILR Task Force the Ken is to be linked with the Betwa through a canal to replace the 659 MCM of Betwa waters reaching Paricha weir by equivalent supply of water from Ken. This would enable annual irrigation of about 0.127 M Ha in Raisen and Vidisha district of MP in the upper Betwa basin. The Daudhan reservoir link canal is to divert about 1020 MCM of water from Ken to the Betwa basin. Out of this flow, about 312 MCM is to be used for enroute irrigation of about 40 000 Ha in Chhatarpur and Tikamgarh districts in MP and 7 000 Ha in Hamirpur and Mohoba districts in UP. This apart, water from the Daudhan reservoir is to be utilised to irrigate about 0.323 M Ha in Panna and Chhatarpur in MP and about 0.148 M Ha in Banda district in UP. [This last claim sounds rather strange, as this is not mentioned in the official National Council for Applied Economic Research report on Socio Economic and Environmental aspects of six links, done in 1994 for National Water Development Agency. (BLD 020903)

Ken River Basin

Rising from the north-west slopes of the Kaimur hills in Jabalpur district at an elevation of about 500 m above the mean sea level, the average annual flow of the river is 11 300 MCM. It is 427 km long up to its point of confluence with the Yamuna near village Chilla in the Banda district of UP. The river Basin lies between north latitudes 23º20' and 25º20' and east longitudes 78º30' and 80º36'. The Ken basin covers the area of Jabalpur, Sagar, Damoh, Panna, Satna, Chhatarpur and Raisen districts of MP and Hamirpur and Banda districts of UP. It is bounded by Vindhya ranges in south, Betwa basin is the west, free catchment of the Yamuna in east and the river Yamuna towards the north. The catchment area of Ken Basin is 28 224 km^2.

Tributaries Chandrawal, Urmil, Shiam, Shihu, Karoran, Kel, Bichhui, Gawain, Siamri, Banne, Khuraran, Kutni, Lohruk, Kusar, Kail, Sonar (Tr - Bewas, Bamner, Kopra), Vyarma, Aloni, Vearma.

Some Existing Major Projects on Ken River

SN	1	2	3
Project	Gangau Weir	Rangwan	Bariyarpur
Year of Completion	1915	1957	1905
Ht Above Lowest Foundation, m	16.15	36	27
Gross Capacity of Res. (MCM)	119.43	163.62	12.59
Purpose	Irrigation	Irrigation	Irrigation
Max. Dishcarge Cap of Spillways, cumecs	13 700	2410	14 275
Benefit 1000 Ha	—	37.64	—
Catchment area km2	18637	828	20760

Dams on tributaries of Ken River

Dam	Year	River	Ht (m)	Gross storage capacity MCM
Chandrawal	1973	Chandrawal	10.97	34.71
Urmil	1994	Urmil	18.24	116.6

Gangau Weir Gangau weir in Chhatarpur district is a large water body formed by damming the river Ken at Nonapanji within this district. Gangau reservoir serves as a feeder dam to the Bariyarpur weir from where numerous canals have been taken out to Panna (MP) and Banda (UP) districts of Bundelkhand. At present Left Bariyarpur Canal is under construction. UP objects to the construction of Left Bariyarpur Canal until the completion of Greater Gangau Dam. According to UP, it is impossible to supply water to Left Bariyarpur Canal from Bariyarpur Weir, as there is already shortage of water in Ken Canal System. In view of MP, Left Bariyarpur Canal is constructed as per 1972 agreement and remodeling of Ken Canal was allowed with the condition of construction of Left Bariyarpur Canal. MP has already spent Rs 500 M on Canal construction. The issue remains undecided even after discussion in meeting of Central Regional Board on 18.02.2000.

Rangwan The Rangwan dam (capacity 152.14 MCM) is built by UP on Banne river (Tributary of Ken) in Chhatarpur district, which is also used to feed Bariyarpur weir as well as provide irrigation in Chhatarpur and Panna districts. MP has completed canal of length 25 km, as per agreement made in 1972.

There is a dispute between MP and UP on this project. MP has demanded for control over
i) Regulation of gates of Rangwan dam
ii) Inspection houses constructed at Gangau
iii) Link road between Rangwan and Dhamari.
MP is demanding 55.53 MCM of water in Rabi season, which was agreed in 1972 for Kharif season. It was agreed upon that, available water in Rangwan Reservoir will be distributed between UP & MP in ratio of 36:15. But by providing 55.53 MCM of water to MP in Rabi season, the ratio will become 16:35, which is against bilateral agreement, as per UP. Also it will badly affect irrigation in UP.

Urmil Dam Urmil Dam is situated in village Shamshera, Dist Mahoba on Urmil River. Completed in 1994, the Urmil Dam is to provide Annual irrigation to 4 769 Ha from CCA of 6800 Ha of Dist Mahoba and Chhatarpur (MP) through main canal of 29.4 km and ditribution system 18.75 km. It provides 1.7 MCM water for drinking purpose. The 18.34 m high dam has live storage capacity of 111.5 MCM.

Bariyarpur Weir Bariyarpur weir is built at Ajaigarh in Panna district in MP in 1905 by UP. It was built essentially to irrigate the agricultural area of Banda through Ken-canal system but since the reservoir was located in this district, the benefit of recharging of groundwater reserve naturally goes to Panna district. Bariyarpur Weir is supposed to provide irrigation to 0.23 M Ha in Banda and Chitrakoot (UP) and Chhatarpur districts (M.P) through main canal of 59.34 km length and distribution system 960.56 km. The annual gross irrigation is 65 950 Ha. The total area submerged due to project is 3078 Ha, including 119 Ha forestland. At least 3 000 people are known to have been displaced due to this project.

Ken Canal System, having 2500 cusecs capacity (after remodeling), originates from right bank of Bariyarpur weir to irrigate areas in Panna (MP) and Banda (UP).

Left Bariyarpur Canal According to agreement of 1972 & 1977, it was proposed to construct Left Bariyarpur Canal (1385 cusecs capacity & 59.38 km length) and Greater Gangau Dam by MP. UP agreed for

construction with the condition that, both the projects should be constructed at the same time.

Augasi Pump Canal Augasi Punp Canal augments water to tail portion of Ken Canal System, Sanda Dy & Adhayu Mr. It provides irrigation to CCA of 13360 HA. System has 68 km distribution system including 3.34 km long Augasi main canal. Constructed in 1981-2, the canal has capacity to transfer 150 cusecs of water from Yamuna river to Ken canal system. However, since only 50 cusecs was available, reducing the Kharif Irrigation from planned 6 012 Ha to 306 Ha and Rabi irrigation from 6 680 Ha to 2 772 Ha, the scheme is now being modernized to increase the utilisation.

Chandrawal dam Chandrawal Dam is situated on Chandrawal River at Charkhari in Mahoba Dist. in UP. Chandrawal Dam provides Irrigation to CCA of 19 038 Ha of Mahoba Dist. through 43 km main canal and 32.28 km distribution system.

Actual irrigation (UP)

Ha

	Bariyarpur Weir	Chandrawal	Urmil
1994-5	84 900	7 140	3 189
1995-6	56 560	7 285	3 855
1996-7	73 120	6 833	4 209
1997-8	71 630	3 950	1 839
1998-9	76 230	6 852	5 266

Betwa River Basin

Betwa rises from Raisen in MP (near village Barkhares, S-W of Bhopal) in the Vindhya Plateau at an elevation of 576 m. The Betwa River meets the river Yamuna in Hamirpur Dist in U.P. It is a rain fed river with very high discharge of water during rainy season and extremely low discharge during summers. Total length of the river is 590 km. The Betwa basin lies between the north latitudes 22º51' and 26º0' and east longitudes 77º10' and 80º20'. The basin includes parts of a number of districts of Bundelkhand region like Sagar, Tikamgarh, Chhatarpur (all MP), Lalitpur, Jhanshi, Jalaun and Hamirpur (all UP). The catchment area of the Betwa river basin is 43 895 km^2 of which 30 217 km^2 is in MP and 13 678 km^2 in UP.

Tributaries Ghurari, Gairao, Barwa, Garrukha, Dhasan (Tr- Ur, Sukhani, Saprar, Rohini), Lakheri, Chainich, Parwaha, Jamini (Tr-Sajnam, Shahzad), Bina, Bearma (Tr- Arjun), Jamini (Tr: Sajnam and Shahzad).

Dhasan river A tributary of Betwa, this river touches Lalitpur district at the south-eastern tip and flows about 38 km before it re-enters the neighboring district of Tikamgarh.

There is a small stream named **Rohini**, a tributary of river Dhasan, which flows in the north-east direction across the Mahroni tehsil in the south-west corner of the district. Rohini has a dam built for irrigation.

Jamini river An important tributary of Betwa, it enters Lalitpur dist. cutting through the forest near Madanpur village, and flows northward for 45 km leaving the town of Mahroni on its right. It then takes north-easterly bend and after 6 km further comes to form the boundary of the district for about 60 km. It comes very close to Betwa just before it finally leaves the district. Jamini has been dammed within Lalitpur district.

Other important streams Important tributaries of Jamini are **Sajnam and Shahzad** rivers. While Sajnam joins it at Chandawali, Shahzad joins it near Hazaria village. These streams drain enormous volumes of water during rains while in other seasons they shrink to narrow channels. Shahzad, an important river flowing by the side of Lalitpur town, has been dammed to make Gobind Sagar reservoir near Lalitpur. Sajnam has also been dammed in this district.

Some Existing Major Projects in Betwa Basin

	1	2	3	4
Project	Paricha	Dhukwan	Matatila	Rajghat
Year of Completion	1885	1909	1964	Ongoing
Ht above lowest foundation, m	17	15	46	43.8
Gross Res capacity, MCM	91.41	106.44	827.69	2172
Purpose	Irrgtn	Irrgtn	I,H	I,H
Max discharge cap. Of spillways, cumecs	21 510	18 451	23 360	38 997
Benefit, '000 Ha	—	1.31	5.46	109 (UP) 117(MP)
Catchment area, km2		20824	20435	16861
Power capcity,MW	—	—	30.6	45

Source: For No 1-3, Ref No 2 & 3, for No 4, Ref No 4

Paricha Situated about 21 km north-east of Jhanshi on River Betwa. Paricha Weir provides Irrigation in Jhansi, Hamirpur & Jalaun districts (UP) through 30.2 km main canal and 2625 km distribution system. The CCA is 0.43 M Ha and annual irrigation is 0.23 M Ha.

Actual Irrigation

Ha

	Paricha	Govind Sagar
1994-5	279 630	17 453
1995-6	251 510	17 576
1996-7	238 020	19 272
1997-8	172 210	8 466
1998-9	217 720	16 688

Dhukwan This weir on Betwa serves to enhance the irrigation capacity of Betwa canals.

Dams on the tributaries of Betwa

Dam	Completion Year	River	Ht (m)	Catchment(sq km)	Storage MCM	Dist (State)
Gobind Sagar	1953	Shahzad	18.29	368	96.80	Lalitpur (UP)
Shahzad	1992	Shahzad	18.00	514	130.0	Lalitpur (UP)
Sajnam	1990	Sajnam	18.78	290	83.50	Lalitpur (UP)
Jamni	1973	Jamni	19.18	414	92.89	Lalitpur (UP)
Rohini	1984	Rohini	15.50	44	12.12	Lalitpur (UP)
Barwasgar	1968	Barwa	—	—	10.2	Jhansi (UP)
Lachura	1910	Dhasan	17	NA	35.96	Mahoba (UP)
Pahari	1912	Dhasan	16	NA	79.34	Jhansi (UP)
Saprar (kamlasagar)	1956	Saprar (trbty of SukhaniDhasan)	21	363.52	75.93	Jhansi (UP)
Siaori lake	1911	Lakheri (Trbty of Dhasan)	14	—	7.82	Jhansi (UP)
Arjun	1957	Arjun	24	10.77	63.8	Mahoba (UP)
Keolari	1965	Keolari	11.73	N/A	7.67	Mahoba (UP)
Kabrai	1955	Magaria & Kulharni	15.25	N/A	13.22	Mahoba
Lakheri (U/c)	1988	Lakheri	10.6	N/A	15.6	Jhansi (UP)
Maudaha	N/A	Bearma	22	N/A	200	Hamirpur (UP)
Utari (Prpsed)	U/C	Utari/ Sajnam	N/A	80	11.16	Lalitpur (UP)
Bhaunrat (prpsed)	U/C	Jamini	N/A	749.5	31.44	Lalitpur (UP)
Lachura weir	1910	Dhasan	14.94	N/A	10.56	Mahoba (UP)
Majhgawan	1917	Gunchi Nala	17.07	N/A	26.8	Mahoba (UP)
Pahari weir	1912	Dhasan	16.46	N/A	47.8	Jhansi (UP)

Matatila The dam is situated in Lalitpur district but does not provide any irrigation to Lalitpur district. The dam was constructed in 1957 for irrigation. Matatila power House with three machines of 10.2 MW each on the existing Dam has been commissioned in 1965. Matatila Dam provides 16.36 MCM water for drinking purpose. Benefited districts are Jhansi, Jalaun, Hamirpur (all UP) and Gwalior (MP). The total area submerged due to the project is 14 243 Ha and total no of people displaced as per official estimates is 7 500.

The rate of siltation in Matatila Dam has been three times higher than expected- increasing from 13 200 cum/100 sq km/yr to 44 000 cum/100 sq km/yr. The excessive siltation has decreased the reservoir capacity, reduced the life of the dam, and impeded the flow of water in the canal system.

Due to construction of Rajghat dam, located about 50 km upstream, Matatila dam would have to pass off an additional peak flood discharge of 38 997 m^3/sec of water released from Rajghat.

Annual generation

Year	Generation in MU
1996-97	131.172
1997-98	157.997
1998-99	132.805
1999-00	160.909
2000-01	138.083
2001-02	140.203

Rajghat Rajghat Dam Project is an Inter-state project of the MP and UP being constructed on River Betwa about 22 km from Lalitpur. The Engineering surveys were conducted in 1960 and the first project report submitted in 1970 and second report submitted in 1972, but the project could not materialise due to interstate problems. Finally an agreement was reached on 9 Dec 1973 under which a tripartite Betwa River Board was establish under the Union Minister of Irrigation with the chief ministers and concerned ministers of two states as its members. According to UP govt, the project on completion will provide irrigation to 109,052 Ha in UP (districts Lalitpur, Jhansi, Jalaun and Hamirpur) and 116 592 Ha in MP (districts Guna, Shivpuri, Datia Tikamgarh, Gwalior and Bhind). The water distribution system is under execution. The installed capacity of the powerhouse is 45 MW (3 x 15 MW). The costs and benefits of the project are to be shared by these two States equally. The projects existing on the downstream are Matatila Dam Project, Dhukwan and Paricha Weirs. Thus, the Rajghat Dam Project will serve as mother storage for Irrigation in UP and MP through a cascade of hydraulic structures in the downstream of River Betwa. The total area submerged due to the project is 23 390 Ha and the forestland submerged is 990 Ha. About 75 villages in UP and MP are partially and fully submerged, rendering 19 000 people homeless as per official reports.

It is to create reservoir having a gross and live storage capacity of 2172 MCM and 1945 MCM respectively. If only 5% of catchment area of the Rajghat Dam was considered critical, the cost of minimal treatment would be over Rs 48.1 M. The cost of effective soil conservation measures would be more than Rs 144 M,

that is, 11.7% of the Rs 1.23 B, which the project was expected to cost in 1973.

Apart from the cost of building the Rajghat reservoir (estimated at over Rs 1.23 B), the canal irrigation system will cost an additional Rs 485 M (1973 prices).

There were at least 39 water bodies in the submergence area, ranging in size from 0.5 Ha to 19 Ha with an aggregate area of about 136 Ha. The Rajghat dam submerges about 23 temples and also Pancham Nagar Mahal.

Claimed additional irrigation for Bundelkhand Region includes 0.109 M ha in UP (districts Lalitpur, Jhansi, Jalaun and Hamirpur) - Costing Rs 2.25 B and 0.117 M ha in MP (districts Guna, Shivpuri, Datia Tikamgarh, Gwalior and Bhind)- Costing 782.8 M. On completion of the project, the maintenance of Dam and regulation of reservoir shall be carried out by the Betwa River Board, whereas operation and maintenance of Rajghat HEP is to be done by the MPEB.

The estimated cost of the Rajghat Dam at March 1995 price level is Rs 2.67 B and at Jan 2000 price level is Rs 3.01 B. The cost of the powerhouse at March 1997 price level is Rs 1.31 B. The construction of the dam and its appurtenant works are almost complete. Land acquisition for 9 villages out of 49 villages in UP is to be completed. Civil, Electrical and Mechanical works of the Rajghat Power House have also been completed. All the three units of power House have been tested and synchronized during July to Dec 1999, and 28 MU of Electricity was generated during testing period. According to Rajghat project agreement (1972), available water in river Betwa, at dam site was estimated 3303.8 MCM. As per studies conducted by UP in 1983, discrepancy was found in estimation of catchment area and also water availability at dam site was estimated as 3525.9 MCM. To meet the water shortage at Matatila dam, downstream of Rajghat dam, UP has requested to get the extra 222.1 MCM of water. Due to rectification in catchment area, MP had requested to Betwa River Board, for redistribution of water. Since the issue was beyond the jurisdiction of Board, it has referred to Central Regional Board.

Govind Sagar Dam On Shahzad river, a tributary of Jamini river in Betwa basin, the GSD was completed in 1953 and has a catchment of 368 sq km. Govind sagar Dam provides annual irrigation to 10 830 ha through main canal of 66.43 km and 123.57 km distribution system. It provides 2.26 MCM water for drinking purpose. Live storage is 80 MCM.

Shahzad Dam In Lalitpur district, just upstream of Lalitpur town, on Shahzad river, a tributary of Jamini river in Betwa basin. Shahzad dam, completed in 1992, provides irrigation to 16 002 ha in Dist Lalitpur through main canal of 43.75 km and distribution system 56.10 km. It provides 1.7 MCM water for drinking purpose. Catchment area is of 514 sq km, live storage 96 MCM.

Sajnam Dam Sajnam dam provides annual irrigation to 7145 ha land of Distt. Lalitpur through main canal of 37.5 km and distribution system 48.05 km. It provides 1.42 MCM water for drinking purpose. Completed in 1990, has live storage of 75 MCM. Catchment area of 290 sq km. Tributary of Jamini river.

Actual Irrigation (UP)

Ha

	Sajnam	Jamini	Shazad	Lahchura Weir
1994-5	12951	32710	9455	47856
1995-6	13136	32757	10043	41186
1996-7	13162	33333	10223	40821
1997-8	3158	3150	6635	31978
1998-9	13656	32786	8457	35971

Jamini Dam Jamini Dam, completed in 1973, provides irrigation to CCA of 55144 ha through main canal of 67.40 km and 177.91 km distribution system. It provides 1.42 MCM water for drinking purpose. Annual Irrigation is of 13699 Ha. Catchment is 414 sq km. Live storage 84 MCM. Jamini river is a tributary of Betwa river.

Rohini Dam Lalitpur Dist. Completed in 1984. Rohini Dam provides irrigation to CCA of 3302 ha of Dist Lalitpur through main canal of 8.64 km and distribution system 11.22 km. It provides 0.71 MCM water for drinking purpose. Catchment area of 44 sq km, gross storage of 12.12 MCM. Rohini is a tributary of Dhasan.

Barwasagar Barwasagar is situated nearly 15 km east of Jhanshi and dammed by a 1.21 km strong embankment, this lake dates to the chandela period. It was rebuilt by Orchha ruler in the 18th century to hold 10.332 MCM. Canals from this lake were built sometime before 1862 AD.

Siaori Lake Situated at about 8 km north-west of Mauranipur at village Siaori on Lakheri river, this lake was improved in 1906 and opened for irrigation. This also receives water from Kamlasagar, which has increased its irrigation capacity.

Lahchura weir Lachura Weir in Dist Mahoba is built on Dhasan at about 11 km north of Harpalpur station during 1906-10. This dam consists of a masonary weir and earthen bunds on each side. It has CCA of 97 790 ha of dist Mahoba and Hamirpur through main canal of 32 km and distribution system 599.63 km. The gross & live capacity of this 14.94 m dam is 10.56 MCM.

Saprar Dam The Reservoir is known as Kamlasagar. Built during the first five-year plan, this consists of a 3.9 km long earthen dam. The reservoir irrigates Jhanshi district through Ranipur canals and enhances the capacity of Siaori lake.

Pahari dam Situated about 18 km east of Mauranipur in Jhanshi district on Dhasan river this weir was built in the years 1909-12. This serves the purpose of irrigation through the Lachura dam mainly in Hamirpur district. 16.46 m Pahari Weir provides irrigation to Jhanshi dist. Gross capacity of reservoir is 47.8 MCM and live storage capacity is 46 MCM.

Arjun Dam Arjun Dam is situated in Charkhari in Dist Mahoba on Arjun river, which was completed in 1957. Arjun Dam provides Irrigation to CCA of 59722 ha of Dist Mahoba & Hamirpur through main canal of 42 km and distribution system 217.3 km. Length and height of the dam are 5200 m and 27.43 m. The gross & live capacity of reservoir is 68.35 and 62.97 MCM.

Actual Irrigation

Ha

	Arjun Dam	Majhgawan	Keolari	Kabrai
1994-5	18264	7505	3796	3684
1995-6	18778	7297	4113	3663
1996-7	19501	7551	4044	4104
1997-8	8225	3667	761	2831
1998-9	23244	7513	1568	4520

Maudaha Dam The 22 m high Maudaha dam on Bearma river, a tributary of Betwa in Rath Tehsil in Hamirpur district. It consists of 48 Km long main canal with head discharge of 15 cumecs, 50 Km of remodelled Channi and Sumerpur branch canals with distribution network of 337.8 Km. It is to provide irrigation facilities of 24297 Ha of Rabi crops and 3937 Ha of Kharif crops in dist Hamirpur & Mahoba. It provides 2.8 MCM of drinking water. The 200 MCM gross capacity reservoir has live storage of 179 MCM.

Majhgawan Dam Majhgawan Dam is situated in Dist Mahoba on Gunchi Nala, which is tributary of Dhasan and the project had been completed on 1917. Maximum flood dicharge of the dam is 170 cumecs. Majhgawan Dam provides irrigation to 11248 ha of Dist Mahoba and Chhatarpur (M.P) through main canal of 29.1 km and distribution system 31.30 km. Height of the dam is 17.07 m. Gross capacity of the reservoir is 26.8 MCM and live storage capacity is 26 MCM. Irrigable Command Area is 11248 ha.

Keolari Dam On Keolari River, a tributary of Dhasan in Mahoba district of UP, Keolari Dam provides irrigation to CCA of 14390 ha and annual irrigation of 4100 Ha through main canal of 28.27 km distribution system 7.13 km. Completed in 1965, the reservoir has gross storage capacity of 7.67 MCM and live capacity of 7.23 MCM.

Kabrai Dam Completed in 1955, it provides Irrigation to CCA of 14960 Ha and annual irrigation of 3760 Ha in Dist Mahoba & Hamirpur through main canal of 23.544 km and distribution system 66.40 km. It provides 1.73 MCM water for drinking purpose. The Gross storage is 13.22 MCM and live storage 11.94 MCM.

