

# Dams, Rivers & People

## UPDATE ON RELATED ISSUES

**SANDRP**

**VOL 1-ISSUE 2-3**

**MARCH-APRIL 2003**

### INDEX

About DRP			1
Let's have feet on ground, Mr Prabhu ( <i>Himanshu Thakkar, SANDRP</i> )			2
River Link News: How the Opposition is Mounting			5
Famine of Good deeds and ideas ( <i>Anupam Mishra</i> )			7
Appeal by Scientists of West Bengal ( <i>Kalyan Rudra and Samar Bagchi</i> )			8
Thoughts on Linking Rivers: Can We manage existing systems? ( <i>GK Bhat</i> )			9
Bhakra: Reality behind legend ( <i>Shripad Dharmadhikary and Swathi Seshadri</i> )			10
Bankrupt Math of WWF ( <i>Patrick McCully</i> )			11
Pesticides in YOUR bottled water ( <i>Compiled by Bipin Chandra, SANDRP</i> )			12
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News from the Narmada Valley	14	Publications available at SANDRP	29
Hydro Projects	15	Water Privatisation	30
Dams in South Asia	16	QUOTES	32
Silted Reservoirs of Japan	18	Koshi Victims of Flood Protection	33
92 dams scrapped in Japan	19	Muhane River struggle in Bihar	34
HR Crisis at Three Gorges	20	"Death by Hunger is Murder"	35
Irrigation Scams	21	Punjab village for sale	36
Poor Performance in Bihar	22	Power Options	38
RIDF is flop	23	Small Hydro	39
Water a Human Right: UN	24	Uttaranchal Invites Private sector	40
Groundwater	25	Public washing of dirty linen	41
Rainwater Harvesting	26	Foreign Investors are going out	42
Plan to save Nagpur water bodies	27	YOUR RESPONSES	44
Toti Bachao Morcha in Punjab	28		

#### ABOUT Dams, Rivers & People

To clearly reflect the issues we are dealing with, we have decided to change the name of our periodical to *Dams, Rivers & People*. Essentially, however we will continue to cover the issues we did in *Update*. We hope that *DRP* will become a medium of useful information dissemination & interaction. We would be happy to know your responses & suggestions about *DRP*.

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](http://www.narmada.org/sandrp) and [www.janmanch.org/newsletters](http://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.

## Let's have our feet on Ground, Mr Prabhu

*Indian govt and water resources establishment must go down in history as one of the most rare examples of its kind in the history for deciding the completion date of a project whose feasibility is still not known. Pause for a moment and consider the absurdity of it all: the Prime Minister, The President, the Chief Justice, the Deputy Prime Minister, the Water Resources Minister and the like are all swearing that the project will be completed by 2016 and at the same time informing everyone that only a fifth of the feasibility reports are ready!*

*Here is an article based a letter sent to Mr Suresh Prabhu, Chairman of the Task force on River Linking following a meeting with him on March 10, explaining why River Linking is such a mindless scheme. Reply from him is still awaited. Another letter, requesting him to make all the pre-feasibility and feasibility reports completed so far for the proposed river links has also been sent. This is minimum Mr Prabhu can do to create an informed debate on what the govt is proposing under the river linking plans. No reply to that letter either. Readers who agree may also write to him, also referring to the Freedom of Information Act 2002 passed by the Parliament.*

Ever since Mr Suresh Prabhu was appointed as Chairman of the Task Force on River Linking on Dec 16, 2002, he has emerged as a forceful proponent of completing the river linking task as soon as possible without really admitting that the project is yet to be declared feasible. To his credit, though it must be stated that he clarified that if he finds certain of the proposed links not feasible, he will not recommend implementation of such links. While meeting this author, he went to the extent of saying that if he finds that none of the links are feasible or optimum solutions, he will say so, and resign from his job.

The trouble, though is that very fact that the govt has suddenly decided to go ahead with the project on a misguided suggestion from the Supreme Court raises too many questions if Mr Prabhu can or will be able to see the issues on merit, keeping the feet firmly on ground. Here are the main issues that were pointed out to Mr Prabhu during a recent meeting to show how river linking is not a good idea.

**1. RAIN WATER HARVESTING** To the best of our knowledge, the govt has not done assessment of rainwater harvesting potential for a single basin or sub basin of the country. Without realising such potential, beginning from the village level and going up in terms of larger area, would it make sense to go in for long distance transfer of water through river links?

Someone may ask, what is stopping anyone from rainwater harvesting? Well, the state, the govt is. The govt has told everyone that water is govt business and in fact when communities try and take up local projects, there have been many instances, including one in Alwar where the govt sent them show cause notices. Besides, it would be quite irrational, to put it most charitably, to go for long distance transfer when we have not assessed or realised local water potential.

**2. Information or up keep of existing local water systems** As *Dying Wisdom* and a number of other reports have shown, India has a large network and variety of local water structures and systems. We neither have a credible database to show magnitude or state of these systems. Nor are there confidence-inspiring systems for maintenance of such systems. All available evidence shows that the systems are generally in very bad shape except where communities have maintained the systems.

**3. Existing Irrigation Infrastructure** India has the largest irrigation infrastructure in the world. And as repeated reports from the World Bank and even our own water resources establishment has shown, this system is in very bad state. It is hardly performing anywhere near optimum levels. The irrigation efficiencies are notoriously low at around 35% at best. As mid term of review of 9<sup>th</sup> Plan made it clear, even 10% increase in irrigation efficiency could lead to additional irrigation potential of 14 M Ha. That would still be far from the optimum possible efficiency. Should we not be attempting this on priority basis?