Some Under Construction Projects

Lakheri Dam Lakheri Dam is situated a little upstream of the junction of Chiraya & Tola Nallas near Village Mahewa about 16 km from Mauranipur in Dist Jhansi on Lakheri river. Max. flood discharge of the dam is 1744.07 cumecs. The construction of the dam started in 1981. Lakheri Dam will provide irrigation to 1980 ha of land in doab of Lakheri and Pathari river spread in 13 villages of Tehsil Garautha, through main canal of 9.20 km and distribution system 21 km. The length and the height of the dam are 4 880 m and 10.6 m respectively. Dead dead Storage Capacity of the dam will be 1.70 MCM and Live Storage Capacity will be 13.90 MCM.

Proposed Projects in Betwa Basin

The Proposed Orchha Multipurpose Project This Project was proposed by MP on river Betwa in Tikamgarh district in 1978. The project costing Rs 668.2 M is to produce 90 MW hydropower and irrigate 29150 ha. On the same river Dhukawa HEP was proposed by UP, utilizing the water head between Dhukawa and Paricha, with an installed capacity of 75 MW.

Proposed project of MP will require construction of three dams and two barrages, whereas Dhukawa project of UP will require neither construction of dam, nor any submerged area. In view of MP, Orchha Multipurpose Project is more beneficial, as it would generate excess of 15 MW power and would irrigate 29150 ha area. In secretary level meeting held at Bhopal in April 1999 it was decided to undertake comparative studies of both the projects. In compliance of decision taken in Central Regional Board's meeting held in Feb 2000, a set of questionnaire for comparative studies of both the projects has been sent to MP. Response of MP is awaited.

Other proposed projects

- The centre and state govts have sanctioned estimated Rs 232.5 M for power generation from various small HEPs in UP. Betwa project is expected to produce 200 kW and the Betwa Canal Head powerhouse in Jhansi is expected to generate 1300 kW. The Ghunchai project in Pilibhit would produce 800 kW, while 200 kW would be generated from Jamini project in Lalitpur and 1400 kW from Kuthaund project in Jalaun. (BUSINESS LINE 190403)
- CEA has done ranking study for in India's Hydropower schemes. Two of Project named Orchha (39 MW, UP) and Dhurwara (28 MW, MP) are also proposed in Betwa basin.

Utari Dam It is proposed on river Utari, a distributary of River Sajnam near village Surikalan in Mahroni Tehsil of Dist Lalitpur. Utari Dam will provide irrigation to CCA of 2012 ha through feeder channel of 10.8 km length from its right flank. It is to provide kharif irrigation of 600

Ha and Rabi irrigation of 1800 Ha. The Gross storage capacity is 11.16 MCM and live capacity 10.82 MCM.

Bhaunrat Dam It is proposed on river Jamini 20 km D/s of existing Jamini Dam near village Bhairoghat in Mahroni Tehsil of Dist Lalitpur. Bhaunrat dam will provide irrigation to (CCA) of 7900 Ha through feeder channel of 17.6 km from left bank of dam. It has gross storage capacity of 31.44 MCM and live capacity of 29.75 MCM. It proposes to provide kharif irrigation in 2500 Ha and Rabi irrigation in 7900 Ha.

THE LINK PROPOSAL

The Ken drains an area of 28060 sq km of which 16020 sq km is culturable. The water balance carried out by NWDA indicates that the Ken basin as a whole has a potential of 10968 MCM of surface water resources. Based on the Technical Advisory Committee, (9870 sq km) 60% of the culturable area will be brought under irrigation by 2025 AD. Thus, the requirement of surface water will be 5883 MCM in the entire basin. Thus it is claimed surplus of 5085 MCM in the Ken basin.

Salient Features of the Proposed Project

Location Latitude 24º37' 30" N, Longitude 79º51' 40" E in Chhatarpur district of MP

Greater Gangau Dam	
FRL	284.2 m
Max Reservoir Level	284.92 m
Dead Storage Level	246.89 m
River Bed Level	215.28 m
Water spread at FRL	9605 Ha
Live storage	2544 MCM
Gross Storage	2983 MCM
Masonary Dam	
Foundation Level	209.94 m
Top of Dam	287.97 m
Top width	8.00 m
Length	1205.73 m
Earthen Dam	
Top of dam	287.97 m
Top width	8.00 m
Length (Both flanks)	1480.80 m
Max ht. above Ground	24.49 m
Link Canal	
Bed width	14.00 m
Full depth of flow	3.50 m
Side slope	1: 1.5
Bed slope	1: 10000
Length	212.4 km
Design discharge	78.00 cumecs
Affected Area and Persons	
No of Villages Affected by reservoir	19
No of Person affected	3325
Forest area	7383 Ha

Dams in Raisen and Vidisha districts (MP)

	Proposed Projects		Km2 to be irrigated as per master plan	Annual Irrigation (km2)*	Water Requirement (MCM)
A	Betwa Complex	Barari Barrage	696	870	452
		Neemkhera dam	8	11	5
		Richan dam	295	368	192
B	Kesari dam		21	18	10
	Total upper Betwa (A+B)		1020	1267	659

*As estimated by NWDA

In addition there is also be a 60 MCM dam on Kainu Nadi, a tributary of Betwa river. Thus, in all there are going to be six large dams to be created under the KBLP, but even basic information about any of the dams except the Greater Gangau dam has not been given.

Sub Basin wise Surface water Resources of Betwa Basin (km^2)

	Area and Water resources	Betwa Basin		Jamini Basin	Dhasan Basin	Bearma Basin	Total
		Lower	Upper				
A	Geographical Area	8635	16876	4510	11102	2772	43895
B	Culturable Area (% of A)	6266 (72.57)	10977 (65.05)	3251 (72.08)	6909 (62.23)	2391 (86.26)	29794 (67.88)
C	Claimed Gross Irrigated area by 2025	2424 (38.68)	6089 (55.47)	1607 (49.43)	2450 (35.46)	912 (38.14)	13482 (45.25)
D	Total Availability as surface water resources, MCM (D/A)	2497.0 (0.289)	4676.0 (0.277)	1156.0 (0.256)	2912.1 (0.262)	717.7 (0.259)	11958.8 (0.272)
E	Requirement of surface water resources, MCM (E/C)	2855.0 (1.18)	6172.0 (1.01)	1101.0 (0.685)	2762.8 (1.13)	829.5 (0.91)	13720.4 (1.018)
F	Surplus/ deficit of surface water	-358.0	-1496.0	+55.0	+149.3	-111.8	-1761.6

Sub Basin wise Surface water Resources of Ken Basin (km^2)

SN	Details	Ken Basin		Vearma Basin	Sonar Basin	Total Basin
		Lower	Upper			
A	Geographical Area	8722	6986	5890	6550	28058
B	Culturable Area (B as % of A)	6735 (77.22)	3232 (46.26)	2753 (47.74)	3295 (50.31)	16015 (57.08)
C	Gross Irrigated Area by 2025 AD (C as % of B)	5890 (87.45)	1387 (42.91)	1020 (37.05)	1576 (47.83)	9874 (61.65)
D	Total Availability of Surface Water, MCM (E/A)	4453.3 (0.5106)	2165.0 (0.3099)	2480.8 (0.4212)	1868.8 (0.2853)	10967.9 (0.391)
E	Requirement of Surface Water, MCM, (E/C)	3412.9 (0.579)	782.3 (0.564)	736.4 (0.722)	952.1 (0.604)	5882.8 (0.596)
F	Surplus / Deficit of surface water	(+) 1040.4	(+) 1382.7	(+) 1744.4	(+) 916.7	(+) 5085.1

Ken-Betwa Surface Water Balance

MCM

		Ken	Betwa	Total
1	**A** Total SW available at 75% dependability	7657.6	9196.2	16853.9
	B Import	2426.9	955.2	3382.1
	C Regeneration	883.4	1807.4	2690.8
	TOTAL	10967.9	11958.8	22926.7
2	Requirement SW **A** Domestic Use	220.4	1103.3	1323.7
	B Industrial Uses	402.8	903.5	1306.3
	C Irrigation	5260.3	8301.0	13561.3
	D Exports		3854.5	3854.5
	TOTAL	5882.8	13720.4	19603.2
3	Surplus (+)/ Deficit (-)	(+)5085.1	(-)1761.6	(+)3323.5

Surface Water Balance
Upto Greater Gangau Dam Site

MCM

A	Gross annual yield at 75% dependability		6211
B	Surface water requirement for	Irrigation	2969
		Domestic	133
		Industrial	236
		Sub Total	3338
C	Export (for downstream Irrigation needs)		2225
D	Regeneration from	Irrigation	176
		Domestic	107
		Industrial	188
		Sub Total	471
E	Net Availability (A-B-C+D)		1119

It has been proposed to construct four large reservoirs, namely, Barari barrage and Neemkheda dam on the main Betwa, Richhan dam on Richhan river and Kestan dam on Kestan river. These reservoirs will have an annual irrigation potential of 0.127 M Ha in Raisen and Vidisha districts of MP. The water balance conducted by the NWDA is based on 1901 to 1983-4 data.

The proposed link canal will take off on the left bank of the Ken river at 245.5 m from the tail race of power house - I of the GGD. The GGD site is covered by hillocks with dense forest. The proposed link canal will run in almost northerly direction for distance of 81 km in MP thereby passing through the Bhusor and Bandari protected forest area of Chhatarpur district. Thereafter it will run in westerly direction for a distance of 131.4 km within the vicinity of the state boundary between MP and UP. The Canal will cross on its way the Dhasan river, a major tributary of Betwa, many other small minor streams, state highways, railway line and Pabra and Magarwara reserve forest till it outfalls into the terminal reservoir across the Kainau Nadi near village Jobra. This terminal reservoir will have a storage capacity of 60 MCM. The sluice in the terminal reservoir will regulate the flow of the water to Barwasagar Nalla, which will connect to the Betwa river at a point 13 km upstream of the existing Paricha weir. As per the agreement between the govts of UP and MP, these states will receive 850 and 1375 MCM of surface water respectively from the GGD. (This possibly refers to existing irrigation from Ken River downstream of the existing Gangau Dam, as shown above in the surface water balance downstream of existing GD.)

The imbalanced water Balance calculations

The water-balanced studies that is at the basis of the KBLP as described above is problematic for many reasons, some of which are described below.

- The most fundamental problem with the water balance study is that it does not take into account groundwater potential and use in the relevant basins. Moreover, the water balance also does not look at rainwater as a resource and potential of rainwater harvesting before deciding if there is really any deficit or surplus.

- Another very fundamental issue is that there seems to be no allocation for the environment flow requirements in the river downstream from the six proposed dams.

- While calculating surplus in Ken basin, the assumption is that every Ha irrigated will need 5960 cubic m of water. This is very low compared to the requirement assumed at 10180 cubic m per Ha assumed in case of Betwa basin. No reason is given for

this huge difference. However, if we look at the fact that whole attempt is to show that Ken is water surplus basin and Betwa is water deficit basin, the rationale behind such assumptions becomes clear. By assuming low water requirement in Ken basin, one can show surplus water availability and by showing higher water requirement in Betwa basin, one can show higher deficit in Betwa basin and thus try to justify a link project that otherwise has no justification.

➢ This attempt to show the surplus in Ken basin and deficit in Betwa basin is further exemplified by the fact that 67.88% of geographical area in Betwa is shown to be cultivable, the figure for Ken basin is much lower at 57.08%.

➢ About 85% of the so-called water deficit in the Betwa basin is seen in the Upper Betwa basin, where water from Ken Betwa link cannot be taken. This deficit has been made possible by the assumption that 65.05% of Upper Betwa sub-basin is cultivable and 55.47% of cultivable area here is to be irrigated by 2025. The % cultivable area to be irrigated is highest for Upper Betwa sub basin among all the sub basins in Betwa basin. Contrast these with the figures for Upper Ken Basin: 46.26% of geographical area is cultivable and 42.91% of cultivable area is to be irrigated by 2025.

➢ It is assumed that by 2025, 87.45% of cultivable area of Lower Ken sub basin will be irrigated, while only 37.05% of cultivable land in Vearma basin will be irrigated. This clearly shows that the projections are to provide more irrigation to already highly irrigated areas, and starve the unirrigated areas. This difference becomes even more alarming when we consider the fact that over 77% of geographical area in Lower Ken basin is considered cultivable, whereas the figure for Vearma basin is just around 47%.

➢ The Study mentions in the Betwa basin water balance that some 3854.5 MCM is to be exported from the Betwa basin. No information is given what is this about, from where and to where and what for this export is. The moot point is that if Betwa basin were not to export this amount of water, it would in fact be a surplus basin. Similarly, no details are given about 2426.9 MCM water being imported into Ken basin and 955.2 MCM water being imported into Betwa basin, as to from where, how, where exactly in the respective basins and what for these imports are. It is clear that NWDA and NCAER has refrained from asking basic facts about the data given and has in fact tended to give biased information, giving rise to a suspicion that the figures are manipulated to justify an otherwise unjustifiable project.

➢ This bias is further evident when the study repeatedly describes Betwa as "water starved" basin right at the outset (e.g. Vol. II, page iii, again on Vol. II page 6), whereas the role of (NWDA and) NCAER is to study and investigate what is the situation of water resources in both the basins.

➢ The ignorance of NCAER and shoddiness of the report is apparent when it states in Executive Summary (Vol. II page iii again Vol. II p 3) that KBLP will benefit the districts of Ujjain and Indore in MP!

➢ The shoddy piece of work that NCAER has done is further evident when on page 3 (Vol. II) it says that KBLP involves "construction of large reservoirs on river Yamuna".

Proposed command area of link canal The Ken-Betwa link canal project proposes to provide enroute irrigation in 89 villages in the Chhatarpur and Nowgang tehsil of Chhatarpur and 74 villages in Niwari and Jalara Tehsil of Tikamgarh districts of MP. It is proposed to provide irrigation to the areas/ tehsils, which have less than 30% annual irrigation of their culturable area by 2025 AD.

Extension of irrigation in the Upper Betwa basin Based on the agreement between the MP and UP on sharing of Betwa waters, the MP govt has prepared a master plan to utilise 659 MCM of surplus water by constructing the Barari Barrage, and the Neemkhera, Richhan and Kesari Dams in the upper reaches of the Betwa to provide irrigation facilities in the districts of Raisen and Vidisha in MP. To replenish the water used in the upper reaches of the Betwa, an equal quantity of water (659 MCM) will be made available through the proposed Ken-Betwa link canal. It is proposed that the upper Betwa complex will provide for the irrigation of 0.127 M Ha a year, given the 125% intensity of irrigation. That means 5189 cubic m of water is provided per Ha irrigated.

On account of the transfer of surplus water of the Ken to Betwa 13 km upstream of the Paricha weir, the tehsils now having less than 30% culturable area will by 2025 AD derive the benefit of irrigation (Mahoba, Muranipur, Jhanshi, Konch and Hamirpur). The annual irrigation of 69 194 Ha and 365 MCM of water utilisation will take place in these tehsils. That means 5275 cubic m of water is provided per Ha irrigated.

Questions on Projected Irrigation Benefits The irrigation benefits projected from the proposed KBLP seem highly doubtful. Some reasons are given above when there are fundamental discrepancies in the water balance studies. The fact that utilisation of rainwater and groundwater in the Ken Betwa basin is so low shows that there are better options available if fulfillment of justifiable needs of irrigation water in Ken Betwa river basins are the objective.

Moreover, if we look at the water allocation and area to be irrigated in KBLP, we find that water allocation is 5189 to 5275 cubic m for every Ha to be irrigated under KBLP. It is a mystery that if the Betwa basin water

balance assumes irrigation requirement of 10180 cubic m per Ha of irrigation provided, than why is just about half the water allocated for area irrigated by link canals in the same Betwa basin? Or is this just to push up the projected irrigation areas to levels beyond what can be achieved? Another attempt to push unjustifiable project?

Cost estimates The entire Ken-Betwa link project has been divided into two units. Unit-I relates to the Ken-Betwa link project works and unit-II to the link canal and the other canal networks, which also includes the upper reaches of the Betwa and the lower Betwa basin down stream of the Paricha weir up to the confluence with the Yamuna.

	Rs, 1989-90 price level
Unit I	1.59 B
Unit II	0.3995 B
Total	1.99 B

Environmental Implications Out of six dams to be constructed under KBLP, information is given in the NCAER study about only one of the dams, namely GGD. No information is given about the other dams. So the total impacts of all the proposed dams and canals under the KBLP cannot be known till full information about all the dams and canals is given.

The left bank of the site selected for GGD is gradually rising hill slope and the right bank is steeply rising hill slope. Number of streams flow down the hill slopes forming the gulleys. The estimated areas to be submerged due to the formation of reservoir at the designed full reservoir level is 9605 Ha (p 16, Vol. II) or, almost 10 000 Ha (p 17, Vol. II) coming under Panna, Chhatarpur and Damoh dists of MP. Channels near the reservoir are likely to get enlarged and loosen the talus and screen. This may cause increase in silting.

With FRL at 284.2 m, the submergence area comprises of 3750 Ha forest, 2510 Ha cultivable land and 3740 Ha others. Part of the area, close to the reservoir and to the south along Ken river, will fall under Panna district and the western part along Shyamri river will fall under Chattarpur and Damoh districts in MP. As per the toposheet study the villages which will get fully submerged including the habitations are Daudhan (dam site), Kharyani (5 km south of Daudhan), Palkoha (4.5 km south west of Daudhan), Sukwaha (6 km SW of Palkoha), Bhorkhuwa (3.5 km SW of Sukwaha), Basudha (5.5 km SW of Bhorkhuwa) and Ghughari. About 30 km length of road (Gangau-Palkoha-Sukwaha-Bhorkhuwa-Basudha-Shahpura) will also get submerged. Maniyari and Padriya villages will also get affected, but NCAER claims they are part of the above-mentioned villages. Many other villages will be affected, as admitted by NCAER, but NCAER has no information about them. At one place (page 77, Vol. II), NCAER mentions that 19 villages will be affected, but no details are given about affected population.

The protected forest slated for submergence on the north is away from the reservoir area but a part in south is within the protected forest included in the Panna National Park. Almost all the hill slopes are marked by dense mixed jungle comprising of deciduous, a few evergreen of semi-evergreen and few xerophytes to semi-xerophytes type of species.

It is claimed that the canal will be designed with proper cross drainage works. The movement of subsurface groundwater may get affected along the route of canal. It is claimed that the link canal will be fully lined with suitable material.

The villages along the periphery of the reservoir will face the problem of wastewater disposal, as the existing drains will become inefficient due to the reservoir in their vicinity. The estimated families in the villages to be submerged is 600 having a population of 3250. Scheduled tribes and Scheduled castes constitutes about 34.38% and 15.54% respectively. These are the villages in forest areas. In the interior villages the concentration of scheduled tribes is very high e.g. 91.84% in Ghughari village. Population in the other peripheral villages will also be affected but no details available in this regard.

At present the groundwater is used by villagers from the wells in the vicinity of the villages and the springs nearby. The wells are generally shallow (3-6 m) and subterranean water is available in them.

The total peripheral zone around the area likely to be submerged in the reservoir could not be examined by NCAER during its study of the Socio Economic and Environmental impacts of the project, due to their inaccessibility. However, only partial study of the area was done and geological and hydro geological data for the rest is used for assessing the impact on the ground water regime. The function of rivers as good surface drainage outlets for these villages will be affected adversely. The groundwater table will rise and general deterioration of the environment will take place.

In the command area water logging may result unless proper water distribution plan is prepared and implemented. Certain areas on the existing roadside over which the canal will pass, are dependent on well water and shallow tubewells located on crushed and altered granitic and gneissic rocks. The catchment areas of such rocks are likely to get covered by the canal construction, resulting in reduction in drinking water supply.

What NCAER study does not say The impacts that the submergence will have on the Panna Tiger Reserve (PTR) will be numerous and serious.

According to official website of the PTR, the Ken river, which flows through the Reserve from south to north, is home for Gharial and Mugger, and other aquatic fauna and is one of the least polluted rivers. It is one of the sixteen perennial rivers of Madhya Pradesh and is truly the lifeline of the Reserve. Ken offers some of the most spectacular scenery to the visitor while it meanders for some 55 km through the reserve. (http://www.pannatigerreserve.org/) When Great Gangau Dam comes up, the reservoir will not only submerge significant parts of PTR, it will also make approach of the wildlife to the only perennial water source impossible due to the silt that gets deposited on the periphery of the reservoir. Moreover, the Ken Gharial Sanctuary, located downstream of the proposed KBLP is also likely to be affected due to stoppage of freshwater flow in the river.

Also, destruction of over 3750 Ha of rich forests due to GGD alone will have many impacts by itself. This will mean loss of wildlife and all the biodiversity, loss of whose system of rainwater absorbing ecology and subsequent increase in water flow in the monsoon and decrease in the water availability in non monsoon months, shrinkage of resource base of surrounding population and shrinkage of living space for the wildlife.

Says the official website of MP tourism dept (http://www.mptourism.com/dest/khaj_exc.html) about PTR, "Most likely, it will be here if the Caracal, a vanishing cousin of the extinct Cheetah, is ever sighted". The building of GGD will most likely forever submerge such a prospect.

According to official web site http://panna.nic.in/tiger.htm, PTR has the following Endangered Species:- Tiger, Leopard, Caracal, Four-horned antelope, Indian Wolf, Pangolin, Rusty Spotted Cat, Sloth Bear and Gharial, found in the Park, are included in Schedule I of WPA, 1972. Their habitat will be seriously impacted by the proposed GGD.

Does NCAER know the meaning of EIA? In the beginning of the chapter 2 of Vol. II, NCAER has listed what it calls "massive data" required for "Comprehensive assessment of environmental impact". That list *excludes*, believe it or not, command area impacts (water logging, salinisation, drainage), downstream impacts, impacts on biodiversity, loss of forests, carrying capacity, impact of sudden releases in the downstream areas, geologic, seismic issues, siltation and catchment area treatment, to name just a few. This strongly raises the question if the NCAER understands the meaning of EIA and it is capable of taking up such studies. The ILR task force, we understand, has asked NCAER to take up the EIA work! That would certainly seem a disaster in waiting.

R&R for Link projects According to NCAER study, NWDA has not prepared any concrete proposal for the rehabilitation and resettlement of the population likely to be affected. Therefore the persons likely to affected are not aware of any R&R package.

On KBLP, the NCAER study says the total number of families to be displaced will be 600 and no of persons would be 3250. In Vol. I of the NCAER study it is shown that in this area, there are on average 6.5 persons per family. This means that 3900 persons will be displaced if 600 families are to be displaced. However, if population densities in the area is any guide, than at least 10 000 families (65 000 population) will be displaced by one GGD alone. No information is available about submergence due to five other dams or the link canal area or in the downstream areas or due to building of other related infrastructure.

While in Annexure 7 of Vol. II NCAER tries to give the R&R norms followed in various states and various projects, it either does not know the provisions or it is trying to misguide the readers. In either case, NCAER becomes disqualified for any such work in future. To give just one stark example, NCAER says that in case of Sardar Sarovar Project, norm is to give land for land upto 4 acres land holding, 4 acres land for 4 to 12 acres holding and 1/3rd of the holding for 12-15 acres land holding and so on. But the norm is that all families, including the encroachers and the landless in the submergence villages are to get a minimum of 5 acres of irrigated land (irrigation to be provided by state govt) and each major son (or daughter in some states) is considered a separate family. Even landless are to get that provision of land. Thus, by not stating the existing provisions honestly, NCAER has shown its bias against the affected people.

What is clear is that total quantum of submergence, displacement is not even known to either prepare any just R&R plan or take the affected people into confidence and take their free, prior and informed consent about the project or any of the options for irrigation needs of the region. Also, the people displaced by the dams in the Ken and Betwa basins described in earlier sections of this report are yet to be fully and justly resettled. Unless that is achieved, any further displacement in the basin cannot be considered, as recommended by the report of the World Commission on Dams.

Public Awareness An attempt has been made by NCAER to find out awareness among the households regarding the proposed link project in the command area. Only 8% were aware regarding the proposed project while 92% were not aware. This clearly shows that even as pre feasibility and feasibility reports of the scheme are claimed to have been done, local people are not even informed about the existence of the proposal.

Perception about Irrigation During the course of field inquiry an attempt was made by NCAER to ascertain the extent of existing irrigation facilities along with various socio-economic and agro-economic parameters in the command areas of the proposed link project. According to the qualitative view of irrigation facilities in the command area 72.4% households stated that the existing irrigation facility is not adequate, while 27.6% households stated that existing facility is adequate. According to NCAER, this suggests urgent need of the creation of additional irrigation potential. This clearly is a wrong and biased conclusion and also a misrepresentation of the results. The question was about quality and not only quantity of irrigation. Moreover, if irrigation facilities are quantitatively inadequate, there can be very many ways of extending it and link canal is not the only or even the best way.

The households of command area of link canal were asked to state their suggestions for improving irrigation facilities in their areas. The responses are as follows:

SN	Irrigation facility required	Percent
1	Canal	11.8
2	Lift Irrigation	49.2
3	Well/ Tubewell	26.8
4	Ponds	5.3
5	Others	6.5
6	Not responded	0.4
	Total	100

The majority of respondent suggested for lift irrigation and well and tubewell as a solution of inadequate irrigation facility. This clearly shows that majority of the people were not for a project like KBLP. In fact only 11.8% households have preferred canal irrigation as additional irrigation facility. The Vote of the local people is clearly against KBLP.

Possible Impacts in Ken Basin The proposed link canal would submerge thousands of hectare cultivable land at Chhatarpur, Tikamgarh and Jhanshi. Gangau and Bariyarpur dams are situated at downstream of Proposed dam. The irrigated area from both projects could get seriously affected due to the proposed link. Thousands of Ha of cultivable land would be taken for canals in Chhatarpur and Tikamgarh. People from scores of villages near Dhaudhan would be displaced due to proposed dam. A major part of world-fame Panna tiger reserve would also be submerged due to the reservoir. The Gangau dam is the feeder dam for Bariyarpur weir, which will receive less or no water from the Ken river during non-monsoon months. Even in monsoon, while the Greater Gangau dam would be filling, there will be no water either for Gangau dam or for the Bariyarpur weir and its command areas. Hence Gangau and Bariyarpur reservoir may become dry for most of year if all the water in the Ken river is stored in the GGD and is diverted to Betwa basin.

Impacts in Betwa Basin The excess water in Betwa basin could create water logging in Hamirpur, Mahoba, Banda and Jalaun districts. The excess water could also make Hamirpur (Including Mahoba), Banda and Jalaun districts flood prone. The groundwater development in all three districts is very low, at 10% in Banda and 12% in Hamirpur and Jalaun districts.

- These districts are situated downstream of Barwasagar reservoir. The combined Hamirpur district has an area of 7165 sq km. Area affected by soil erosion in both districts is 364 218 Ha, which is 50.56% of the total area.
- The total area of Banda district is 7624 sq km. There are 7 major watersheds in this district, each has large eroded area. The total area affected by soil-erosion in the district is 1.2 M Ha.
- The total area of Jalaun district is 4565 sq km and the total cultivated area is 341 818 Ha. The area irrigated by minor irrigation works is 114 000 M Ha.

UP – MP Disagreement In the proposed scheme, UP has two main objections:

i) In this project, estimation of water availability by MP is not appropriate.

ii) There is no provision for extra water in addition to present available water utilized by UP, whereas extra water should be distributed equally between UP & MP.

As per NWDA, of the 6066 MCM water available at GGD, Committed Water is 3248 MCM: 2221 MCM for u/s use in MP and 1027 MCM for Ken Canal in UP. Remaining water (2818 MCM), to be equally distributed between the two states as per UP claim. MP does not agree with this claim. MP is not ready to supply extra water other than 37 TMC, which is as per 1972 agreement.

Basic Unresolved Issues From the above analysis of available information on the proposed Ken Betwa Link Project, it is clear that the case for the proposal is fundamentally weak due to the following reasons, among others.

- **Problems with the Proposal** The whole proposal is based on basic fallacies of surplus and deficit basins based on manipulated water balance calculations as shown above. If looked at closely, Ken basin does not have any surplus water and Betwa basin has many unexplored local options.

- **Need** It is not clear what are the basic needs for which this project is being pushed. The proposal so far does not show why this project is needed.

- **Desirability** Looking at the huge impacts that the project is likely to have in both basins, more destructive than beneficial, it is doubt if the project would prove desirable if all the costs are honestly added.

- **Decision Making Process** The local people have had no role in the decision making process of the

project. In fact, as is evident from NCAER survey they do not even know what this project is about and what for. Nor do they need such a project, as is evident in answer to another question from NCAER.

➢ **Options** It is clear from the above analysis that existing infrastructure in the two basins is not used to its optimum levels. There is huge scope for achieving more irrigation, water supply, power and flood control benefits from existing infrastructure. Moreover, there is also big scope for local options in terms of rainwater harvesting, groundwater recharge, groundwater use, watershed management and so on. In fact such options would be the best way to increase the employment and growth potential in the two basins.

➢ **Costs** The full costs of the project are not even known. When lower cost options are available, then why go for such project with huge costs and questionable and unsustainable benefits?

➢ **Viability** Is the project and claimed benefits viable? It is clear from the water balance study given above that the project is not even viable in terms of availability of water or other resources are concerned.

➢ **Social and Environmental Impact Assessment** It is clear from the above analysis that basic social and environmental impacts of the project are not even known. Even the land and forests to go under submergence for five of the six dams proposed and the link canal are not even known. Also the outsanding social and environmental issues from the dams constructed in the two basins show that there is little credibility that the authorities have either the will or the capacity to address these issues. If they want to show that rehabilitation is possible, they must show it by resettling the people already displaced and if they want to show that environmental issues can be addressed, the same must be shown by first addressing the outstanding environmental issues of existing projects in the two basins.

➢ **Drought and Floods** One of the main justifications that has been forwarded for pushing river link projects has been to show how drought and flood problems can be solved by transferring water from flood prone basin to a drought affected one. In this case, though, both basins experience the droughts and floods simultaneously. Both basins have similar topographical and hydrological features. Hence there is no justification in pushing this project in that respect either.

Other Projects in the region

SN	Project	Year	River	State	Type	Ht, m	Gross Res. Capacity, MCM	Purpose	Max. Discharge Capacity of Spillways	Catchment Area, Km2
1	Beuchore	1964	Aralker	MP	TE	20	7.64	I	47	
	Rajpur	1926	Arjun Nallah	UP	TE	13	6.62	I	193	
	Barwa	1964	Barwa	UP	TE	20	39.49	I	535	
	Barwar	1923	Baura	UP	TE	21	33.78	I	238	
2	Bilanadi	1973	Bilanadi	MP	TE/PG	32	63.69	I	448	
4	Burhanalla	1967	Burha	MP	TE	15	8.66	I	97	
5	Chandia	1927	Chandia Nala	MP	PG	25	5.86	I	506	
	Kotra Khamba	1915	Hagninadi	UP	TE	18	3.82	I	65	
8	Halali Reser.	1976	Hallai	MP	TE	30	252.8	I	1189	
	Jaiwanti	1929	Jaiwanti	UP	TE	15	9.43	I	44	
	Salarpur	1960	Karipa	UP	TE	11	4.02	I		
6	Daroli Tank	1963	Karkra Str.	MP	TE	17	4.87	I	215	2.26
	Khandeha	1929	Khandeha	UP	TE	14	2.69	I	128	
	Khaprar Dam		Khaprar	UP			3.5	I,D		27.70
11	Tejgarh Tank	1959	Lamti Str.	MP	TE	26	6.79	I	285	
13	Aunjhar	1931	Local Str.	UP	TE	22	4.35	I	172	
	Kabrai Lake	1956	Maingaria	UP	TE	15	13.22	I	340	
	Magarpur	1920	Mind	UP	TE	16	2.46	I	173	
10	Motinala Tank	1957	Moti Str.	MP	TE	16	2.902	I	173	
14	Balmiki Ohen Sarovar Dam	1962	Ohen	UP	TE	24	38.37	I	1415	
	Dongri	1986	Pahuj	UP				I,D		141.5
	Pahuj Reser.	8th Pl.	Pahuj	UP			15.0	I,D		
7	Devindra Nagar	1969	Sekra Str.	MP	TE	18	5.68	I	77	4.65
	Mola	1929	Son Str.	MP	TE	22	19.96	I	615	2.26
	Rampur Kalyan	1925	Stream	UP	TE	13	1.85	I	110	
9	Karahi	1973	Sunehi	MP	TE	18	3.82	I	360	
	Khapatia	1919	Thota	UP	TE	16	6.03	I	188	
3	Burha	1962	Tr- Berihadi	MP	TE	16	8.31	I	297	

Rainfall and Groundwater potential of Bundelkhand region and nearby area

SN	District	Area, Km2	Rainfall, mm	Annaul Replenishable Groundwater, MCM	% Groundwater Development (1990)	Forest Cover (%)	Cultiavated area (Ha)
1.	**Banda, CSN**	7 624	1 024	1 426	12	11	498 047
2.	**Chhatarpur**	8 687	1 083	1 036	24.40	10	387 000
3.	**Damoh**	7 306	1 115	829	6.24	36.3	38.6%
4.	**Datia**	2 038	900	313	22.18	9	
5.	**Hamirpur, M**	7 166	794	1 229	12	5	508 890
6.	**Jalaun**	4 565	776	1 239	10	6	341 818
7.	**Jhanshi**	5 024	822	896	93	6	365 512
8.	**Lalitpur**	5 039	822	669	36	13	218 995
9.	**Panna**	7 135	1 248	812	5.80	34	317 410
10.	**Sagar**	10 252	1 279	1 434	10.66	28	
11.	**Tikamgarh**	5 048	1 045	818	33.67	13	331 586

As shown above the groundwater potential of many of districts have not been utilised properly. In the districts of Panna, Damoh and Sagar in MP the groundwater utilisation is only 5.8%, 6.24% and 10.66%, while the Replenishable Groundwater Resources are 812 MCM, 829 MCM and 1434 MCM respectively. Similarly in Jalaun, Hamirpur and Banda districts in UP the groundwater development is only 10%, 12% and 12%, while the Replenishable Groundwater Resources are 1239 MCM, 1229 MCM and 1426 MCM respectively. Rest of the districts have same position and no district has used more than 40% of the potential, except Jhanshi district, which has developed 93% of potential.

Gross Irrigation Utilisation from Various Minor Irrigation sources in Ken and Betwa Basins in 1993-4

Madhya Pradesh

Ha

	District	Dugwells	Shallow Tubewells	Deep Tubewells	Surface Flow Schemes	Surface Lift Schemes	Total
1.	Chhatarpur	96760	455	286	5533	11524	114558
2.	Damoh	17878	8074	747	9057	22531	58287
3.	Datia	50263	—	—	14	50	50327
4.	Guna	42166	11666	2635	4201	22962	83630
5.	Panna	11289	596	340	10518	15061	37804
6.	Raisen	26749	28753	880	2687	23493	82562
7.	Sagar	52117	4014	601	3293	29389	89414
8.	Satna	72031	13190	9939	4401	17426	116987
9.	Tikamgarh	114763	2355	1910	3760	5400	128188
10.	Vidisha	24714	14370	650	1783	155762	197279
	Total	**508730**	**83473**	**17988**	**45247**	**303598**	**959036**

Source Report on Census of Minor Irrigation Scheme 1993-94, Ministry of Water Resources, Govt of India, 2001, Vol II-VI

Net sown area and Irrigated area in Madhya Pradesh 1993-94

Ha

SN	District	Net Area Sown	M & M Schemes	Groundwater	Others	Total (C+D+E)	F as % of B
	A	B	C	D	E	**F**	**G**
1.	Chhatarpur	355071	1655	52265	24096	**78016**	**21.97**
2.	Damoh	295214	1562	15220	34726	**51508**	**17.45**
3.	Datia	131203	1775	18271	6684	**26730**	**20.37**
4.	Guna	569419	5042	27669	33234	**65945**	**11.58**
5.	Panna	233234	804	6619	24348	**31771**	**13.62**
6.	Raisen	414234	41570	27938	23723	**93231**	**22.51**
7.	Sagar	531981	4122	24645	35492	**64259**	**12.08**
8.	Satna	352085	1414	30262	22665	**54341**	**15.43**
9.	Tikamgarh	243365	2440	54736	15730	**72906**	**29.96**
10.	Vidisha	496078	26936	21468	36264	**84668**	**17.07**
	Total	**3621884**	**87320**	**279093**	**256962**	**623375**	**17.21**

Source Report on Census of Minor Irrigation Scheme 1993-94, Ministry of Water Resources, Govt of India, 2001, Vol: VI

UTTAR PRADESH

Ha

	District	Dugwells	Shallow Tubewells	Deep Tubewells	Surface Flow Schemes	Surface Lift Schemes	Total
1.	Banda	27431	32238	22790	228	1947	84634
2.	Hamirpur	5809	31559	5459	—	21	42848
3.	Jalaun	8908	16681	22609	197	936	49331
4.	Jhanshi	95278	8483	220	98	311	104390
5.	Lalitpur	48337	721	—	—	—	49058*
6.	Mahoba	31438	518	—	—	—	31956
	Total	**217201**	**90200**	**51078**	**523**	**3215**	**362217**

Source Report on Census of Minor Irrigation Scheme 1993-4, Ministry of Water Resources, Govt of India, 2001, Vol II-VI
Note In 1996, the Minor irrigated area Lalitpur had gone upto 71077 Ha, according to Progress Report of Minor Irrigation Programme (Jhanshi Division) Oct. 1996.

Net sown area and Irrigated area in Uttar Pradesh 1993-94

Ha

	District	Net Area Sown	M & M Schemes	Groundwater	Others	Total (C+D+E)	F as % of B
	A	B	C	D	E	**F**	**G**
1	Banda	521964	6428	3253	114326	**124007**	**23.76**
2	Hamirpur	310885	29564	43909	20787	**94260**	**30.32**
3	Jalaun	336104	110468	37578	7359	**155405**	**46.24**
4	Jhanshi	292360	50482	52852	47173	**150507**	**51.48**
5	Lalitpur	219004	37099	49067	0	**86166**	**39.34**
6	Mahoba	191746	1569	670	58811	**61050**	**31.84**
	Total	1872063	235610	187329	248456	**671395**	**35.86**

Source Report on Census of Minor Irrigation Scheme 1993-94, Ministry of Water Resources, Govt of India, 2001, Vol: VI

Note The Net sown area figure for Lalitpur has been taken from Sankhyikiya Patrika, State Planning Inst UP, 1994 for Lalitpur for the year 1991-2 as the figure given in Minor irrigation Census (39095 Ha, which was less than the total irrigated area in the above table) was apparently wrong.

References:

1. Agro Economic, Socio Economic and Environmental Survey of six link projects by NCAER
2. Large Dams in India, CBIP, New Delhi, 1987
3. Storages in River Basins of India, CWC, New Delhi, 1987
4. Register of Water Resources Projects in India, CBIP, New Delhi, 1979
5. Problems and Potentials of Bundelkhand with special reference to Water Resource Base, CRDT, IIT, Delhi, 1998
6. Uttar Pradesh Jal Vidyut Nigam Ltd's Website
7. Irrigation Department, Uttar Pradesh
8. http://upgov.up.nic.in/irrigation/dp.htm

STOP PRESS: Agreement on Parvati Kalisindh Link between Rajasthan MP We have just learnt, as we prepare this issue, that on Dec 25 2003, the newly elected CMs of Madhya Pradesh and Rajasthan are to sign an agreement for the linking on Parvati and Kalisindh rivers in presence of the Task Force Chairman Shri Suresh Prabhu. The preparation of Detailed Project Report of this link, though is yet to start. It is proposed that the water from Kalisidh and Parbati rivers will be transferred to Rana Pratap Sagar in Chambal basin. While Rajasthan and Madhya Pradesh are to share the benefits, it is not clear how the agreement has been arrived at when there are outstanding issues between the two states in that very basin, see for example in this issue of DRP under Inter State Disputes.

Indian River-linking Project in Watershed Context

There has been much talk and discussion over the last several months in the news media in Bangladesh, India, and Nepal about the proposed Indian river-linking project. This is the largest trans-boundary and inter-basin water control project ever. The proposed plan has been a subject to much criticism on technical and socio-political grounds. For details, readers are referred to the following articles on the issue: (1) Prema Prakash, "Inter-linking India: Points and Counter Points" (http://www.ircc.iitb.ac.in/~webadm/update/August03/interlinking4.html); (2) Manas Dasgupta, "Experts raise doubts about river-linking project" (http://www.isid.ac.in/~som/); (3) Professor Narayan Sharma "Linking or losing" (http://www.mail-archive.com/assam@pikespeak.uccs.edu/msg05956/Linking_and_losing.doc), (4) Jyotsna Singh, "India: River Plans Spark Furore" (http://www.corpwatch.org/news/PND.jsp?articleid=8113), (5) A.B. Thapa, "Indian Water Grid and South Asian Waterways" (NepalNews.com, Feb 21-27, 03), (6) Rajendra Dahal, "South Asian mega project sparks quarrels" (NepalNet, PANOS, South Asia), (7) Shaikh Azizur Rahman, "India presses ahead with river diversion" (THE WASHINGTON TIMES, 20 Sept 03), (8). P.R.V. Raja, "Inter-linking of Rivers" (The Hindu, Sept 29, 03), (9)Kazi Kholiquzzaman Ahmed,"Indian grand scheme of interlinking rivers: Bangladesh perspective (The Daily Star, Sept 22, 03).

River basins or watersheds are the natural boundaries that cut across the political boundaries. Land-use practices in a watershed or river basin affect the quantity and quality of water and the environment downstream. The US Geological Survey has adopted a slogan that reads "we all live downstream." Watersheds are recognized as viable units for managing water resources. In order to protect the quality of water resources and well being of people living in a basin, it is imperative that care be taken in planning all developmental activities and land-use practices within a basin.

Bangladesh, India, Nepal, Bhutan, and China are integral parts of G-B-M basin, and each of these countries should be considered a stakeholder in water resources development plans in the basin. All water resources development plans should take into account the possible environmental degradation that may result from proposed land-use practices on the quality and quantity of water in a downstream region of the basin. According Asit K. Biswas, Juha I. Uitto and Mikiyasu Nakayama of the International Water Resources Association, "increasing population and accelerating economic development activities in the basin of the Ganges and the Brahmaputra river system have now made the sustainable water management of the region even more critical than in the past." The proposed Indian river-linking project is likely to affect the economy and the environment of other stakeholders in the basin, namely people of Bangladesh, Bhutan, Nepal and India.

Bangladesh is located at the receiving end of the Ganges-Brahmaputra-Meghna basin or watershed. Only 10% of the total area of the country falls within the lower end of the basin. Most of Bangladesh comprises alluvial plain, flood plain, and delta plain, which are formed by deposition of sediments carried by the rivers draining it. Any diversion of water in the upper reaches of the basin will reduce the sediment supply to Bangladesh, which in turn is likely to have adverse impact on the growth and sustainability of the delta plain in Bangladesh. The Brahmaputra carries more than half of annual influx of water and sediments to Bangladesh. The reduction of water and sediment supply caused by upstream diversion is likely to have adverse consequences on ecosystem of the Sundarbans (a world heritage site), salinity intrusion in coastal rivers, sedimentation rates on flood plain and delta plain, waterways, irrigation, groundwater recharge, industrial uptake of fresh water from rivers, and fisheries in Bangladesh.

In sharing waters in all common rivers the Ganges Water Sharing Treaty of 1996 can serve as a starting point. The Treaty states, "both Govts agree to conclude water sharing Treaties/Agreements with regard to other common rivers". The expression "other common rivers" includes not only Brahmaputra but also other common rivers that flow through Bangladesh from India. According to Article 9 of the Treaty, both countries are obligated to conclude water-sharing agreements of all common rivers. India is supposed to inform of any project or plan taken in the upper reaches that have potential to adversely impact the environment and economy of Bangladesh.

The Govt. of India insists that the proposal is in its infancy, and refuses to discuss details of the proposal with the stakeholders in Bangladesh and other basin countries. India prefers to deal with water resources basin on a bi-lateral basis, and have signed several bilateral treaties with Nepal, Bangladesh, Bhutan, and China (http://wrmin.nic.in). Eeven if the proposal was in its infancy, the Govt. of India is obligated by the Ganges Water Sharing Treaty of 1996 signed between India and Bangladesh to discuss such a plan with Bangladesh and other co-riparian countries.

To better understand the background of the proposal we can take a close look at the chronology of events associated with this plan. Some proponents of the Indian river-linking proposal (for example, Dr. Pingle, Chairman, Public Policy Area, Administrative Staff College of India and Dr. S. Kalyanaraman are among such proponents) argue that the proposal to create a

network of rivers and canals was made in meticulous detail way back in 1881, by Arthur Cotton during the British rule and that the Indian Govt. is just going back to the original idea with a few modifications. However, what they don't mention is the fact that Arthur Cotton's idea was rejected by the then govt and by water resources specialists on scientific and technical merits. They also overlook the fact that the British Govt. ruled India for additional 66 years after the submission of Cotton's proposal, but the authority did not take any initiatives to implement the proposal. It is worthwhile to mention that, our understanding of the hydrodynamic processes and the intricate nature of ecosystems supported by rivers, which would be affected by implementation of such a project is much different than that of Arthur Cotton back in the 19th century. Therefore, this argument does not hold much water.

A note on the National Water Grid was earlier prepared by the then Central Water & Power Commission (around 1972) of India, and three possible alignments for the Ganga-Cauvery link along with other links were brought out. Further studies were made by Dr. K.L. Rao who advocated one of the alignments for the Ganga-Cauvery link along with a few other links including the Brahmaputra and Ganga Link to transfer 1800 to 3000 cumec (cubic meters per second) with a lift of 12 to 15 m (http://wrmin.nic.in/interbasin/default8.htm. These amounts correspond to 63,558 cfs and 105,930 cfs (cubic feet per second). According to a study done by William Renwick Roy Richardon in 1997, the average flow in the Brahmaputra in Jan-April during 1965-1989 was 176,550 cfs (http://www.geog.nottingham.ac.uk/~thorne/roy-richardson/chapter2.htm). Based on these calculations, it appears that not much water will be left in Brahmaputra after Indian proposed withdrawal during the dry months. According to the current proposal, India wants to divert 173 BCM (billion cubic meters) per year through the river-linking project. If the water is diverted at a constant rate throughout the year then this amount equals to an average rate of 193,703 cubic feet per second. The details of the diversion plan with regard to the daily/monthly rates of withdrawal, the means and timing of withdrawal are not known. The Govt. of India needs to publish a report outlining the plan for public viewing and comments. If the majority of the diverted water has to come from the Brahmaputra during the lean period then a very little water will be left in the river for downstream consumption.

The original Indian proposal from 1980s included construction of a 209-mile long link canal through Bangladesh to connect the Brahmaputra and the Ganges. Since India and Bangladesh could not agree on its implementation, the Govt. of India has modified the proposal. The recent revised proposal shows the position of this link canal through the "goose neck" of India (i.e. connecting Assam and West Bengal).

The list of proposed water transfer links (a total of 31 links) includes the following links that of Interest to Bangladesh: Brahmaputra - Ganga (Alternative - I), Brahmaputa - Ganga (Alternative - II), Brahmaputa - Ganga (Alternative - III), Farakka - Sunderbans, Farakka (http://wrmin.nic.in). Details about these links are not publicly available.

The most important question that needs to be addressed is whether or not there is any "surplus" or "unused" water in Brahmaputra River. The concept of "surplus" or "unused" water is an ironic one. The water that flows in Ganges-Brahmaputra-Meghna (G-B-M) basin is the reason why there exists the deltaic country called Bangladesh to start with. The sediments laid down by these rivers built the delta over millions of years that we call Bangladesh today. Rivers support a very complex ecosystem, including the Sunderbans. Any diversion of water also means proportional diversion of sediments. Any lack of sediment flux to the delta and coastal plains is likely to accelerate drowning of the coastal region in the face of rising sea-level.

According to a report by the BBC, a feasibility study is scheduled for completion in 2005. Indian Prime Minister Atal Behari Vajpayee is very keen to pursue the project. In his Independence Day address this year, Mr Vajpayee said the scheme would "free India from the curse of floods and droughts". He promised that work on it would start by the end of the year.

It appears that the Govt. of India is relentlessly working on the targeted completion by the year 2016. In the context of the historic developments, it is important that the concerned citizens, environmentalists, and scientists of Bangladesh, Bhutan, India, and Nepal work together as partners living in the same G-B-M basin to stop further attempts by anyone to unilaterally decide on a project which will affect the quality of life of millions of people living in the G-B-M basin, as well as the quality of the environment in the basin.

The people of Bangladesh, Bhutan, India, and Nepal living in the Ganges-Brahmaputra-Meghna basin share common history, heritage, and friendship that go back to the time immemorial. India as the largest country in the basin has the responsibility to protect the interests of her own people, as well as the interests of all her neighbors. The Govt. of India should take initiatives to develop an integrated water resources development plan based on the principles of equity and respect of her neighbors, which in turn will strengthen the regional stability, security, peace, and prosperity.

Md. Khalequzzaman, Ph.D., Dept. of Geology & Physics, Lock Haven Univ., USA, mkhalequ@lhup.edu

RIVER LINK NEWS

HOW OPPOSITION IS MOUNTING

Kerala against the Pamba-Achankoil project

The Kerala CM reiterated state's opposition to the Centre's riverlinking project, which includes the Pamba-Achankoil-Vaipar link scheme. He pointed out that Kerala enjoyed full rights over the three west flowing rivers, as they were parts of its geographical area. If this project was implemented, thousands of acres of forestland would be submerged, besides, rendering the Central Travancore belt, including Kottayam, Alapuzha and Pathanamthitta dists, prone to the droughts. It would also lead to fall in a groundwater levels. He pointed that the project would hit 12 drinking water projects on these rivers.

- The Kerala Assembly passed a unanimous resolution on Aug 6, urging the Centre to drop the project to link the Pamba and Achankoil rivers to the Vaipar basin in Tamil Nadu. The resolution strongly condemned the NWDA for going ahead with the "biased proposal" that would adversely affect the interests of Kerala. Moving the motion Water Resources minister said, "NWDA is merely an agency under the Union Govt and it can not impose any decision on the state". CM said that the state would take legal measures to protect its water resources. (THE HINDU 060703, THE NEW INDIAN EXPRESS 070803)

Assam Panel on river linking Minister of Water Resources of Assam said in the Assembly on Aug 5 that the govt had constituted a high power committee comprising experts to go into all aspects of river-linking scheme. (BUISNESS STANDARD 060803)

AP: TRS opposes River Link Proposals

Telangana Rashtra Samiti president expressed surprise over CM's green signal for interlinking of rivers in the state. He said the CM approved it at the cost of Telangana. In fact, NWDA in its report had said that interlinking of rivers would not be beneficial to states like AP. The TRS chief accused the state govt of giving a green signal as a part of conspiracy to divert Godavari waters to Andhra region, and to get sanction for Polavaram project. After the interlinking of rivers, the Telangana region would get 37 TMC of water from Godavari, the remaining 600 TMC would be diverted to Andhra region and 400 TMC to cauvery basin, he explained.

- **Shashidhar opposes Naidu's remarks** Former Minister and chairman of Forum for Utilisation of Godavari Waters, M Shashidhar Reddy termed as "highly irresponsible" AP CM's recent request to the Centre asking it to launch interlinking of Ganga-Cauvery rivers from AP. "The request without having any project details smacks of political opportunism on the part of the CM. It was yet another statement made by the CM with an eye on elections," Reddy said. The govt cannot allow it to be done clandestinely nor can it be left to the dictates of the NWDA, he added. (NEWSTIME 230803, DECCAN CHRONICLE 190803)

Bangladesh fears over river linking The Bangladesh Govt fears that Indian plans to divert water from major rivers, including the Ganges and Brahmaputra, threatens the livelihoods of more than 100 M people downstream in Bangladesh. The ministers of Bangladesh are so concerned that they are considering appealing to the UN to redraft International Law on water sharing. Bangladesh scientists estimated that even a 10 - 20% reduction in the water flow to the country could dry out great areas for most of the year. More than 80% of Bangladesh's 20 M small farmers grow rice and depend on water that has flowed through India. The Water Resources Minister of the Bangladesh claimed, "the north of Bangladesh is already drying out after the Ganges was dammed by India in 1976. Although the Indian and Bangladesh Govts have a water sharing agreement for the Ganges, there are none for the other 53 rivers that cross the border.

- **Dhaka to move world forum if ignored** Bangladesh has decided to approach international forums if India ignores Bangladesh's concern about the interlinking of rivers project. "Bangladesh will make every effort to settle the issue bilaterally. If these efforts fail, we will consider international measures, the Water Resources Minister of Bangladesh said. We will also ask International Financial Institutions, Funding Agencies and International Community to create pressure on India. Bangladesh has already lodged an official protest by summoning the Acting High Commissioner, to the Ministry of Foreign Affairs and handing over a note of protest. (NEWSTIME 040803, THE HINDU & *RASHTRIYA SAHARA* 180803)

Wild life experts stress proper assessment Participants at the workshop on "Wildlife conservation in India-Chalanges and initiatives" said that adequate attention should be paid in choosing the agency conducting the assessment. The workshop was organised by MoEF and Salim Ali Centre for Ornithology and Natural History. The EIA on the proposed project to interlink rivers should be done by competent, independent and technically qualified institutions, the workshop emphasised. It was recommended that the EIA of all future projects should be peer reviewed prior to the consideration by the MoEF. The evaluation of habitat should be based on extensive observation, at least one year, covering all the seasons. The assessment should be made public and the views of the people should be solicited on it, the workshop stressed. (THE HINDU 030703)

River Linking increases the water crisis

Brussels, Belgium, May 2003 - Big volume water transfers worsen social, economic, and environmental problems instead of solving them. This is the result of a new WWF study, presented by WWF and the European Environmental Bureau (EEB) with its Spanish Member organization, Ecologistas in Accion.

The study, Tagus Segura - Lessons from the Past, examines the disastrous ecological, social, and economic consequences of the Tagus-Segura Transfer (TST) in Spain. The results come at a crucial time, when the European Commission is deciding on 7.5 billion Euro funding for the Spanish National Hydrological Plan (SNHP), which is based on the same water transfer model.

"The Tagus-Segura water transfer has created a huge burden for this and coming generations. It has increased the thirst for more and more water, while water resources are limited and continue to decrease," says Stefan Scheuer from EEB. "Instead, the EU water policy requires that water demands be managed and water transfers like the Tagus-Segura not be repeated."

All these problems result in a spiral of unsustainability, and the new Ebro transfer is planned to hide the problems. "The fiasco of the former Tagus-Segura water transfer will be repeated on an ever-increasing scale if the Spanish Ebro water transfer is pushed forward by the Spanish government," says Guido Schmidt, Freshwater Officer from WWF-Spain. "The Ebro water transfer goes against sustainable development, modern water and river basin management, and environmental protection, all concepts dear to the European Union."

The Tagus-Segura Transfer from the Iberian System in Central Spain to the Mediterranean Levante Zone is a well-studied water transfer. It has been operating since 1979, and has caused severe impacts in both river basins, including:

- Increasing water deficit: The water demand in the receiving basin has been doubled in 24 years by 500 million m" due to the increase of irrigation and tourism demands.
- Habitat destruction and promotion of unsustainable agriculture: The increase of irrigated land and tourist activities has led to the destruction of thousands of hectares of protected natural areas.
- Black water market and illegal water uses: Water uses are partially uncontrolled. More than 100 million m3 of transferred water simply 'disappears' to supply illegal tourist resorts and golf courses.
- Water overexploitation in the Tagus donor basin and, as a consequence, chemical contamination and the deterioration of the river ecosystem. Even in normal summers, the river has stopped any water flow in some sections, let alone critical periods of drought. The legal minimum flow of 6m3/s is not respected.
- Increased social imbalance as the benefits of the transfer are mainly directed towards big agro-business and construction companies, marginalizing traditional farmers. Additionally, illegal immigration and exploitation of immigrants are increasing with about 30 er cent illegal labour - the highest levels in Spain.

WWF and EEB urge the Spanish government to apply a different, modern, and world-wide successfully applied alternative to large scale water transfers: demand management, which is based on resource conservation by lowering demands, increasing efficiency of istribution and use, and reuse of waste water. The EU must stop funding water transfers where alternatives exist or have not been evaluated properly. European taxpayers' money must not be wasted for a repetition of the mistakes of the past.

(www.rivernet.org)

Task Force has no idea what transparency means?

The various members, including the chairman of the Task Force on Interlinking of rivers have been talking about various values and norms that they swear by. Transparency is one of the norms for which media have praised Suresh Prabhu, chairman on the task force, in the past. However, recently when Task Force was attempting to form a Standing Committee on NGOs, one of the members they invited insisted on inclusion of basic definition of transparency and options assessment in the Terms of Reference of the Standing Committee. The Task Force member replied to the NGO that on the issue of transparency, “As to how best this could be achieved can be taken up in the Standing Committee where the suggestions made by you as also the other members could be considered. The Committee’s recommendations could than be considered by the Task Force for ensuring effective transparency in the implementation of the ILR Programme.” This can either mean that the Task Force has no idea what transparency means or that they do not believe in transparency. What the concerned NGO was suggesting was bare minimum level of transparency by making public all the studies done on river linking so far. On the issue of Options Assessment, to the NGO’s request that the Terms of Reference of the standing committee should include a norm that no river link shall be undertaken until proved to be the least cost among the options available before the society and in a credible & open way, the Task Force chose not to respond!

DAMS

Abandon Big Dams: HP Ecologists

In the backdrop of the natural calamity occurred at Shilagarh area of Kullu dist in HP on July 18, experts of Kangra and Chamba have emphasised the need to discourage construction of big dams in the state to avoid recurrence of such disasters. Experts advocated that the govt instead of going for big dams in the state should go for Chinese model of producing hydro generation through mini and micro HEPs, which are economically viable and eco-friendly. An expert, Ajit Kumar asserted that the global warming was leading to melting of century old glaciers in sub-Himalayan mountains, which were resulting in disturbing the ecology and hence the reoccurrence of disasters like flash floods and cloud bursts. Another expert Kulbhushan Upmanyu stated that mindless deforestation, unscientific mining, global warming and big dams were the attributive factors for the disasters like cloudbursts. (THE INDIAN EXPRESS 190703)

Kerala Law to decommission unsafe Dams

The Kerala assembly has enacted a legislation, reserving the state's right to decommission a dam, if found unsafe, by draining out the water stored in the reservoir. The new law enjoins that any water agreement in future could be signed or renewed only through a resolution adopted by the assembly. It envisages setting up of a Dam Safety Authority chaired by a retired High Court judge with powers to act when the safety of a dam is under threat. "In this legislation, we have gone to the maximum constitutionally sustainable extent to protect the interests of the state. We can not revoke the existing agreements but, in the case of Mullaperiyar, where the question of safety arises, we shall consider the possibility of a special legislation later", said the Minister for Water Resources. While the law speaks for managing water resources with participation of farmers, it makes all river, lake and canal waters the property of the govt. Unauthorised exploitation of waters, polluting water bodies, changing the course of flow and mining sand from riverbed in specifically banned areas will invite the penal provisions of the Act.

- 'The Kerala Irrigation and Water Conservation Act 2003' passed by the State legislature empowers the State Govt to decommission a dam. This Act provides for constitution of a Dam Safety Authority, which is to be headed by a retired Judge of the High Court. Other members of the Dam Safety Authority will be eminent specialist in the field, officers from the various State Govt Depts and Chief Engineer, Central Water Commission, Govt of India. Relevant provisions of this Act regarding decommissioning of dam are as under: 62(e) to advise Govt to suspend the functioning of any dam if the public safety so demands; 62(f) to examine the precariousness of any dam, in public interest and to submit its recommendations including decommissioning of dam to the Govt; and 62(5) the disbanding, construction or reconstruction of any dam shall be made only after obtaining a report in that regard from the Authority. (THE HINDU 150803, PIB 231203)

Austria Likely to fund Polavaram project The AP govt's interest in the long-forgotten Polavaram project has been revived with the Austrian govt expressing its willingness to fund Rs 80 B project. Interestingly, one of the components of the project is linking Goadvari with Krishna, a proposal that was reiterated by AP CM recently. The state wants the reservoir to have a gross capacity of 194.6 tmcft, irrigate 0.291 M Ha and generate 720 MW of power. The ayacut will be in Krishna, East and West Godavari and Visakhapatnam dists. The project provides for supply of 80 tmcft of water through Polavaram's right canal to Budameru in Vijaywada, which opens into Krishna river upstream of Prakasam barage. Though it has hydrological clearance, the problem will be that of submergence of as many as 250 villages of which 233 are in AP, 10 in MP and 7 in Orissa. Besides, the state will have to secure the forest and environmental clearances. (THE NEW INDIAN EXPRESS 200803)

Plan to build Dam on Ghaggar The irrigation Dept, Haryana has forwarded a proposal to the state govt for constructing a dam on Ghaggar at an estimated cost of Rs 720 M near Diwanwala village. It was earlier proposed to construct an artificial lake in Panchkula, on the lines of Sukhna Lake in Chandigarh, and HUDA and officials of Irrigation dept conducted several surveys along the river Ghaggar to identify the site. However, the Irrigation dept decided to embolden the project by constructing a dam so as to encourage tourism by including watersports, providing fishing sites, recharging the groundwater and providing drinking water to Kalka, Pinjore, Chandimandir Cant and Panchkula. (THE TRIBUNE 080803)

Delhi: 14th century Dam gives way A dam and linked structure built by Ferozshah Tughlaq in Mahipalpur, South West Delhi may soon pass into history. The incessant downpour on July 9 - 10 led to a breach in the bundh along eastern periphery of Mahilpalpur. "While the encroachment has led to the filling up of *johar* in our village, the Delhi govt has so far turned a deaf ear to our pleas to protect one of the oldest water management structures in the Capital," say Mahipalpur Gram Seva Samiti members. When the DDA proposed a housing scheme in the area, the govt didn't oppose it, despite an appeal by 600 families from Mahipalpur citing damage to the water system due to unplanned construction. (THE INDIAN EXPRESS 150703)

HYDRO PROJECTS

CEA clearance for Tipaimukh The CEA has accorded techno-economic clearance to the 1500 MW Tipaimukh Dam Project on the river Barak in Manipur / Mizoram at an estimated cost of Rs 51.64 B. The project is yet to get clearance from PIB, MoEF and CCEA. In 1995, Manipur assembly had voted that they did not need the dam. It was reviewed only four months back and NEEPCO signed an agreement with the Manipur and Mizoram govts. It will displace over 1000 families and submerge nearly 27000 Ha of forest. Action Committee on Tipaimukh has petitioned the PM and President of India on a number of occasions. Their main argument is that it will submerge a "genetic hotspot" and uproot indigenous communities specially Zeliangrong and Hmar adivasis from Churachandrapur & Tamenglong dists where the reservoir is to be situated.

- The Committee Against Tipaimukh Dam will strongly oppose any move by the Govt to lay the foundation stone for the Tipaimukh Dam, the CATD convenor said on Sept 3. CATD convened a meeting on Sept 5 and worked out strategies to oppose the proposed stone laying function. Any move by govt to forcibly lay foundation stone will only invite trouble from people, she said.
- **Bangladesh Concerns** Experts have expressed their apprehensions about the project that is likely to block the flow of the Bangladesh's major riverine network in Northeast and have further consequences downstream. The Meghna and its distributaries in Bangladesh that serve as lifelines to Haor areas of Sylhet and further downstream brace for an uncertain hydrological future. They claim that it could hit the country fatally, and in no less a magnitude than the Farakka Barrage. "After completion of the project, we would get less water in three rivers — Meghna, Surma and Kushiara," Quamrul Islam Siddiqui, chairman of the Global Water Partnership, Bangladesh, said. Bangladesh and India have been at loggerheads over water sharing since 1974, when India completed the Farakka Barrage. Bangladesh blames the barrage for dried-up fields, diseases and the salt poisoning of the vast Sundarban mangrove swamps in the Ganges delta. "The Indian govt has not informed Bangladesh about the project," said Minister for Water Resources. "The govt can attempt to find out how the project would operate during the rainy and dry seasons and negotiate to ensure the flow of the rivers," Dr Ainun Nishat, country director of IUCN Bangladesh, said. (INDIAN EXPRESS 040703, 120703, POKHNAPHAM 040903, THE NATION 160703, NEW AGE 040803)

Kali HEP abandoned? The proposal to build a seventh dam across river Kali in the ecologically fragile Uttara Kannada dist had to be abandoned as the Dy Commissioner of Uttara Kannada rejected the proposal on the basis of a Public Hearing held in Jan 2001. (DECCAN HERALD 260903, DTE 311003 P. 17)

HP MoUs to be reviewed The CM of Himachal Pradesh said that his govt had constituted a high powered committee to review all MoUs on HEPs with a view to provide employment to local people in all ongoing projects. (THE TRIBUNE 150703)

Chamera Reassessment of R&R The HP govt has decided to reassess the relief package to the ousted families of the Chamera I & II in Chamba district and conduct a probe in to the irregularities committed in preparing the lists of the affected families. The Education minister alleged that earlier when the relief committee prepared the lists of the ousted families, no transparency was observed and the claims and objections of the ousted families were not heeded properly. She said that among the already identified lists, 192 families of Chamera I and 120 families of Chamera II had not been enrolled previously. The high-powered committee had recommended Rs 0.3 M each to 192 oustees of the Chamera I in two installments and Rs 0.25 M each to 120 oustees of the Chamera II in Karian village in one installment.

- **Deaths at Dam** Two labourers were buried alive and two others were seriously wounded in a landslide at Chaura on the bank of Chamera reservoir in Chamba dist on Aug 01. (THE TRIBUNE 090703, 200703, 020803)

Chamera II CAT fraud and debris in river The Himalaya Bachao Samiti has expressed concern over a continuing thrust on raising pine plantations and urged the Forest Dept to change its afforestation policy to achieve the twin objectives of soil and water conservation. The samiti drew attention to the fact that monoculture of pine was causing irreparable damage to the environment. The pine forests were neither useful for the local population nor served the purpose of maintaining biodiversity. Samiti urged the minister to review the Catchment Area Treatment plan for the Chamera-II HEP of NHPC where the allotted funds had allegedly not been properly utilised and the debris was being dumped within the flood zone of the Ravi. This would spell doom for habitations downstream and silt up the reservoir of Chamera-I. (THE TRIBUNE 070803)

Uhl Proper R&R demanded Democratic Youth Federation and the Kisan Sabha has demanded proper rehabilitation of people affected by Uhl II HEP in the Jogindernagar area of Mandi dist. They also stressed on the employment for local youth in the project. They stated that the underground tunnel would affect a large population and would cause loss of groundwater, grasslands. (THE TRIBUNE, *AMAR UJALA* 270703)

Malana-II The HP govt is in docks again for assigning the Malna-II HEP in undue haste and signing the implementation agreement, setting aside all norms, just a day before the assembly election. The MoU for investigation and execution of the project was signed on May 27, 2002 with M/s Everest Power Company. It

was followed by a supplementary MoU to effect change in equity partnership signed on Oct 11, 2002. Normally it takes 1.5 - 2 years to carry out geological and geophysical surveys, collect hydrological data and other information to prepare the DPR. However, in this case even the implementation agreement was signed on January 14, 2003, i.e. on the eve of assembly poll. The pre-feasibility report had stated that a number of studies were to be carried out and full investigations could be completed in 18 months. Malana Power Company, which executed the 86 MW Malana-I project maintains that the upstream Malana-II is a tandem project and it has been allotted to a new company ignoring its claims. (THE TRIBUNE 050803)

Bhaironghati-II The Uttaranchal govt and the Canadian Commercial Corp has signed a "protocol indent". It envisages preparation of a feasibility report for development of Baharon Ghati II HEP and upgrading ongoing Chilla project. (THE HINDU 250703)

Tehri: Additional package for R&R The Centre will provide Rs 1.45 B additional package for the oustees of Tehri Dam, Union Power Ministry sources said. With this, the overall cost of rehabilitation package would be Rs 9.83 B. It stated that 5291 families from urban area and 5429 families from rural area would be affected by the Dam. While all the families from urban areas are claimed to have been rehabilitated, 1230 rural families are still to be given land and cash compensation. The Centre has agreed on the recommendation of state govt to grant Rs 1.45 B additional assistance. (*HINDUSTAN* 010803)

Baglihar The Indian Banks' Association has decided, in an unprecedented move, to provide a loan of Rs 10 B to the J&K govt on easy terms for 450 MW Rs 46 B Baglihar HEP. (THE TRIBUNE 290703)

NEWS FROM THE NARMADA VALLEY

Gujarat becoming a Police state After a controversial decision of raising height of Sardar Sarovar Dam from 95 m to 100 m (plus 3 m hump) in May 2003, water swirl around Domkhedi, Anjanwada, Bharad, Nimgavan, Mokhdi, Dhanale, Manibeli. The police assault those facing submergence destroying homes, forcibly evicting people and harassing activists. In July 2003, 74 people including women and children were arrested in Chimalkhedi village in Maharashtra for protesting displacement. The Maharashtra govt claims that it has resettled all PAFs at 100 m, which is untrue. 1500 families in Maharashtra and 1200 families in MP are yet to be rehabilitated at the 100 m level. On their way out of the Valley on Aug 9, the solidarity team of four persons - Dr Angana Chatterji, scholar-activist and Board Member of the IRN, Prof Richard Shapiro of the California Institute of Integral Studies, Meenakshi Ganguly, correspondent with Time Magazine, and Sanjay Kapoor, a cinematographer - were stopped by the police who had already taken custody of their car papers and threatened the driver who was parked there from the day before. (NBA PR 100803, IANS 100803, THE ASIAN AGE 200803)

Land for land rehabilitation stressed The Chairperson of National Commission for SC and ST, Vijay Sonakar Shastri stressed the land for land rehabilitation. After visiting Morkatta, Kadmal, Jalsindhi villages in submergence zone in Narmada valley, he lashed out at state govts for failure. He asked the govt. to acquire 10% of land from landowners and distribute it to oustees. (*SARVODAYA PRESS SERVICE* 180903)

Maharashtra Nutritional crisis in R&R sites Grave nutritional crisis engulfed the displaced families living at various R&R sites in Nandurbar dist in Maharashtra. The claims of excellent rehabilitation fall flat with reports of malnutrition deaths of 15 babies (between the ages of 29 days and 4 years) in Aug 03. 33 more were reported to be on the verge of meeting a similar fate without help in sight. Last year, the Health Minister had visited Dhadgaon and Molgi after media reported malnutrition deaths only to declare that the deaths were not due to malnutrition and give the Health dept a clean chit. A number of health related programmes were started with the help of the WB, UNICEF, UNFPA etc. But ground situation showed no sign of improvement. In Narmadanagar, the Medical Officer has not paid a visit in last 4 - 5 months and the PHC continues to be in a temporary structure. The govt has not paid the electricity bills resulting in electricity cut off for 3 months now. (NBA PR 110903, DOWN TO EARTH 311003 p 15)

WATER POLICY

Orissa Water Policy Activists and farmer bodies are appalled at the proposed new water policy, envisaging privatisation of water. In its draft policy, the govt has proposed allowing private parties to build, own, operate, lease and transfer water resources. "If this policy is allowed, it spells disaster for millions of impoverished tribals and farmers as well as urban dwellers," said Jagdish Pradhan, president Paschima Orissa Krushijibi Sangha. Once companies gain control of rural water, they would charge arbitrary tariffs for irrigation and villagers would be forced to pay for even drawing drinking water, activists said. (IANS 090703)

MP water policy The govt of MP has accorded clearance to the state water policy. The policy includes water harvesting, river-linking and water conservation with help from people's participation. An action plan was also prepared to implement the policy. The council of Ministers has cleared the action plan. In the water policy, ground water development, drinking water and quality control, rationalisation of water tariff, participation in water management, non-governmental institutional participation etc would be included. (*RASHTRIYA SAHARA 100803)*

WATER TARIFF

Uttar Pradesh UP govt has asked water supply agencies to increase water tariff. Though the new rates are yet to be decided for Kanpur, Agra, Varanasi, Lucknow, Jhansi and Chitrakut, the new rates are likely to see 500% increase. (*RASHTRIYA SAHARA* 100703)

Shimla Municipal corp has increased the water charges for the second time during the past one year. The House, which met in the wake up of the High Court directions to take immediate steps to ensure adequate supply of water to the residents at reasonable rates approved substantial increase in tariff for all categories of consumers. (THE TRIBUNE 170703)

Punjab Though the state Govt enhanced the user charges for drinking water and sewerage about three months ago, nearly 90% of the municipal bodies including those of Ludhiana and Patiala were not able to implement the govt order by July. Only 15 Municipal committees and three municipal corps had enhanced the user charges by then. In fact most of the bodies were of the view that they have autonomous status and the govt had no business to interfere in their affairs by issuing instructions such as enhancement of user charges etc. (THE TRIBUNE 180703)

Nangal Retirees protest hike in water charges Hundreds of retirees of Nangal held protest in front of council office on Aug 11, against hike in sewerage and water charges. They alleged that most of them had a meager source of income and reducing interest rates had further reduced their income and govt was putting unnecessary burden on them by arbitrarily increasing the water charges. (THE TRIBUNE 120803)

WATER PRIVATISATION

Suez-Degremont Campaign against commodification of water was kicked off by targeting Suez-Degremont, who is laying the pipeline for the Sonia Vihar Water Treatment Plant in Delhi. Suez-Degremont is currently laying a 3.2 m diameter pipeline to divert the water from Muradnagar in Ghaziabad district. Vandna Shiva said, "we are protesting against the conversion of common heritage into a corporate commodity by diverting 635 MLD of Ganga waters to Delhi. Right from the catchment area of the 'ecological lifeline of India' down to Varanasi, people were already being adversely affected, she said. She added that Suez would hike water tariffs in Delhi tenfold and "hijack the public investment in dams and canals to justify full cost recovery of the Rs 2 B investment". She said that the treatment plant should rather be used for recycling the Yamuna water. The campaign is backed by Ganga Bachao Abhiyan, Rashtriya Jal Biradari, Tehri Visthapit Mahila Morcha, Bharat Jagriti Nyas and Dehat Morcha. (THE TRIBUNE 110803, see Vandana Shiva's article *Killing the Ganga* THE HINDU 310803)

ISSUES ABOUT RIVERS

Aghanishini Fisherfolks fight mega port The fisher folk of Tadri in Karnataka's Uttara Kannada dist, on the banks of river Aghanashini, have launched a struggle to stop the construction of mega port in their area. The river Aghanashini gathers spirit as it rushes forcefully from the thick, steep forested hills to finally twist its way 32 villages to greet Arabian sea at Tadri, where it finally spreads out into a five kilometre wide estuary. Scientists have noted the bio-diversity of the estuary. Mangroves, whose saline plants are home to crab, fish, mussels and mudskipper, crowd the banks of the Aghanishini. There are numerous traditional shrimp farms, rice fields and isolated islands further upstream. The fisher folk know that if the mega port comes up, they will lose their precious oyster bed, the salt pans will fill up with filth, the traditional nets would find no use, and fishing and therefore life, would come to a standstill. (THE HINDU 020803)

Yamuna Floods pushed to Taj base UP ex-CM's plans for Taj Heritage Corridor proved out to be a monumental danger, with the rain-fed Yamuna river reclaiming large parts of its bed "reclaimed" by the project and endanger the plinth of the monument. With the river's girth having been reduced, the velocity of its flow has dramatically increased, putting pressure on the plinth of the Taj Mahal in addition to the Khan-I-Alam situated next to the Taj and the Mehtab Bagh, situated directly opposite the Taj. Pune based CWPRS has been asked to "assess the behaviour of the river and impact of reclamation of river bed on the monument" by MoEF committee, but the institute says it will take at least 4 months to arrive at any conclusion. The question at the heart of the restoration efforts is what will the 4 MCM of soil and the 28.8 Ha of the reclaimed Yamuna bed surrounding by five-feet high solid wall have on the Taj, especially during the monsoon months. A 1600 m long wall extends right from the Ram Bagh bridge near the Agra fort to the shamshan completely changing the trajectory of the river. Ministry of Water Resources, along with NBCC, one of the organisations under the Minisry is also in the eye of the storm around the scam. (THE TIMES OF INDIA 170803, THE INDIAN EXPRESS 240703)

POLLUTED RIVERS

Kali Bein People fight out pollution A year ago, Kali Bein in Kapurthala, the stream in which Guru Nanak took a dip, was a cesspool of filth. Today, its water is clear and flowers bloom on its banks. Almost 141 kms of 165 km long rivulet has been cleaned. This transformation was brought about by people's power, mobilised by inspiration of one man, Balbir Singh Sechewal. Experts estimate that the work would have cost the govt several millions. But Seechewal did it with voluntary donations and contribution Rs 0.525 M from the local MP. (THE INDIAN EXPRESS 170803)

Ravi The WWF has measured pollutant concentrations along 100 km long Hudiara drain, which starts from Gurdaspur dist and ultimately discharges into river Ravi in Pakistan. It has outlined a treatment scheme for improving water quality. (THE HINDU 100703)

Ropar Hazardous waste 5360 T hazardous waste, containing harmful chemicals and heavy metals is produced and dumped annually in Ropar dist in an unsafe manner, posing a serious threat. Most rivers in Punjab were polluted due to the discharge of untreated waste. The implementation of pollution laws is dismal and only two municipal councils, Nangal and Phillaur have sewage treatment plants. (THE TRIBUNE 070703)

Yet another Yamuna Action Plan Yet another Yamuna action plan has been put in place. This time, it has been designed with an outlay of Rs 6.24 B to minimise the pollution on the 22 km stretch spread across Delhi, Haryana and Uttar Pradesh. The CCEA has cleared the project and the largest chunk of the work will be in and around Delhi by pumping in funds worth Rs 3.87 B. Most of the funds will be utilised to set up a sewage treatment plant at Okhla with a capacity of 135 MLD. (THE HINDUSTAN TIMES 250703)

Kali River Kali, once the lifeline for people in Kariampally village near Dandeli in Uttra Kannada dist, threatens their very existence now. Farmers, who pumped Kali water for irrigation, saw that crop like brinjal, cabbage and groundnuts began to wilt and wither away. A villager alleged that the open well got contaminated due to pollution of Kali by effluents discharged from the nearby West Coast Paper Mills. A technical advisory committee of the KPCB has noted that the paper mill is not treating the effluents to the stipulated standards. (DECCAN HERALD 070803)

TERI study The Tata Energy Research Institute launched a sequel to an earlier study conducted by the organisation to mark the 56 year's of the country's independence. According to the report the per capita water availability in the country is likely to touch 750 cubic metres annually by 2047, which would be below the 'scarcity' level of 1000 cubic meters. At present the per capita water availability stands at just above the 'stress' level at 1700 cubic meters. The soil is increasingingly getting degraded, with salinity, waterlogging and erosion that affected 34% of the total land area in the country in 1947, rising to 58% in 1997. By 2047, nearly 80% of the country's land resources are likely to get degraded. As per the TERI's analysis, economic loss due to soil degradation was already as high as 11-26 % of the total agriculture production. Rivers are getting more and more polluted with 14% of the 45000 km riverine network having high pollution with biochemical oxygen demand in excess of 6 mg/ liter and another 19% moderately polluted with BOD 3-6 mg/liter. (BUSINESS LINE 150803)

LAKES, GLACIERS, WATERFALLS, WETLANDS

Loktak lake: Life in *phumdis* coming to a standstill
The *phumdis of Loktak Lake* are heterogeneous masses of soil, vegetation and organic matter in various stages of decomposition. They float on the lake, with about one-fifth of the surface above water, and four-fifth under. Local fishermen improvise on these naturally formed floating islands by securing them with ropes, bamboo and nylon nets, and make them into dwelling units. There are at least 700 families living permanently on small *phumdis* on the 230 sq kms Loktak, which is the largest freshwater lake in the northeast. Fishing is the only part that is easy in *phumdi* life. Everything else is hard to come by. From daybreak till late evening, come harsh sun, pelting rain or raging storm, the *phumdi* fishermen has to be out on the lake everyday, catch as much fish as the 'lake goddess' allows him, and reach it to the mainland to be taken to either Moirang, some 10 kms away, or to Imphal, 90 minutes by road. Some of them are continuously in debt because of high interest credit taken to buy equipment or even *phumdis.* Even the pitiful daily earnings are under threat due to Loktak Hydro Proejct of NHPC and over exploitation. As conservationists point out, the fishermen catch about 1250 T of fish from the lake annually. The sustainable yield, according to officials at Loktak Development Authority would be only 1102 T/ year. Old timers like Thoiba feel the lake can continue to be a source of sustenance even today. He remains optimistic saying that solution is to go back to the old ways when local communities used to manage the *phumdis*. Those days, they used to work out a common schedule every year where everyone helped in deepening channels leading out of the Loktak to freshwater streams. They would send islands that were over-decomposed down through the Khordak channel. This had to be stopped with the construction of Ithai barrage. "Movement has been restricted, the boatways remain choked. The decaying *phumdis* make the water unhygienic. If we can open the barrage periodically, all these problems will be resolved", he points out. (OUTLOOK 180803)

Punjab Losing on wetlands

Extinct Wetlands

Bhupinder Sagar	Patiala	1280 Ha
Chhangli Chhamb	Ferozepur	1000 Ha
Chhangli Tabo	Ferozepur	140 Ha
Chhamb Gurditiwala	Ferozepur	100 Ha
Sangeri	Mansa	41 Ha
Sharamkot	Gurdaspur	12 Ha
Gaunspur Chhamb	Hoshiarpur	100 Ha
Jandwal Chhamb,	Hoshiarpur	100 Ha
Rahon de Chhamb,	Jalandhar	300 Ha

A Punjab Agricultural University study states that since 1960s, wetlands in Punjab were drained and reclaimed for cultivation and urbanisation. Now only 11% of the natural wetlands remain. Whereas up to the 1950s, natural wetlands of Punjab covered about 60 000 Ha, forming 1.32% of state's total area, today the share has shrunk to 0.46%. The area under wetlands larger than 10 Ha is just about 15000 Ha. About 32 natural wetlands that existed in the early 1940s are now extinct because of their reclamation for cultivation or other purposes. A survey carried out by Kheti Virasat in 20 villages of Ropar reveals that only 21 ponds (0.8-1.6 Ha) exist whereas, earlier in just one village three to four ponds could be found. About seven of these are dry and 14 have dirty water.

- **Economic valuation** The Punjab State Council for Science and Technology is busy conducting economic valuation of eight significant wetlands of Punjab. Life support functions of each wetland will be examined with respect to its vital function in stabilization of climate and water table. Wetland biodiversity, with complete detail of flora and fauna found therein, wetland's role in socio-cultural aspects would also be studied. The idea is to highlight the benefits of wetlands to awaken the people to their conservation. In the ambit of this project, being funded by MoEF, are Harike wetland in Amritsar, Kanjili in Kapurthala and five other wetlands across Punjab, which have been declared as wetlands of state importance. (THE TRIBUNE 030803, 130803)

Sukhna zero silt plan Owing to the silting up of its bed, the Sukhna lake has been losing its capacity. The Chandigarh UT administration has been toying with one method after another, including the removal of silt through manual labour, mechanical dredging, wet dredging, silt extruders and raising of the crest on which the radial gates of the regulator rest by 2 ft. None of these methods has given the desired result so far. Now, a Haryana Irrigation expert S P Malhotra has come up with a plan to tackle the problem of silting in the Sukhna lake. His plan involves building a bundh near the entry point of the lake. The bundh will start from the right abutment and touch some high ground on the other bank so that inflow of water has no direct access to the lake. The cost of building the bundh and the filter house will be just about Rs 4 M which is much cheaper than a sum of Rs 20 M being mooted by the UT administration for setting up silt extruders at the lake. (THE TRIBUNE 060803)

Wular lake The J & K govt has formulated Rs 1.79 B integrated project for the restoration of Wular lake, the largest freshwater lake in Asia. The project envisages protection of the lake, correct land-use and flood control strategy, and proper sewage disposal. The Union MoEF declared it a wetland of national importance in 1986. In 1990, it was included in the Ramsar Convention. The crisis facing the lake is so deep rooted that no credible statistics are available about the area of the lake itself. Different figures are given about the elliptical lake, which is said to be 16 X 7.6 km. While the wetland directory published by the Union Govt puts the lake's area at 189 sq km, the Survey of India maps reduces it to 58.7 sq km. While at the highest flood level of 1579 m the lake area is 173 sq km, the revenue records suggests 130 sq km as the lake area, of which around 60 sq km are under agricultural use. Citing calculations based on satellite imagery, a senior official said, "the lake has shrunk from 202 sq kms to 65 sq kms of which 30 sq kms are witnessing massive vegetation and might go for eutrophication. Of the solidified lake, 35 sq kms stands encroached by the state govt alone." (BUISNESS STANDARD 120803, 200803)

Goa undertakes desilting The Goa CM has asked the Agriculture dept to undertake the desilting of the Waterbodies. An officer said that out of 150 waterbodies, 59 have been selected for the desilting work this year and in the next two years all the waterbodies would be desilted. About 750 waterbodies in the state are full of silt, some of which are hundreds of years old. (*RASHTRIYA SAHARA* 160703)

Delhi HC concerned over water bodies Delhi High Court ordered municipal authorities to take steps to improve condition of waterbodies. In East Delhi, of the 33 waterbodies, more than 20 have been encroached. Only the Sanjay Jheel and a waterbody in Shahdara had some water. The "Masterplan has never taken in to account the existence of these water sources. A survey committee appointed by HC had reported the existence of 508 waterbodies in the capital. The one in Kakradooma has been converted into a park, and another at Kondli has been filled with fly ash. The water bodies in the Shahdara zone are worst affected compared to blocks like Mehrauli, Kanjhawala, Najafgarh and Alipur.

- **Mayapuri lake** Delhi High Court has asked DSIDC that had started land-filling near Mayapuri lake for setting up an effluent treatment plant to create a waterbody of the same size as it has taken from the Mayapuri lake somewhere within Delhi. The Mayapuri lake will now have a reduced lake and a CETP to treat effluents generated by Naraina industrial area. DSIDC chief manager said that the agency would create a lake on 1.6 Ha in Bawana.
- **Plans for Hauz Khas lake** To replenish the grand old Hauz Khas lake in New Delhi and restore it to its pristine glory, an ambitious plan has now been drawn up by Delhi Development Authority. DDA has allocated about 26 Ha to bring in water from the nearby Sanjay Van and Vasant Kunj for channelisation into the almost dry lake. (THE HINDUSTAN TIMES 150703,THE HINDU 070803, THE INDIAN EXPRESS 180803)

Bhopal Lake Pollutants drain Thousands of gallons of dirty water is being poured into the Upper lake and Lower lake daily, considered as the lifeline of Bhopal. A

total of 28 dirty nullahs pour 5 MGD of filth in the Upper lake. The multi crore Bhoj Wetland Project to protect the Upper Lake and Lower Lake has not born any fruitful results. (CENTRAL CHRONICLE 090703)

Hussainsagar shrinking AP High court issued a notice to the state govt in response to a writ petition on reduction of storage area in Hussainsagar. In its writ petition, Forum for Better Hyderabad complained that the lake was being filled up. In the last three decades, the petition stated, about 120 Ha of storage area had been lost, adding that the reduction of storage area would lead to flash floods like the one witnessed in the city in Aug 2000. (THE TIMES OF INDIA 160703)

Powai Maharashtra's Minister of State for Environment accepted the recommendation for increasing the depth of the Powai lake and use its waters to meet the drinking water needs of the metropolis, Mumbai. The Minister informed the house that the lake has been included in the scheme funded by the Central govt. He disclosed that the BMC has prepared an estimate of Rs 105 M, of which Rs 66.20 M have been approved. He added that so far Rs 40 M have been spent on cleaning up the lake and Rs 6.98 M are still to be spent on the project. (THE FREE PRESS JOURNAL 230703)

INTER STATE DISPUTES

Kerala – TN: Kerala to seek arbitration Kerala CM said that the state would opt for arbitration if talks with Tamil Nadu fails to resolve the issues connected with the renewal of Parambikulam-Aliyar inter state river agreement of 1970. The Govt's stand was that water should be shared between two states in accordance with its inflow. (THE NEW INDIAN EXPRESS 020803)

Kerala Assembly panel visits Adavinainar dam Kerala Assembly Subject Committee led by MoWR inspected the Adavinainar Kovil dam site in Mekkara (Shencottai taluk, TN) to see for themselves whether water is being diverted from Kerala to Tamil Nadu. Earlier the Leader of Opposition had raised the issue of sudden availability of water in the Dam despite Tamil Nadu not getting sufficient rain in the assembly. He had alleged that this could have happened only because of the construction of a tunnel linking the Mekkara dam to the Achenkoil River, and the assembly had decided that the Subject committee should visit the dam site. One specific issue Jacob and his team wanted clarified was regarding a canal. The minister who had a sketch of the NWDA spread out on the table of the reception shed wanted to know whether this canal was flowing upstream or downstream to the dam or somewhere else. The drawing pertains to the proposed linking of Pamba and Achankoil river with Vaippar basin. Tirunelveli district collector took pains to explain to the panel that the Adavinainar dam is an independent project. The collector made it clear that the dam was constructed for stabilising the existing ayacut of about 2600 Ha. The new ayacut comes up to only 97 Ha. (THE HINDU 260703, THE INDIAN EXPRESS 090803)

Karnataka asks AP to stop work on projects The Karnataka govt reiterated in the Legislative Assembly its demand that the Centre direct AP to stop work on Telugu Ganga, Pulichintala and Srisailam Right Bank canal projects to create permanent infrastructure to utilise the surplus Krishna waters. The Minister for Water Resources said AP had to be warned against not only taking up illegal projects, but also against "trying to block projects such as Upper Tunga being executed by the State by spreading the canard that they were illegal despite 10 inter-state approvals in the past 10 years for them". Asked if the Centre had directed the Govt to reduce the height of the Paragodu dam, the Minister said the state was asked only to adhere the to the national parameters for drinking water schemes and there was no mention about the reduction of the height of the dam. (THE HINDU 060803)

Cauvery: Mandya to get water, drops stir plans The Farmers' Forum in Mandya has withdrawn its stir threat following assurance from the Command Area Development Authority to release Cauvery water for irrigation. CADA officials, however maintained that it would be difficult to sustain water release for agriculture operations following a shortfall in the KRS reservoir level. (THE NEW INDIAN EXPRESS 090803)

Rajasthan – MP The Rajasthan irrigation dept officials are worried as the inflow in Gandhi Sagar Dam this monsoon is not inspiring. The checkdams built by MP can trigger inter-state dispute between Rajasthan and MP. The water level in Gandhisagar Dam stood 53 ft below its highest storage level (i.e. 1312 ft). For last one decade almost, it has never seen the water level rising to brim, and for last four years it has not produced a single unit of hydropower. The shortfall in the inflow affects the farmers in Hadouti and Kota division. (HARIBHUMI 220803)

Karnataka – Goa In pursuance of the pleas by Karnataka, the Centre had earlier accorded in principle clearance to divert 7.56 tmcft of Mahadayi to Malprabha in the name of providing drinking water to the twin cities of Hubli and Dharwad. However, following objections by Goa later, the Centre kept that decision in abeyance. Claiming that Karnataka's share in Mahadayi water was 47 tmcft, the minister asserted that the state had right over that water. (BUSINESS LINE 190703)

Orissa – Andhra Pradesh The river Bansadhara has come to be a bone of contention between the two states, with AP move to construct four spurs on right side of the river, despite Orissa's criticism. Orissa CM voiced his opposition to construction saying it may cause floods in some of Orissa's southern dist. When Orissa CM called his counterpart and asked him to halt

the construction, an officer got back to say the construction was halted. However, when Orissa officials visited the site they found that construction was continuing clandestinely at night near the villages of Valleri and Solgiri in AP. Worried Orissa CM has decided to send Irrigation minister to AP and has said that Orissa will approach CWC if the construction is not stopped. (THE ECONOMIC TIMES 270703)

IRRIGATION

Krishna Farmers restive The statement by the AP Irrigation Minister that it would not be possible to release Krishna waters for Kharif crop under any project in the state stirred up a hornet's nest. As on July last, there was a shortage of 270 tmcft in Srisailam and 228 tmcft in Nagarjunasagar, which means there was a shortage of nearly 500 tmcft. The minister had said that water would not be available for 0.1 M Ha in Krishna delta, 0.2 M Ha under Nagarjunasagar project, and 8750 Ha under the RDS, 0.02 M Ha under the KC Canal, 0.01 M Ha each under the Telugu Ganga and SRBC. Farmers had been pleading with the Govt to release at least 4000 cusecs more from Nagarjuna Sagar for 15 days to help them complete seedbeds and speed up transplantation. Citing the water level at different projects from Almatti to Srisailam and Nagarjuna Sagar, they contended that the water availability as on July 31 this year was much better than that on the same day last year and 36 tmcft more water was available now. Within 15 days the Krishna delta farmers were restive again. They made a strident demand for release of at least 6000 cusecs of water from the dead storage of Nagarjuna Sagar to save their Kharif paddy on 0.135 M Ha. The Bachawat tribunal had allocated 180 tmcft of water for the Krishna delta (80 tmcft from Nagarjuna Sagar and 100 tmcft from the catchment below). As the Nagarjuna Sagar did not receive any inflows, the water level remained at 496 ft from June till Aug. Krishna delta farmers were asking the govt to release water from dead storage (200 tmcft available at Nagarjuna Sagar). (THE HINDU 010803, 080803, 210803 DECCAN CHRONICLE 310703)

MP Irrigation schemes According to a document tabled in assembly by the then Dy CM of Madhya Pradesh, a plan had been chlaked out for completion of 24 schemes under which 1.043 M Ha would be irrigated and 2445 MW power generated by the end of the 11th plan period. A Rs 2.95 B loan has been received from the Centre for completing various schemes. He claimed that the 20 000 Ha irrigation capacity was added due to the Rajghat canal. 407 new small irrigation schemes were included in the supplementary budget. He also said that the govt has decided to link the Narmada and Kshipra River. (BUSINESS LINE 080803)

Taraka Lift Irrigation Farmers skeptical With the work on Taraka lift irrigation project in H D Kote taluk in Mysore dist progressing at a snail's pace, farmers have given up hopes of early completion. The project has not yet been completed, though the works were started six years ago. Under the project plan about 232 cusecs of water from Kabini backwaters would be lifted to Taraka reservoir, which is about 3.75 kms from the backwaters, through four massive pipes during every monsoon. The estimated cost of the project is Rs 510 M, however, an additional Rs 80 M may be required to complete the project to irrigate about 8 080 Ha. (DECCAN HERALD 310703)

Central approval for Haryana projects The Central Govt has approved three new projects worth over Rs 3.42 B for fully utilising the irrigation potential in Haryana. According to CADA sources, projects included the Western Yamuna Canal command phase–IV V and the Bhakra Canal Command Project. The Bhakra Canal Command project had been approved for about Rs 3.2 B, to be carried out in eight districts. The construction of field channel would be carried out in 239 154 Ha. The project envisaged construction of 1233 watercourses. The WYC Command IV costing Rs 180 M would cover 30 000 Ha. About 108 watercourses would be constructed. The WYC Command V project had been approved for Rs 46 M for covering 7 680 Ha of area. Of the 1233 watercourses to be lined under this project, 581 watercourses covering 111 154 Ha would be lined during 10th plan. The remaining 652 watercourses covering 0.128 M Ha of area would be lined during the 11th plan. (THE HINDU 230703, THE TRIBUNE 040703)

Sonepat Canal water pilferage Farmers in the villages of Gohana sub-division of Sonepat district were facing acute shortage of canal water meant for the irrigation. They alleged theft of irrigation water by influential farmers having political clout. Farmers of Garhi Ujale Khan, Sainipura, Gamri, Kakana village alleged that the canal water doesn't reach tail end fields and this has resulted in withering of the paddy crop. The irked farmers also blamed the Gohana Water Service Division for not cleaning the canals, distributaries and minors despite being instructed by the state govt about the same. (THE TRIBUNE 040803)

NABARD loan to HP The NABARD has sanctioned Rs 2.67 M to Himachal Pradesh govt for five minor irrigation projects. The loan has been sanctioned under the rural infrastructure development fund. (THE TRIBUNE 020803)

Irrigated area increased in MP The net irrigated area in MP has recorded a growth of 65% in last nine years. According the sources of Water Resources Dept the net irrigated area in the state in 1990-91 was 3.42 M Ha, which has increased to 5.66 M Ha in 1999-2000. The irrigation percentage of the state has increased from 37.6% to 23% in the same period. (*RASHTRIYA SAHARA 220703*)

IRRIGATION SCAM

UBDC remodeling scam Punjab police registered a case in connection with a multi million UBDC scam on the basis of an inquiry report (Bhagat Singh Sandhu Committee Report) submitted to the CM by his irrigation adviser. Mr Sahota was posted as Ex Engineer, in Upper Bari Doab Division on March 2003. 16 projects of varying amounts totalling Rs 12 M were got executed by the Ex Engineer within a span of 12 days through private parties. The inquiry report held that certain works in Verka drainage were executed in just three days, which was impossible. Only in emergency cases, permission can be given to execute works without calling tenders. The report says that all these works were in violation of the PWD code. The report also held that no Line of Credit was available for these works worth Rs 12 M. The inquiry also held the EE guilty of making certain class 3 and 4 recruitment during posting in Muktsar as EE and held that this caused to the state exchequer a loss of Rs 2.2 M. Investigations revealed that certain other irregularities, including the use of EC (earth containing) bags in the UBDC which were purchased at exorbitant rates and were not covered under the design. This caused a loss of Rs 253.5 M. The report found that a loss of Rs 340 M had been caused to the state in the UBDC scam. The project was sanctioned by the MoWR in Dec 2000 under AIBP. The total cost of the project was estimated at Rs 1.79 B at 1998 prices. (THE TRIBUNE 240703)

RAIN WATER HARVESTING

Laporiya Rain gods have finally smiled. For the inhabitants of Laporiya, a village 85 km from Jaipur, this translates into water security for the next five years. "We have had excellent infiltration of monsoon waters into the soil. Our drinking and irrigation needs will be comfortably met for the next five years, rain or no rain," says a villager. "Unless people begin to believe that they can gift water to themselves, as the villagers of Laporiya have done, they will only strengthen the govt's hand in selling the idea that river linking is the panacea to all our water-related problems," said an expert. (www.infochangeindia.org/features125.jpg)

Pali After four years of severe drought, and a silent revolution to find their own solution, there is a celebration time for the villagers of Mataji ki Guda in Pali dist. The Green Corps volunteers constituted by Rajiv Gandhi Foundation, have constructed 52 water harvesting structures, increasing drinking water supply, recharge aquifers and improved agricultural productivity. (THE HINDUSTAN TIMES 290803)

Rajasthan As parts of efforts to make the state drought proof on a long-term basis, the govt has activated various agencies to conserve rainwater in the tribal areas. A checkdam built in Bore Ka Pani village was evidence of the efforts. It has helped increase the water level in 75 wells owned by over 100 tribal families. Built at a cost of Rs 0.992 M, the checkdam conserves the rainwater flowing from Kadiyanala and Babri areas in Udaipur district. (THE HINDU 300703)

Delhi HC notice for RWH The Delhi High Court has issued a notice to the Delhi govt on July 31, reacting on a petition filed by Tapas, an NGO, that urged the govt for recharging structures alongside the roads and flyovers. The NGO has urged that such recharge structures be constructed on roads wherever feasible, after consulting the CGWA. The NGO put the example of ongoing Dhoula Kuan flyover, in which Delhi govt consulted the CGWA and started to build recharge structure. The total catchment area for this project is 13.75 Ha and according to estimates, the annual run-off would be 39244 cubic meters. (THE INDIAN EXPRESS 010803)

Tamil Nadu With a view to conserve the precious rainwater and mitigating the drinking water shortage, TN govt has promulgated an ordinance making it compulsory for all buildings in the state to set up rainwater harvesting units. According to data available, the number of govt and non-govt buildings and public places having RWH system is about 12.30 M. Nearly 9.7 M more buildings and public places are to be provided with similar structures. (THE HINDU 230703)

Chandigarh Environment Society of India has taken a lead in adopting rainwater harvesting to check the groundwater depletion in the city. Last year, ESI assumed the task of desilting half an acre pond in Khuda Ali Sher village. The work resulted in 20 000 cubic feet silt being taken out of the pond. It also undertook a task of desilting a site near Sukhna lake in addition to creating rainwater-harvesting ponds in some sectors. (THE TRIBUNE 030803)

Kandi Use of simple skills to create water-harvesting checkdams in the foothills of Shivalik has changed the ecology of Kandi area. 8 check-dams and over 60 water harvesting structures in Panchkula, Ambala and Yamunanagar dists has brought almost 365 Ha of arable land under irrigation and 2 973 Ha under cultivation, while saving 9500 Ha from soil erosion. (THE TRIBUNE 160803)

Andhra Pradesh 15000 people dependent on farming in Kothapally village in Rangareddy dist are not dependent on canal water. Their wells have water and they are harvesting good crop. Thanks to watershed management, now, it has wells blessed with substantial storage of water, water table going up by 10-15 ft, the yield of maize showing three fold increase. By 2002, 11 check-dams out of 22 had been completed through participatory approach. (THE INDIAN EXPRESS 170803)

WATER POLLUTION

Cancer in Vapi In the little fishing village of Kolak, 15 km from Vapi industrial estate, cancer has touched epidemic proportions. This village of 3700 has seen 85 deaths because of the disease in the last 11 years, most of them from blood cancer or tumours in the chest. Greenpeace has reported that the contaminated Kolak river, in which the villagers fish for their livelihood, is responsible for this. A 1999 report says that surrounding chemical factories release effluents laced with toxic chemicals like chlorobenzenes, hexachlorobenzenes, chlorinated benzamines and pyridines along with metals like cadmium, chromium, copper, lead and mercury, into the river. "During 1987 to 1994, when 1700 factories came up, we recorded 47 cancer cases," says ex-sarpanch.

- **Toxicity and genetic disorders** An increasing number of pregnant women in the industrial belt between Vapi and Ankleshvar, at the southern end of 'Golden Corridor' have started recording miscarriages and other birth related health problems, like still birth and genetic disorder. Gynaecologists in Vapi, Valsad and Ankleshvar have reported nearly 30 cases of oligohydramnious out of around 100 cases attended in last two months. "It has been an observed fact that birth related defects are common in areas within three kilometers of landfill site", says gynaecologist Sushma Baxi. Experts fear that unabated disposal of effluents may lead to an entire generation of children with deformities and genetic disorders. (THE TIMES OF INDIA 190703, 220703)

Bangalore: Increasing contamination The concentration of electronic industries in Bangalore is causing soil and water contamination, according to a report by Environmental Health Foundation. PCs and other electronic components use heavy metals such as lead, silicon, cadmium and mercury, all known toxins and carcinogens, capable of causing a variety of neurological disorders, and liver, kidney and lung disorders. It is estimated that about 1.38 M obsolete PCs have been dumped in India, 400,000 in Bangalore. (ECOLOGIST ASIA APRIL-JUNE 03, p-57)

GROUND WATER

Haryana: Depleting resources Haryana is left with hardly 42% fresh groundwater aquifers. The water table has declined to more than 60 - 150 ft in Panchkula, Ambala, Yamunanagar, Kurukshetra, Karnal, and Patiala dists. Whereas it has seen a further fall of 200 ft in southern parts comprising Mahendragarh, Rewari, Gurgaon, Faridabad and parts of Bhiwani dist. The sustainability of fresh groundwater reservoirs and effective functioning of over 0.06 M private shallow tubewells is threatened. Farmers' tubewells are not able to draw adequate groundwater due to the decline in water table while over 3100 deep tubewells now stand abandoned due to the closure of Haryana Minor Irrigation and Tubewell Corp a year ago. The state took certain recharge measures long ago in 1975-1978 in the Narwana branch, Delhi branch and the Markanda river basin, which were later abandoned. In a second spell, recharge measures were again initiated in 1999-2002, which were disrupted by HSMITC closure. (THE TRIBUNE 070703)

Tamil Nadu: Water released for recharge 504 cusecs of water was released from the Vaigai Dam on Aug 16, with a view to recharging the wells downstream in Theni and Dindigul districts. Officials said farmers had been requested not to use the water for farm operations. The water being released from the Vaigai Dam had actually been drawn from the Periyar Dam in view of the fall in the water table at the infiltration wells. They said though the rains were good in the districts, the catchment area of the Vaigai Dam did not get adequate rain and this was causing concern with the water level standing at 28.3 ft (full level 71 ft). The level in the Periyar Dam stood at 112.2 ft (full level 136 ft) with the inflow of 2.08 cusecs and discharge of 2.00 cusecs. (DAILY EXCELSIOR 170803)

GROUND WATER CONTAMINATION

Bangalore: Increasing pollution Sewage and industrial waste have taken toll on groundwater, with many areas revealing nitrate concentration and other pollutants. Out of 918 samples collected from 735 locations, it was found that in 370 locations the ground water was not suitable for domestic purposes. While 74 samples out of 100 revealed "bacteriological pollution", 262 samples showed nitrate level at more than permissible limit. Concentration of TDS was observed in four to five pockets. (BUSINESS LINE 140703)

Delhi Groundwater survey raises alarm According to the survey carried out as part of the Development Alternatives' Clean India Programme, most of the pollutants found in the Delhi groundwater was way above the permissible levels prescribed by the Indian Standards. The water samples were collected from individual sources including public taps, hand pumps from markets, houses and religious places and tested for 14 essential parameters for drinking and river water quality. Ground water has revealed the presence of ammonia, nitrates and bacteria in samples collected from across the city. (THE HINDU 140803)

Ganga basin: excessive arsenic Ground water, the only source of drinking water in Semariya (Bhojpur) in Bihar, has a high content of arsenic, at 100 times the permissible limit. Of the 26 wells in Ojhapatty hamlet in Semariya, 23 have been declared unusable. The other three are also contaminated but the arsenic content is yet to cross the danger level. Scientists say the problem is not confined to this village alone and the estimated 350 M population on the Ganga delta faces the risk of the arsenic poisoning. In Bangladesh and W

Bengal, which are located in the lower Gangetic delta, an estimated 36 M people are found to have been drinking arsenic contaminated water. (THE INDIAN EXPRESS 110703)

Fluoride in Bengal groundwater More than 371 habitations in 79 blocks of 11 of the 17 dist in W Bengal have been identified to have excess fluoride in groundwater. Dists have been affected include Jalpaiguri, Uttar Dinajpur, Dakshin Dinajpur, Malda, Hoogli and Mednipur with a population of 14 M being at risk of water contamination. The state has taken up joint plan of action with the Unicef for combating the problem. A Rs 433.9 M scheme, which will benefit a population of 1.88 M in the affected areas, is now under implementation. This project, which was being financed jointly by the Centre and the state govt (in the ratio of 75:25), has received a jolt following the Center's decision to stop funding arsenic projects as additional projects. (BUSINESS LINE 160803)

Fluoride, Arsenic in Bihar A Large number of villages in several districts in Bihar are affected with fluoride pollution and there are reports of arsenic poisoning in some other districts, Bihar Minister of State for Public Health and Engineering said. Tests were carried in villages of Nawada, Jamui, Gaya, Munger, Begusarai and Araria and drinking water there was found contaminated due to presence of fluoride more than the permissible limits. (THE TRIBUNE 070703)

Pesticides According to ICAR, the first signals of pesticide residues in groundwater and in irrigation water emerged five years ago and have been supported by subsequent reviews. The scientists at various centers of the research project began to track pesticide levels in farm produce and in water in the early 1990s. An analysis of 250 water samples, presented at workshop in Kolkata in 1999, had revealed that nearly 150 samples contained one or more pesticides. Earlier this year, a review of the data again confirmed the presence of pesticides in a large number of cases among more than 700 water samples tested by over 15 project centers. (THE TELEGRAPH 230803)

URBAN WATER SUPPLY

Godavari delta farmers up in arms The farmers under the Godavari delta system are in jitters over the Govt's reported move for diversion of irrigation water for drinking water requirements and the needs of industry in Visakhapatnam. A convention of farmers from the western, eastern and central deltas falling under W & E Godavari dists was held to chalk out a plan of action to resist the move. They feared that the entire Godavari delta system, comprising 0.12 M Ha, would face serious water crisis, if the Govt was allowed to go ahead with its plans. According to an information the Govt had entrusted a corporate company to construct a pumping scheme for the drawal of 5 tmcft of water from the river near the Dhowlaiswaram Barrage through pipelines at a cost of Rs 3 B to quench the thirst of the people in Visakhapatnam and to cater to the needs of Visakhapatnam steel plant. Besides, the Govt was also under severe pressure from the farmers of upland parts in the W Godavari district to construct a lift scheme at Tadipudi for the drawal of 5 tmcft of water to irrigate 0.134 M Ha. (THE HINDU 240703)

Delhi: Supreme Court seeks CWC reply The Supreme Court has set time to the CWC to place before it details about the steps taken by the Union Govt to ensure uninterrupted minimum flow of 60 cusecs of water from the Narwana branch of the Bhakra canal to Delhi to meet the Capital's drinking water needs. The direction was issued while hearing PIL seeking the implementation of the tribunal's award. The Additional Solicitor General said the CWC had examined the Narwana branch of the Bhakra canal through which the water was to flow and it was found that it required a lot of repair work to ensure that the minimum flow of water was maintained for the Nangloi treatment plant. (THE TRIBUNE 280803)

Delhi Investigations by the anti-corruption branch of Delhi govt recently revealed that three officers of the MCD's sanitary dept, South zone, paid salaries on 'ghost' drain cleaners who were never hired. (THE TIMES OF INDIA 100703)

Nangal The difference in the cost of similar chlorination plants procured by the Nangal Municipal Council and the BBMB raises eyebrows. Where as NMC got a water chlorination plant installed at a cost of Rs 1 M, a similar palnt by the BBMB cost of Rs 0.2 M. Another municipality installed one for Rs 0.25 M. However, Bathinda and Ludhiana have instlled such plants ar Rs 1.2 M. (THE TRIBUNE 160803, 241203)

Australian aid for Shillong water project The Meghalaya govt has got a $ 13 M grant from Australian Aid, for improving the water supply and sanitation facilities in Shillong. (THE INDIAN EXPRESS 060703)

RURAL WATER SUPPLY

WB fund for Maharashtra A high-level Indian delegation has negotiated $ 298.65 M (Rs 13.43 B) rural drinking water supply project for Maharashtra with the World Bank. The project aims to cover 2800 village Panchayats in 26 districts and 7.5 M population, including 0.5 M tribals in 1700 tribal padas, according to official sources. The project would be implemented in six years and will have five components; community development & infrastructure $ 167.13 M, institutional development $ 67.08 M, rural water supply sector development for water quality monitoring and knowledge management $ 5.58 M, pilots on Panchayat

incentive, acquifer management and operations and maintenance $ 15.19 M and contingencies including $ 13.67 M. The project has 18.81% economic rate of return and the WB will provide IDA credit of $ 181 M (Rs 9.05 B), the Maharashtra Govt would share $ 73.65 M (Rs 3.68 B) and the community contribution of $ 14 M (Rs 700 M). (DAILY EXCELSIOR 140703)

Untreated water supplied to villages Over 10 000 Residents of Behali, Mahadev, Bharari, Ghangal, Khatrwari and Samkhel are facing a problem as the water being supplied to them is not fit for drinking. Last year after the residents raised a hue and cry about the muddy water, the officials said the filter assemblies and filter bed had been changed. This year it was detected that these filters were still not functioning and the work done last year was eyewash. (THE TRIBUNE 300803)

Water scheme for Rajasthan villages The Rajasthan Govt has formulated a scheme worth Rs 50 M to tide over the drinking water problem of a population of 17 000 in the hilly Gogunda region of Udaipur district. The ground water table in the area has registered an alarming decline during the past few years. Water will be supplied from Suker Ka Naka dam. The height of the dam is proposed to be increased by one meter, which in turn would increase its storage capacity to 22.5 Million Litres. (THE HINDU 200703)

Haryana Seeks help The Haryana Govt has sought financial help from the Centre for implementation of a drinking water supply scheme in the Mewat area at a cost of Rs 4 B. While urging the Centre to approve the scheme, the CM suggested that it could be referred to External Aided Project and financial assistance to be sought either from WB or the JBIC. This project, it is claimed, would be a permanent solution to the problem. (THE HINDU 240703)

Water for All villages by 2004? The Centre has commissioned a study on the extent of fluorosis and will launch a special programme to tackle the problem as part of a Rs 125.45 B plan to provide drinking water to all villages by 2004. This amount has allocated for the 10th plan, which is 54% higher than Rs 81.5 B spent during the 9th plan. (BUSINESS LINE 290803)

Japan-aided water scheme in Kerala Kerala CM has launched the ambitious Japanese-aided drinking water project to benefit 4.5 M people in Thiruvananthapuram, Kollam, Cherthala, Kozhikode and Kannur. The Rs 17.88 B project would have a loan component of Rs 15.19 B. (THE TIMES OF INDIA 180803)

Chambal water scheme on course The work on Dholpur-Bharatpur Chambal drinking water scheme is progressing at a fast pace. The Rs 1.67 B project was started in Dec 1999 and is expected to considerably solve the drinking water problem in Bharatpur and Dholpur dists. (THE HINDU 030703)

WATERWAYS

Hooghli Dredging Corp out of depth The state-owned Dredging Corp of India's performance in improving navigability of the Hooghli river near Haldia dock invited sharp critique. A huge sum had been given to DCI for improving the draft in the river in past few years but the result has left much to be desired. The Union cabinet took a decision long ago to reimburse in full the maintenance dredging cost, currently estimated at Rs 3 B every year. In fact, nearly 50% of DCI's earnings is accounted for by its operation in the Hooghli river. But over a period the depth in the shipping channel at Haldia reduced to 4.6 m below chart datum from the earlier 6.5 m BCD. In 1998-99, the Kolkata Port Trust managed to increase the depth to 5.7 m BCD. However, for the past three years, the depth has been deteriorating and it now stands at around 4.8 m BCD. According to one estimate, about 20 MCM of dredging has to be undertaken every year in the Hooghli estuary to improve navigability of the river near Haldia dock. About 50% of this volume is to be dredged at Jellingham, which is a governing bar for navigation to Haldia. The morphological changes and the failure to remove the silt to the designated dumping grounds are believed to be responsible for the loss of depth in the Hooghli estuary. (BUISNESS LINE 040803)

FLOODS

Cloudburst in Kullu Valley About 40 persons were killed in flash floods due to cloudburst at Parbati HEP under construction at Shilagarh in Gursa area of Kullu sub-division. The CM made a statement in the Assembly earlier on July 16 said over 100 persons were feared dead. He said that there were about 250 persons at the site, when the tragedy struck. Some 150 workers feared to have been washed away in the Parbati HEP site in Gursa valley. The project is being undertaken by NHPC but the workers are hired by sub contractors Satyam constructions and Bholanath JP Ltd. According to sources, the water level in Pulia Nala had certainly gone up due to cloudburst and flashflood. It created silted water, which gushed out with force causing tragedy. More than 5000 houses were destroyed and a number of roads and bridges were washed away. The majority of victims were migrant workers from different states of India and Nepal. The state govt sources said that forest wealth worth Rs 40 M and the infrastructure including roads, bridges and buildings worth Rs 10 M were damaged in the Pulia Nallah flash flood due to cloudburst. The Parbati HEP of NHPC has suffered extensive damage. According to engineers of NHPC, the sites where work on Adit 1, 2 and 3 of the headrace tunnel was in progress, have been cut off due to washing away of bridges on a large portion of the approach road.

- In another cloudburst early morning of July 24 in Bahang Nala between the Manali and Rohtang Pass in

Kullu district, two persons died and number of cattle were buried alive. A total of 16 families of labourers have been affected.

➢ **Kullu vulnerable for Cloudburst** Cloudburst is a sudden and violent rainstorm falling over a short period of time and is confined to a specific geographical area. The catastrophic force with which it hits the ground results in flash flooding of the area and causes massive devastation. A recent study conducted by the IMD has revealed that a total of 36 cloudbursts took place in HP from 1990 to 2001 – about three per year with a maximum of seven in 2000 and none in 1996. Out of 36 cloudbursts, 15 were reported in Kullu, 6 in Shimla, 4 in Kinnaur, 3 in Mandi, 2 each in Kangra and Chamba, and 1 each in Solan, Sirmour, Lahaul & Spiti and Hamirpur districts. This indicates that Kullu, Shimla, Kinnaur and Mandi districts are more prone to cloudburst than other areas. Kullu district is quite vulnerable to weather extremes. The region from Bhuntar to Manikaram along the Parbati, a small tributary of Beas, and Kullu to Manali along the banks of the Beas, are more prone compared to the remaining parts of the districts as 11 out of 15 incidents have been reported in this region during the last 12 years. **(THE TRIBUNE 170703, 180703, 190703, 240703, *RASHTRIYA SAHARA* 180703, THE HINDU 250703)**

Breach in Western Yamuna canal The Western Yamuna canal got breached following heavy rains on July 9 night at a point from where the irrigation water used to be supplied to Hulhedi and Chitana in Sonepat dist. The villagers had lodged repeated complaints to irrigation officials who didn't pay any heed to the problem. Thousands of Ha of standing crop have been inundated under 3 - 4 ft of water. (*HINDUSTAN* 120703)

Mahanadi Floods: Orissa 2231 villages in 59 blocks spread over 11 dists were affected by the floods in Mahanadi and other rivers, special relief commissioner said on Aug 30. Around 20 breaches have already occurred at various embankments, including two major ones at Gobardhanpur and Palda. More breaches were likely to occur as over 1.3 M cusec water was flowing at Naraj gauge station near Cuttack. "While the inflow at the Hirakud was 850 000 cusecs, the outflow was also kept at 850 000 cusecs to keep the dam out of danger. Of the 64 sluice gates at Hirakud, 54 had been opened to release water," said the CS.

➢ **Chhattisgarh** Several villages in Basna, Pithora and Saraipalli blocks of Mahasamund dist and Samodha, Kashdol and Bhilaigarh blocks of Raipur dist were gripped by flash floods in Mahanadi river. Initial estimates pegged the damage to public and private properties at Rs 100 M. (THE HINDU, THE INDIAN EXPRESS 310803)

Bihar At least 64 people had died in floods in Bihar while nearly 3.44 M people have been affected in 2551 villages in 17 districts. The districts affected by flood were Muzaffarpur, Sitamarhi, Sehore, Mdhubani, Saharsha, Darbhanga, Samastipur, Araria, East Champaran, Supoul, Madhepura, Purnea, Katihar, Khagaria, West Champaran, Vaishali and Gopalganj. More than 0.231 M Ha of land was submerged in the floodwater, destroying standing crops of over Rs 354.9 M. Public property worth over Rs 38.2 M were lost, while 10 066 houses worth over Rs 51 M were damaged. The Burhi Gandak, Bagmati, Kamla balan, Koshi, Mahananda, Adhwara and its tributaries were flooded. (THE INDIAN EXPRESS 110803, *RASHTRIYA SAHARA* 060803)

Manesar embankment washed away Following heavy rains in Meerut dist, an earthen dam near Manesar washed away submerging around 200 houses in Kakroula & Bhangroula villages. (*AMAR UJALA 040803*)

Mahula Gadhwal embankment washed away The road linking Ambedkar Nagar, Azamgadh and Mahula villages of Sagadi tehsil with each other washed away and alongwith it Mahula Gadhwal Dam on Ghaghra river. In 1998, the highest ever flood in last 100 years had caused fears regarding the safety of the emabankment. In 1984 also it got washed away from Oghadganj side. This time it got washed away from a point near Hyderabad village, an area thickly populated. Within two hours, the waters inundated some 150 villages. (*AJ* 270803)

Hissar Cotton crop on 7000 Ha in the district has been destroyed due to waterlogging of fields following heavy rains and poor drainage. Maximum damage was caused in Hansi and Barwala areas where fields were flooded. (THE TRIBUNE 080803)

Uttaranchal Four persons including two children, were killed in their sleep and several injured when their houses collapsed due to the mudslide in Didhihaat in Uttaranchal on July 21. Two persons were washed away by swirling waters of nullah in Dehradun. Over 200 houses have been flattened due to flashfloods and landslides. (THE HINDU 220703)

Rajasthan Six persons were washed away as torrential rains continued to lash on July 21. Over 42 persons have been killed so far in rain related incidents in parts of the state since June 19. (THE HINDU 220703)

W Bengal The flood situation in N Bengal turned grim on July 4, with incessant rains and rivers flowing well above danger level. Yellow signal was already hoisted for rivers Kaljani, Torsha and Mansai as surging flood waters breached embankments at several places. Several wards in Alidarpur were waterlogged. All the major rivers including Teesta, Torsha, Mansai, Raidak, Jaldhaka, Kaljani Kerla and Mahananda were swollen following the incessant rains on July 5 as well. Around

50,000 families were affected in Jalpaigudi and Koochbihar dists. (*RASHTRIYA SAHARA* 060703)

Flash flood in HP The entire Kinnaur district was cut off after flash floods in Baruni and Roplu khads washed away a bridge on the Hindustan-Tibet highway and vast stretch of the road near Jhakri. According to the reports 18 major landslides between Jhakri and Jeori on 12 km stretch of the road. This is the second time in three years that Kinnaur has been cut off. According to the statement made in Rajya Sabha, the govt of HP had reported a loss of 58 people due to cloudburst/ flashfloods in the districts of Sirmour, Kullu-Manali and Kangra. (THE TRIBUNE 070803, 140803)

NE states According to the official report on the horrible situation in Assam, Meghalaya and Tripura over 2 M people had been displaced and over 25 people had died due to floods. Over 45 000 Ha of standing crops had been damaged. Majuli the world's largest river island, had remained one of the most badly hit. The Flood Control Minister of the Assam complained that most of the 179 breaches that the Brahmputra and its tributaries had caused last year had remained unrepaired.

- **Assam** At least 16 people died and over 0.5 M people suffered the impact of swirling floodwaters, which submerged 10 dists and vast tracts of human habitations and farmland. The Kaziranga National Park was also flooded. In the worst affected Dhemaji, over 95 villages were submerged and over 40 000 people have been affected. In Nagaon dist over 10 000 people from 40 villages had been affectd. The embackments had breached at over 14 places in above dists.
- **Tripura** Due to overflow in three major rivers one chiled had drowned and over 10 000 people have been displaced. (*RASHTRIYA SAHARA* 010703, 040703, 060703, THE INDIAN EXPRESS 100703, 190703, THE HINDU 020703, 050703)

China Due to heavy rain and flood over 160 people have died. The worst situation was seen in Dechang, Meeju and Zinyas provinces due to landslides and heavy rains. 12 000 Ha of land have been affected and over 15 000 people displaced. (*RASHTRIYA SAHARA* 040703)

Pakistan Over 153 persons died and over 0.9 M persons had been affected due to torrential rain and flashfloods in Sindh province. 141 000 houses were destroyed in a flashflood. (*RASHTRIYA SAHARA* 040803)

SOIL EROSION

W Bengal Teesta emabankment may vanish The entire Teesta flood control embankment will be washed away if the current spate of flooding continues for some days, an official of the Water Development Board in Bangladesh said. The breach in the southern bank of Teesta that developed in Mornea area on July 11 has stretched up to about 3 kms, Breaches have also developed at many points of the embankment at Bijoy, Mohipur and Mohisasur villages. Millions were spent for maintaining the embankment in the last several years but the repair works were not done properly, an official said seeking anonymity. A former Union Council member said about 1100 families have become homeless in Alalchar, Mohisasur, Almas Bazar, Uchhagram and Bagdohra villages in Gangachhara and Gajaghanta areas as their homesteads have been eroded by the river. About 3 000 people are marooned in the area. (PRAXIS NEWS 150703)

No effort to check erosion of farm land Residents of six villages of Indo-Pakistan border across Ravi river are worried due to erosion of farm land from flood protection measures. The villages facing erosion due to flood in Jalalia and Ujh rivers are Mutthi, Bamial Forward, Kajle, Samala, Maakhanpur and Makaura Feeri. Floods in Ravi river have been contained to a large extent following Ranjit Sagar Dam, still lands of villages continue to be eroded by Beas river due to the rivers like Jalalia, Basantar Tarna ad Ujh joining the Ravi at various points in the Gurudaspur district. About 600 Ha land of Chebe and Toor has already been eroded. (THE TRIBUNE 190803)

Erosion by Sankosh River The villagers of Bagdogra, Sdimultapu, Jongbandha, Kalachanpara, Majardabri and Tamachabagan under Gossaigaon civil sub division in Kokrajhar district in Assam are facing tough days due to massive erosion by the river Sankosh (Gangadhar) since years. This year the erosion by the river Sankosh totally wiped out Simultapu revenue village and major parts of Bagdogra village, rendering over 180 families homeless. Due to no-initiation of any anti-erosion works, the villages on the banks Sankosh are suffering. (ASSAM TRIBUNE 130803)

Badayun, UP: A village disappears Pakhiya Nagla village on the opposite bank of river Ganga in Daltonganj tehsil of Badayun in UP has now only memories left about it. Almost 20 families of the village have shifted to Daltonganj and are running from pillar to post to start life a fresh. Their village has been eroded by flooded Ganga. (AMAR UJALA 110803)

FISHERIES

Gomti Fisheries becomes a thing of past The aquatic life in Gomti river in UP was destroyed in June when untreated sewage was dumped in to the water, causing a drastic drops in oxygen levels, said a senior scientist in the National Bureau of Fish Genetic Resources. Over 500 families depended on the fishing have now sitting idle because fish cannot survive in the sewage-filled Gomti. (THE HINDU 230803)

Assam Making bid to raise output Assam has a potential for the development of fisheries but at present its demands outweighs the supply leading to huge imports from outside the state. The present annual fish production is about 0.16 MT as against a demand of over 0.25 MT. The govt has realised the vast potential and is implementing a comprehensive package with funding from the WB to develop sustainable fisheries. The WB is financing Rs 284.7 M project to be implemented in eight years. (BUSINESS LINE 090803)

HP Project to restore trout habitat To boost the trout fish population, the govt has sanctioned a project, "Habitat restoration of selected trout streams", for the Dept of Zoology, Punjab University, Chandigarh. Prof M S Johal, principal investigator of the project, says five trout stretches have been selected to study the geomorphology, hydrological, abiotic and biotic factors. Initially, two stretches – Tirthan, a 20 km stretch from Largi to Nagni, and Sainj, a 22 km stretch from Largi to Ropa, in Kullu district – have been identified. During recent years, there has been a sharp decline in the overall fish catches in HP. Dr Johal attributes this to habitat loss, pollution, increased sedimentation caused by deforestation, construction of roads and dams and destructive fishing methods. He has recorded 85 fish species in various water bodies. (THE TRIBUNE 180803)

Assam: Need to protect Dolphins stressed The world famous river Dolphins found in the Brahmaputra and the Kalahi rivers are not getting the attention from the authorities they need. Reports of Dolphin killing do appear even though a ban is imposed on killing of Dolphins. The ban has failed to have the required effect since the rare mammals often fall prey to the greed of poachers of the Gumli area. Aranya Suraksha Samiti, Assam has taken some steps to stop further killing of this rare breed. The Brahmaputra is known to be the home of two species of Dolphins – the porpoise (*Phocaena phocaena*) and river dolphin (*Platamista gangetica*). (ASSAM TRIBUNE 130803)

Chilka fauna gasps in illegal fishing net Asia's largest brackish water lagoon is waging a battle against illegal fishing that is threatening its fragile ecosystem. Monitoring carried out at Chilka has made clear how the wetland is facing siltation, obstruction of migratory routes of aquatic species and poaching of their young one. The large scale poaching has affected 30 aquatic species as their juveniles have been killed. An estimate says about 0.365 MT of silt makes its way into the lake every year, through 52 rivers and rivulets. However, a major portion of sediments is flushed out to the sea. But, now fixed nets used as traps and barricades for unauthorised shrimp cultures prevent free flow of sediments. Generally highly productive in terms of sea-grass and micro-algae, the creeks and shoreline are being affected by *gheries* and shrimp culture. (THE INDIAN EXPRESS 010703)

FORESTS

Punjab: JBIC raises eyebrows on corruption Japan Bank for International Cooperation has written a strongly worded letter to the Finance Commissioner, Dept of Forests, Punjab regarding the alleged misappropriation of funds provided by the bank. In the letter JBIC official has stated that it is their third communication to the Punjab govt in the last eight months. If the Punjab govt fails to hold inquiry into the allegations, the bank will take up the matter with the Union Ministry of Finance. (THE TRIBUNE 200803)

Haryana 2.29 B Plan The JBIC has agreed to fund Rs 2.29 B project on development of natural resources in the forest areas of Haryana. It is proposed to spend Rs 1.61 B on plantation, over Rs 100 M on soil conservation measures, besides constructing water harvesting structures and rehabilitation of water storage structures. The forest cover is 3.5% of the total area, whereas the tree cover, including the tree cover outside the notified forests, is 7.8%. (THE TRIBUNE 150803)

MP Funds for forestry not used: CAG The CAG has come down heavily on the MP govt for frittering away funds meant for the forestry project. In its latest report for the year ending March 2001, the CAG observed that significant progress in protecting and improving the forests with the aid provided by the WB could not be achieved. (THE TRIBUNE 020803)

Centre rejects HP bid to denotify forest land The Centre has shot down a move by the Himachal Pradesh govt to denotify thousands of Ha of forestland, spread across the state. The decision has been communicated to the state govt after the National Advisory Committee, constituted under the Forest Conservation Act, 1980, turned down a request of the state to "consider" its notification. The Ministry made it clear that the state had no authority to issue the notification dated Aug 24, 1998, vide which it took out the wasteland classified as "gair mumkin" and "chargah bila drakhtan" form the notified forest areas. It also rejected a proposal for the diversion of 44.03 Ha of forestland for the construction of Chamera-III project of NHPC. Under the Forest Conservation Act, no forestland could be diverted to non-forestry use without the prior approval of the Centre. On the basis of illegal notification, hundreds of Ha of forestland was diverted for non-forestry use like mining for stone crushers and setting up of various other projects. The Union Ministry of Environment and Forests wrote to the state to withdraw the illegal notification in Feb 2003. (THE TRIBUNE 090803, 150803)

Gujarat: GEC to restore mangroves Kantiajal and Tada Talao are two of the many villages along the coastline facing major soil erosion and salinity ingress because of which Gujarat is slowly losing its mangroves. Gujarat Ecology Commission has now

taken up a project to regenerate and restore these mangroves. The project, funded by India-Canada Environment Facility, will restore mangroves in four dists of Kutch, Ahmedabad, Anand and Bharuch. Eight sites including Tada Talao (Anand), Nada, Neja and Kantiajal (Bharuch), Mahadevpura (Ahmedabad), Jakhau, Bagodia-Guloy and Lakki (Kutch) have been identified for the purpose. (THE TIMES OF INDIA 250703)

DROUGHT RELIEF

Karnataka MPs to demand more foodgrains Karnataka has decided to impress upon the Centre the need to allocate the full quota of foodgrains it had sought to overcome the serious drought. The state had sought an allocation of 1.1 MT, but only 0.65 MT of grain was allocated initially. Thereafter, an additional allocation of 55 000 T was made in July. State's Special Representative in New Delhi said of the nearly 113 000 drought relief sites where work is undertaken, 30 000 would suffer due to shortage of foodgrains. (THE HINDU 200703)

Karnataka 45 farmers committed suicide in Aug due to crop failure & attempts to forcibly collect loan dues. (THE TIMES OF INDIA 250803)

AGRICULTURE

Fighting EU wheat patent grant to Monsanto RFSTE, an NGO headed Dr V Shiva has decided to fight against the EU patent granted to Monsanto for its "invention" of wheat plants derived from a traditional Indian variety. (THE ECONOMIC TIMES 060803)

Bengal fails to ensure MSP: CAG Latest report on W Bengal for 2001-2 has found that the Food and Civil Supplies Dept had failed to ensure payment of MSP to farmers even as it persisted in paying the notified procurement price to the millers. The report also revealed that an amount of Rs 71.4 B (29% of total expenditure) remained unreconciled in 2001-2. The report says that of the 84 controlling officers in the state, 69 did not reconcile their accounts for 2001-2. Despite the market price for paddy being less than the MSP, the Dept persisted in paying the notified procurement price to millers without ensuring payment of MSP to farmers by the millers, thereby, extending a benefit of Rs 215.1 M to rice millers for procurement of 0.24 MT of rice from three dists. (BUSINESS LINE 210703)

MSP for oilseeds The Central Govt has hiked MSP for oilseeds in a bid to boost crop diversification and check increased edible oil imports. The MSP for pulses has also been hiked. The MSP for paddy has been fixed at Rs 5500 and Rs 5800 a T for common grade A categories. The MSP for groundnut per T has been fixed at Rs 14000 this Kharif (2003-4) that is Rs 250 over the MSP last year. Including SDR of Rs 200 per T for oilseeds, the MSP stood at Rs 13750 last year (2002-3). For soyabean, the MSP this kharif has been fixed at Rs 9300 (yellow) and 8400 (black) per T, this is a hike of Rs 350 per T. The sunflower seed fixed at Rs 12500 per T, this is a hike of Rs 400 per T. The MSP for pulses (arhar, moong & urad) have been fixed at Rs 13600 - 13700. (THE ECONOMIC TIMES 310703)

FOODGRAINS MANAGEMENT

Food regulatory body on the cards The food processing industries ministry is giving final touches to the Food Bill 2002. The Ministry plans to set up a regulatory authority and a "council for food standards". The Bill is aimed at integrating all laws related to food and food processing industries under a single statute to be called the Food Act. The food sector is governed by over 30 laws, administered by the central and the state govts. All these laws are now being unified in to a single law. The regulatory body, to be called the Food Development and Regulatory Authority of India will be headed by a high court judge or a person of eminence from the food sector. (BUSINESS STANDARD 090803)

Orissa: Starved people Orissa's multilevel survey of people suffering from hunger said that in 30 dists about 49 187 people are facing severe starvation. Only in Kalahandi dist 42 081 people are facing starvation. (*RASHTRIYA SAHARA* 300703)

Production of foodgrains estimates revised The Central Govt has further reduced the estimates for the production of foodgrains during the financial year 2002-3 by 1.5 MT to 182.57 MT. It is almost 28 MT less than the target of 220 MT and 30 MT less than the last year's production of 212.02 MT. The production of rice is estimated to be 75.72 MT, much less than last year's 93.08 MT. Total output of wheat is estimated to 69.32 MT. The production of pulses is estimated to 11.31 MT as against 13.19 MT in the previous year. Output of oilseeds has increased to 15.75 MT from 15.57 MT. As of now the total area of coverage was lagging significantly behind the last year's coverage. The total area of coverage of Kharif rice reported so far is 3.02 M Ha as compared to 3.53 M Ha during corresponding period last year. In coarse cereals the total area declined to 0.47 M Ha from 1.38 M Ha. The area covered for kharif pulses declined to 0.44 M Ha from 0.795 M Ha last year. Kharif oilseed area declined to 0.91 M Ha from 2.02 M Ha. (THE HINDU 040703, THE TRIBUNE 050703)

SUGAR

Package for sugarcane growers The Central Govt has announced one time financial package of Rs 6 B for sugarcane farmers. The principal beneficiaries will be the farmers of UP, Uttaranchal, Punjab and Haryana. The Union Agriculture Minister said that the assistance would be used for paying arrears to farmers,

which had come about due to difference between State Advisory Price and SMP. Other sates like Maharashtra, Karnataka and TN has expressed reservation over the package. The Minister said that the package would also be applicable in states, which announces their administrative price for the crop. Despite the claim, the ministry has not yet cleared the source of fund for package. The govt is also working out another package for non-SAP states. In UP, mills record an average sugar recovery of 9.5%, the SMP works out to about Rs 780 per T and the adjusted SMP comes to around Rs 820 per T. As against this, the state Govt's SAP is 950-1000 per T. In UP and Haryana the average cane yields are 57-58 T per Ha. The average cane yields in Tamil Nadu, Maharashtra and Karnataka are 110 T, 85 T and 95 T respectively. (BUSINESS LINE, THE ECONOMIC TIMES 180703)

Cauvery belt Sugarcane crop loss Committee appointed to assess the sugarcane crop damage in Cauvery belt of Mandya dist has suggested various measures including waiver of water rate, land revenue and release of Rs 816.2 M arrears towards supply of sugarcane by farmers to sugar factories. It observed that there had been 63.5% loss in the dist per Ha yield. It also recommended the waiver of interest on crop loans to the tune of Rs 2.18 B availed by farmers between the period Oct 02 to March 03 and Rs 20.9 M on water charges. The waiver of land taxes of Rs 0.116 M during 2002-3 has also been suggested. Besides the govt should earmark Rs 50 M grant to ensure adequate supply of agriculture implements such as manure, bio-fertilisers to the farmers under Central Drought Relief Fund. (DECCAN HERALD 210803)

Punjab seeks Rs 1.75 B Not satisfied by Rs 6 B package for four northern states, Punjab has demanded a one time Rs 1.75 B cane bail out package from the Centre for its sugar mills warning that the late payment to farmers could hit autumn crop sowing. (THE ECONOMIC TIMES 080803)

Gujarat On the heels of the announcement of Rs 6 B package for UP, Uttaranchal, Punjab and Haryana, Gujarat has appealed to the Centre to allocate Rs 1.8 B from the Sugar development Fund to the cane growers of the state. (BUSINESS LINE 070803)

POWER SECTOR

MP plan The MP govt has drawn up a financial restructuring plan to for the MPSEB to review the power sector. The plan will be executed in two stages. In the short term the plan envisages a capacity addition of 500 MW and 100% meterisation. Rs 18.35 B had been sanctioned for strengthening the state's transmission and distribution network. The govt has approved the Rs 2 B renovation and mordanisation plan for the Amarkantak and Sarni power stations. A 128 MW power station is being set up on a turnkey basis at Pithampur, to be commissioned by 2004. The govt plans to eliminate the power deficit in a phased manner by 2007. (THE ECONOMIC TIMES 170703)

Maharashtra power project gets clearance The Union Power Ministry has cleared the Rs 52 B, 1000 MW thermal power project at Mouda in Nagpur. Centre has asked PFC to release Rs 2.25 B for an irrigation project, which will provide water to the plant. The PFC generally does not finance irrigation projects, but in the present case, since the water will be exclusively used for a power project and the returns are assured, the PFC agreed to finance it, energy minister of Maharashtra said. (THE INDIAN EXPRESS 090703)

KSEB to be split The Kerala govt proposes to divide the KSEB into three separate public sector companies. The Electricity Regulatory Commission would decide the tariff. Private sector would be free to enter the field, regardless of whether new companies were formed in the public sector to take over the functions from the board. (BUSINESS LINE 120703)

POWER TARIFF

Orissa Power tariff hike plea rejected

The OERC has not allowed any tariff hike in Orissa in 2003-4. The commission has turned down the proposal for revision of bulk supply tariff by the Grid Corp of Orissa and also the tariff revision. High Court has stayed the enforcement of the order pending the disposal of a special leave petition filed in the Supreme Court on tariff issue. The OERC has directed Gridco and discoms to implement bulk supply tariff, retail supply tariffs and transmission charges as determined by the OERC. Gridco had asked for an increase in bulk supply of tariff from Rs 1.29 per unit to Rs 2.51 per unit (95% hike), while the distribution companies had sought an increase of around 22% in the retail supply tariff on a weighted average basis. (BUSINESS STANDARD 040703)

DERC cut distcoms' cost to prevent tariff hike

The Delhi ERC has slashed the estimates of expenditure submitted by the discoms BSES and NDPL by a huge margin and kept the hike to about 10%. The DERC brought down the Discom revenue gap from Rs 44 B to Rs 29.21 B. Discom are allowed the expenses permitted by the DERC along with 16% return on equity. The different between this total sum and revenue earned by them constitutes a revenue gap, which has to be filled by tariff hike. Another factor, which helped in curtailing the quantum of the hike was the huge loan of Rs 26.24 B for two years that the Delhi govt gave Transco. (HINDUSTAN TIMES 090703)

POWER PRIVATISATION

Power Grid, Tata power ink pact Power Grid Corp of India signed the agreement with the Tata Power for setting up 400 kV Tala transmission project. This is India's first inter-state transmission project with private sector participation. The transmission line will evacuate power from the 1020 MW Tala HEP in Bhutan, and carry surplus power from the eastern grid to the power deficit northern grid. The Tata Power picked up 51% stake in Tala Power Company, the first JV transmission project, which was thrown open for private participation. The project cost is estimated around Rs 11 B. (THE ECONOMIC TIMES 050703)

POWER FINANCE NEWS

PFC – DVC agreement The PFC and DVC has signed on an agreement under which the DVC will undertake R&M at a cost of Rs 95.55 B in the 10th plan. The DVC has asked for Rs 25 B financial assistance from PFC for this. (*HINDUSTAN* 130703)

Panel for 49% stake sale in PFC The Disinvestment Commission has said that the PFC should remain under Govt control for some time suggesting induction of 49% stake. The Commission said PFC should limit its activities to financing of power sector assets on commercial terms based on techno economic considerations and cautioned the company against spreading its risks beyond the power sector relying on state govt guarantees. The commission has also recommended privatisation of Water & Power Consultancy Services. (BUSINES LINE 060803)

RELEVANT ECONOMY ISSUES

CAG: Rajasthan falling into debt trap The CAG has revealed a bleak scenario for Rajasthan, saying that growing fiscal imbalances has led to a continuous deterioration of the state finances. In its report for 2001-2 it stated that the state was increasingly depending on borrowings for meeting its revenue expenditure and there was an "inadequate expansion" of development activities. The share of revenue receipts in the total fund available decreased from 74% in 2000-1 to 67% in 2001-2. The revenue expenditure shot up, consuming 88% of the total funds available. Lending for development purpose decreased from 2.49% to 1.13%. The overall revenue receipts declined in absolute terms in 2001-2, their annual growth for the first time turned negative by 2.01% in the current year. The plan expenditure declined from 31.14% of the total expenditure in 1997-8 to 22.13% in 2001-2. Only a little over two thirds of the total expenditure was met from its current revenue, leaving the balance to be financed by borrowings. 30 statutory corps, rural banks, Govt companies and joint stock companies with an aggregate investment of Rs 19.44 B incurred accumulated losses of Rs 10.5 B. (THE HINDU 290803)

SOUTH ASIA

Bangladesh Kapatai Seismologists have warned of a grave earthquake in hilly regions of Rangamati and Kapatai, 320 kms from Dhaka, in the South West of Bangladesh. In the period between Jul 27 and Aug 10 2003 almost 50 tremors of different intensities have been experienced. They assessed it as the RIS impact triggered by Kapatai HEP, the biggest reservoir in Bangladesh. The seismologists have asked the govt to act on the rehabilitation of 40 000 people from Barkal region of Katapai dist. An expert at Bangladesh University of Engg & Technology said that a 1 km long fault line in riverbed has originated due to increased tectonic activity and this may cause severe landslides. Prof Aftab Alam of Dhaka University said that increased tectonic activity might lead to medium intensity tremors and landslides. (*RASHTRIYA SAHARA* 110803)

Pakistan Ghazi Barotha Citing progress on R&R and environmental, the World Bank has lifted a loan cancellation warning for the nearly complete 1500 MW Ghazi Barotha HEP. The Bank had threatened not to release the final $ 350 M loan. (HRW 0903)

Pakistan Project sharpens Punjab – Sindh divide The ambitious, but ill-advised Greater Thal Canal project in Pakistan is threatening to snowball into a major problem. Strong resentment prevails in Sindh province over the construction of Thal canal, the foundation of which was laid by the President on Aug 16, 2001. The Central govt has been pushing the Rs 30 B canal project despite the fact that Sindh Assembly has passed a resolution against it. In protest against the construction of this canal, a Thal Canal Action Committee has been formed which has started demonstrations and fast all over the province. The Greater Thal Canal is a 37 km floodwater canal branching off from the Chashma-Jhelum Link Canal and taking water from Indus only during the flood season. The canal is to operate only three months in the year and project proponents claim it will irrigate the arid areas of Bhakkar-Layyah-Khushab benefiting a population of half a million. (THE TRIBUNE 040703)

Nepal Surya Nath Upadhyay, chief of the Commission for the Investigation of Abuse of Authority, has questioned the jurisdiction of the Supreme Court to try him on the scams relating to the Bagmati River Control Project and the Mahakali Irrigation Project. In his reply filed on Oct 15 upon the court's show cause notices in relation to two separate writ petitions on the scams, he pleaded that the cases be dismissed, as the petitioners had no locus standi. In the writ, Upadhyay was accused of irregularities in awarding contracts of BRCP to China International Water and Electronic Corp nine years ago when he was the secretary at the water resource ministry. (KATHMANDU POST 181003)

AROUND THE WORLD

Tibetans warn of environmental disaster Tibet's govt-in-exile urged China to rethink its developmental projects and policy for the region. Releasing a "white paper" on the state of the environment in Tibet, exiled Tibetan PM said, "Whether Tibet's political issue is resolved or not, the environmental issue can not be neglected as it is directly related to the welfare of the people of India, China and those of other downstream countries," he said. "We call upon the new Chinese leaders to reconsider these big projects and replace them with small-scale development projects that materially benefit the Tibetan people and do not undermine the integrity of Tibet's eco-system," he added (TERRA DAILY 140703)

Brazil Dam takeover In July, MAB occupied the work site of Quebra-Queixo dam, in Santa Catarina state, and protests took place in five states. 1,000 people took over the Manso dam in Chapada dos Guimarães, Mato Grosso, followed this and 100 families occupied Capim Branco-I dam, in the upper Doce river basin of Minas Gerais state. 500 dam-affected took over the worksite of Campos Novos dam in Santa Catarina state. These protests have compelled the govt to respond and a meeting has been scheduled between the Brazilian Movement of Dam Affected People (MAB) and high govt officials. MAB wants dam-affected people to be consulted regarding changes in the national electric sector, in addition to demanding solutions to ongoing problems caused by dams in Brazil. One of MAB's principal demands has been for a reparation and regional development fund for dam-affected communities. (PR MAB 010803)

Uganda: AES pulls out of Bujagali dam The US-based energy giant AES Corp filed a quarterly report with the US Securities and Exchange Commission announcing their decision to "discontinue the construction and development of AES Nile Power at Bujagali in Uganda". The proposed $ 530 M dam on the Nile River has been marred by controversy since the troubled Virginia-based AES was first awarded the right to develop the Bujagali Falls site in 1994. The controversy was fueled by both the lack of competitive bidding, and by the refusal to disclose the terms of the contract between the company and the Ugandan govt. The project also met with stiff opposition from local organizations concerned that the dam would drown the culturally important Bujagali Falls, and who urged the govt to preserve the falls and consider less-harmful and cheaper energy alternatives. But the WB saw the dam as a key element in its effort to privatize the Ugandan energy sector, and for five years has championed the dam above all other options. In 2001 the WB approved approximately $215 M in support for the project. Construction was put on hold when corruption was discovered last year. Legal action by Ugandan NGOs forced the govt to make public their contract with AES in 2002. An independent review of the contract revealed that Ugandans would have paid hundreds of millions of dollars in excessive power payments if the dam were built according to plan. Lori Pottinger of International Rivers Network said, "Bujagali is a costly white elephant that would increase the nation's debt and produce electricity that few Ugandans could afford. The project has stifled the development of viable renewable energy options." (IRN PR 130803, DTE Sept 03)

Indonesia: ODA in docks In Sep 2002, 3 861 displaced residents filed a lawsuit with Tokyo Dist Court against the Ministry of Foreign Affairs, the JBIC, JICA, and Tokyo Electric Power Services Corp. Claiming that the $ 251 M project forcibly displaced about 20 000 people and devastated their subsistence economy, culture and environment, the plaintiffs, who now number some 8 400, are demanding 5 M yen each in damages, the removal of the dam and restoration of the ecosystem. Kotopanjang Dam flooded a 120 sq kms area of the Minangkabau's fields, forests and villages in the provinces of Riau and W Sumatra. (THE JAPAN TIMES 140803)

Barclays breaks green pledges Barclays has been accused of breaking its "green" pledges after backing a highly controversial dam project in Island that threatens three species of goose. Furious British environmental groups have threatened consumer boycotts and shareholder action after the bank's finance arm, Barclays Capital, agreed to help arrange a $400 M loan. The Karahnjukar dam dominates Landsvirkjun's current investment programme. Conservationists led by the Royal Society for the Protection of Birds and WWF UK have warned that the dam will destroy the nesting and feeding grounds for 7 000 rare pink-footed geese who winter in Britain, and wreck the "staging areas" for barnacle and greylag geese who nest every summer in the UK. (THE INDEPENDENT 070703)

Commission floods EU climate policy Greenpeace has warned that the proposal adopted on July 23, by the Commission linking greenhouse gas emissions trading and the Kyoto Protocol project mechanisms undermines the environmental integrity of EU climate change policy. This proposal sets no limit to the number of credits that will be allowed and has no clear rules for potentially destructive HEPs. Greenpeace has asked that EU climate policy must explicitly exclude any credits from large HEPs and must apply the WCD guidelines to all HEPs, and a limit must be set for the number of project credits. It has appealed to the Parliament and the Council to significantly amend the Commission's proposal. (GREENPEACE PR 230703)

China prepares to flood towns Authorities in China were evacuating people around a lake on the rain-swollen Huai river in E China as they prepared to divert

its waters by flooding five towns. Flooding along the Huai has forced more than 600 000 people from their homes. Authorities were preparing to blow up dykes to lower the level of Hongze lake in Jiangsu province, which borders Anhui. In extreme emergencies, Chinese authorities destroy dykes that hold back rivers and lakes, diverting their waters into farming areas and sacrificing smaller towns in order to reduce the strain on barriers protecting cities. (THE HINDU 100703)

Thailand Thailand govt is set to make massive investments in three dams on the Salween, South East Asia's second largest river after the Mekong. These are the beginning of an ambitious Regional Power Grid to connect South-east Asian countries. The governor of the Electricity Generating Authority of Thailand has been at the forefront of the ASEAN leaders to support the regional power grid. He said that EGAT was prepared to buy the entire electricity output for onward sale to Malaysia and Indonesia, which are forecast to become net importers of electricity by 2010. The World Bank and the ADB are closely supportive of the regional power grid. The WB assisted in an Inter-Govt Agreement on Regional Power and Trade that was signed in Nov 2002. Thailand is willing to fund the entire project if there were financial problems arising from investors not wishing to be involved with Burma's military regime. According to governor, EGAT has allocated nearly $ 950 M for investment in the project and the agency is also ready to put up the money first through its own capital or by issuing bonds.

- EGAT plans to build two dams, the Upper and Lower Salween dams, on sites adjacent to Thailand's Mae Sariang dist in Mae Hong Son province, where the river forms a natural 130 kms section of Thai-Burmese border. Together costing an estimated $ 6.15 B, they woud flood about 3 200 Ha of prime forestland on the Thai side and about 5 600 Ha on the Burmese side. Tentatively, since, the forest area that would be destroyed in Burma is yet to be determined until field surveys and an environmental impact assessment are carried out. MDX Plc, a Thai construction outfit, has begun work on a 3 600 MW dam near Ta Sarng, a river crossing in Burma's Shan state, some 80 kms north from the Thai border. According to MDX, the Ta Sarng Dam alone will cost $ 3 B.
- Opposition to the Salween dam plans is gaining momentum with diverse people and groups including senators, environmentalists, human rights activists and advocates of ethnic groups based in Thailand and Burma voicing concern about the serious impacts. Thailand's environmental groups state that the dams would cause damage to the river's rich biodiversity and the lush green forest of the river basin that is habitat to many rare and endangered animal and fish species. Burmese human rights groups have extensively documented how the Burmese military junta has waged military and psychological warfare. They have documented Burmese military's use of forced labour as well as the destruction of people's homes and farmlands. Salween Watch reports that over 300 000 Shan and other ethnic people have been forced out of their homes in the Central Shan state. Since 1996, upto 761 villages from six townships around the Ta Sarng dam submergence zone have been subjected to forced eviction, affecting upto 28 097 households. The military usually enters and torches the villages, after forcing the residents to leave. (THE HINDU 170803)

NEWS ABOUT BOOKS, REPORTS

praxis journal A New Journal from BanglaPraxis.
BanglaPraxis, a collective Initiative for Research and Action based at Dhaka, Bangladesh has launched a quarterly journal. The 50 pages inaugural issue has four articles on India's river linking plans by experts from India and Nepal, interview with an activist, a review of Tipaimukh HEP, a diary on travails of Farakka Barrage and reflections on Brahmaputra river. A remarkable journal indeed.
Subscription rate in Bangladesh is Tk 50, for international readers it is $ 2. Copies can be availed from Ghouse 22, Road 7, Mirpur 2, Dhaka, Bangladesh. banglapraxis@yahoo.com

Newsletter of the CCDD Citizens Concern for Dams and Development, an organisation involved in struggles against Big Dams in North East has started bringing out a bimonthly newsletter from Feb 2003. First two issues has focussed on Tipaimukh Dam. The 10 page format covers detailed articles, documents, newsclippings and news on upcoming events.
For information, contact: CCDD, CORE Manipur, Loisanglen, Nongmeibung Nambam Chuthek, Imphal.
E mail CCDD_Manipur@hotmail.com
Web: http://www.brinksters.com/ccddmanipur

Ganga: Common Heritage or Corporate Commodity? By Vandna Shiva and Kunwar Jalees. Navdanya / Research Foundation for Science, Technology and Ecology. New Delhi. 2003.

The fifth report in the Water Sovereignty Series details the changing flows in the development debate over the sacred river basin: Ganga. Its eight chapters traverses the path from introducing the reader to the water crisis, water privatization and the place of Ganga river in the cultural history of India to the intricate issues of development of Ganga basin through Upper Ganga canal and controversial Tehri Dam project. With excerpts from *Corporate Hijack of Water*, the issue of privatization of Ganga has been discussed comprehensively.

Development Induced Displacement By W. Courtland Robinson. Brookings – SAIS Project on Internal Displacement,
In this report, Robinson points out, "for millions of people around the world, development has cost their homes, their livelihoods, their health, and even their very lives." Impoverishment and disempowerment often become their lot, with particularly harsh consequences for women and children. The report points out that while victims of natural disasters are generally the focus of sympathetic attention, as are many of those uprooted by conflict, "the same cannot be said for victims of development induced displacement." It includes case studies & demonstrates how persons uprooted by development projects often risk landlessness, joblessness, homelessness as well as social disintegration and serious violation of their civil, political, economic and social rights. http://www.brookings.edu/fp/projects/idp/articles/didreport.htm

Billions spent on wasteful, harmful ADB projects Environmental Defence and ADB watch has released a study estimating that at least 70% of ADB funded projects in Indonesia, Pakistan and Sri Lanka fail to produce lasting economic or social benefits. The report (available at www.environmentaldefense.org/go/adb) is based on publicly available ADB Operations Evaluation Dept audit documents. The report provides detailed excerpts from twenty-two recent ADB project audit documents from the agriculture, education, health, roads, marine, resource mapping, urban development, water supply, and finance sectors. The study finds that approximately 60% of loans underwrote projects rated "generally successful" by the Bank. Bank documents, however, disclose that half of the projects that it characterises as "successful" in fact are of questionable sustainability, indicating that the project failure rates are astonishingly high. The study finds that as many as seven of 10 ADB funded projects potentially worth over $23 B, will fail to provide lasting economic or social benefits for these indebted countries. NGOs have called for urgent and far-reaching reforms of the Bank, including "the full and unconditional cancellation of illegitimate debts." "Without drastic reform measures, it is clear that the ADB will continue to be an engine for economic failure, environmental destruction, and growing social and political instability throughout the Asia-Pacific region," said ED scientist Stephanie Fried, one of the co-authors of the study. "Donors have a responsibility to hold the institution to account for this disturbing record," said co-author and Environmental Defence policy analyst Shannon Lawrence. (ENVIRONMENT DEFENSE PR 240703)

New Publication From Manthan

Rahiman Pani Bik Raha,
Saudagar Ke Haath

Translated By: Ishwar Singh Dost
HINDI, Pages: 55, **Deals with Fundamental Issues in Privatization and Corporatisation of Water in India**
(Translation of Manthan's English publication "Water: Private, Limited" with a update on latest developments)
Contribution: Rs. 10 / -

Available From *Manthan Adhyayan Kendra,* 119 Satpuda Colony, Badwani (M.P.) India 451 551, Phone: 91-7290-222 857
Email: manthan_b@sancharnet.in
ALSO AVAILABLE WITH SANDRP

WE AWAIT YOUR RESPONSES

I just recd. the latest issue (Sept-Oct) of DRP and felt I should congratulate you on bringing out a very useful publication. I found the detailed report on teh CAG's indictment of the Maharashtra Irrigation Dept to be very useful. This is really good work.

Ashish Fernandes, Sanctuary Asia, Mumbai

I am a regular reader of your online publication *Dams, Rivers & People*. Thank you for doing a wonderful job of keeping us informed about the issues related to rivers in the Subcontinent. As you know, the river basins are the natural boundaries that cut across the political boundaries. Our land-use practices in a watershed or river basin affect the quality of water and the environment downstream. There is a common saying among the hydrologists "we all live downstream." It is in this context that I as an Earth Scientist believe that the proposed river-linking project by the Govt. of India will have adverse consequences in Bangladesh.

Dr. Md. Khalequzzaman, Assistant Professor of Geology, Lock Haven University, USA

Existing water related constitutional provisions and water policy (2002) are inadequate and incapable of resolving water scarcity in every village and inter-state conflicts. The continuation of above provisions and policy will therefore worsen the situation and lead nation to greater crises and conflicts. It is therefore necessary to abide by natural justice based provisions of our constitution. Keeping in view the constitutional provision of equal rights to individual, we should develop new water vision and redefine water priorities and its allocations. I suggest that the Proposed water vision could therefore fix the water use priorities and allocations and they should be broadly classified as Primary priority sector or Secondary priority sector.

The primary sector should fix priorities for water use in the following order: Drinking water, Water for livelihood, Food grain production, Environmental flow in rivers and streams, The priorities and allocations (quantity) for each use should be fixed for ten years and after every ten years, the priorities and allocations of each use should be re-examined and debated for taking fresh decisions for another ten years.

The secondary sector demands should be considered only after meeting the demands of the primary sector and the priorities and allocations of this sector could be in the following order: Recycled water for industries and domestic use, Cash crops production, Hydropower, Navigation and recreation, Area specific demands.

We should also introduce the concept of community regulations for water management as we had very rich community traditions of managing water resources. The National Water Policy should therefore make provisions and delegate water rights to community. The community will own that water and will also deal with water conservation, its equitable distribution, operation and maintenance of assets. Under proposed water allocation, it is urged that primary water needs of the community should be assessed for each village and each village should be allocated the desired quantity of water from the total of quantity of rainwater in their area. The community should have first charge based on equity and social justice on this allocated water to meet primary priorities defined above. Since we have many climatic zones, it is therefore necessary that in certain pockets water allocations to meet the demand may be done on lower side with proper suggestions for appropriate crops and agricultural practices. The suggested water allocation assessment should be done every ten years to improve earlier allocations. The above water allocation priorities will ensure minimum disputes amongst various states. It must be ensured through suitable constitutional amendment and change in the NWP.

K.G.Vyas, Former Advisor, Rajiv Gandhi Watershed Mission, M.P and Director, WALMI, MP

Thank you very much for sending me *Dams Rivers, People*. We are now focusing on river and it's related issues in the Nellor district. Penna River flows for a distance of nearly 100 kms in the district. There is one Somasila irrigation project. The river is left with little groundwater potential. The reason is over exploitation of ground water for scampi culture (a variety of fresh water prawn), polluted water released into the river and over exploitation of sand etc. Though there are rules like the APWALTA, no body really cares and even govt is not very particular about the river. The Nellore variety of rice is famous. Today rice production has disappeared from the district. Over 20 000 Ha of land is under Scampi culture adjacent to the river and people have come from different places and have invested huge amounts in scampi culture. Small and marginal farmers were forced to sell their land or hand over to commercial people on lease. Some of the villages adjacent to river Penna now don't get even drinking water from the river basin because the river water is now under the control of commercial people for scampi, on the other hand they release the polluted water into river. Now river has become a commercial commodity.

T.M.Gowrisankar, REMEDE, Nellore district, AP

Published, Printed, Owned and Edited by Himanshu Thakkar at 53-B, AD Block, Shalimar Bagh, Delhi - 110 088, Printed at Sun Shine Process, B-103/5, Naraina Indl. Area Phase – I, New Delhi – 110 028