It is true that at some places the water lost performs useful function of groundwater recharge. However, firstly, that is not true everywhere. In fact, at large number of places, such recharge is causing water logging. At last count, water logged and salinised lands thus under producing is around 13 M ha. In any case, there are no known studies to show as to which places is such groundwater recharge is really useful. Moreover, if groundwater recharge is really the objective, than we can have more cost effective ways of achieving that without going for big dams and long distance water transfers. As Planning Commission and other bodies have repeatedly said, we do not have resources for proper upkeep of these systems. In fact, in spite of additional investment of hundreds of crores, the area irrigated by canals is actually decreasing in a

number of states, AP and TN are just two cases documented by the World Bank.

When we do not have resources for maintaining existing infrastructure to get optimum outputs from them, does it make sense to allocate scarce resources for more expensive schemes?

**4. Silting of Existing Reservoirs** India has built some 3600 Major and Medium water projects. These are all silting up at much faster way than what was planned or what we would like. We are unable to arrest the siltation of existing reservoirs. Should we not be allotting additional resources for arresting the siltation rates instead of creating more reservoir capacities at much higher expenses?

**5. FOOD PRODUCTION AND MANAGEMENT** One of the arguments that have been put up in support for river links is that we need to increase our food production to 450 MT by 2050. [That figure needs some scrutiny, but we can take that up later.] Please pause for a moment and look at the present scenario where while on the one hand our godowns are overflowing, there are millions who do not have money to even purchase their share of PDS or antyodaya entitlements. This is direct result of perusing the mega project policies where you create islands of productivity and hope that such increased production will take care of the needs of the whole country. As we all know, about two thirds of India still stays in rural area and mostly depend on agriculture. Every farm, every farmer would benefit from better water management. The "islands of productivity" model has in fact lead to neglect of vast majority, who do not have adequate employment and hence capacity to purchase their food or other needs. As against that, in areas like Alwar where people have done rainwater harvesting over large areas not only out migration has stopped, some of the people who migrated earlier have returned back. The point here that is being stressed is that river-linking attempt is essentially an extension of earlier model that has clearly failed, and we need a different kind of policies & programmes.

Moreover, while our godowns are overflowing in a drought year on the one hand and in states like Punjab there is active state subsidised attempt to wean away farmers from growing foodgrains on the other hand, when there are huge gaps between what is optimum or maximum feasible productivity either on rain-fed or irrigated lands, does it make sense to go in for such projects saying that we need more food production?

**6. SUBSIDISED SUGAR EXPORTS** One of the pillars of arguments in favour of river links is that we need more water for irrigation and agriculture. Even as this argument is being parroted, our godowns are glut with excess sugar and we are in fact subsidising export of sugar on the one hand and trying to find ways to increase sugarcane/ sugar consumption on the other

hand. As Mr Prabhu comes from a major sugar producing state that consumes most of its irrigation water for sugarcane, he surely knows how much water sugarcane consumes and how the state is subsidising the water export in the process? Is such (mis-)use or indirect export of water justified? In such a scene are we proposing river links for more of the same results?

**7. Drought proofing?** Another pillar of river link proposition is that it will drought proof the country. The trouble with this piece of argument is that it ignores the past experience. As a recent CAG report has shown, in reality, after 50 years of dam building, the drought prone areas in the country has gone up! On the other hand, now we have before us hundreds of cases across the country that show that the real solution to drought problem is watershed development and local water systems. Three years back, when country was facing one of the worst drought of 20<sup>th</sup> century, when the Prime Minister was making appeals to the nation to come to the rescue of drought areas like Gujarat & Rajasthan, there were villages in those drought prone areas that did not have water shortage or other drought related problems because they had done their rainwater harvesting over an extended period of time. We do not need more of mega structures if we are *really* concerned about drought.

**8. Flood Protection?** Would the flood prone areas get protection from river links? After five decades of structural attempts at flood protection we today have more annual average flood damages or more annual flood casualties. Secondly, even in a few dams where there is flood cushion provided, the same is not being used for flood protection as the increased power generation or irrigation or water supply requirements take precedence over flood protection designs. There are many instances of dams, which in fact have caused greater damage in downstream areas due to sudden release of large quantity of water.

Moreover, as more than one former secretary of water resources ministry has said, the river link is not likely to provide flood protection because the quantum of water that it will transfer is too small as compared to the flood flows in rivers like Ganga or Brahmaputra in monsoon, when the water transfer is expected to be affected. Moreover, it may be worthwhile to note that while Ganga and Brahmaputra are in floods, the recipient basins are also likely to be flooded in most cases.

**9. Drinking water needs?** Do we need river link for our drinking water requirements? I doubt even the most die hard supporter of the proposal would suggest that if local water resources are properly developed and managed, any area of the country really require such schemes for drinking water needs. If local water resources are destroyed and polluted and when unjustified needs are given free rein as in case, for example in Delhi, then there are some vested interests

who may in fact go to the extent of saying that we need river links to take care of even drinking water requirements!

**10. Hydropower?** One of the figures thrown around by the proponents of river links schemes is 30 000 MW which sometimes becomes 34 000 MW as power generation potential of river link proposal. The trouble with this figure is that it is hardly credible in view of the fact that most of the links are in fact going to *require* huge amounts of power to lift water across natural barriers like ridges that the links will have to traverse. But more pertinently, Mr Prabhu having been a Power Minister knows very well the state of our power scene. There is so much theft, supply side inefficiencies, transmission and distribution losses, end use inefficiencies and so on. While need for more hydropower capacities is being promoted in the name of greater peaking capacities, there is absolutely no attempt to manage the peak or even to assure that the existing hydro capacities are used as peaking stations and not as base load stations. Nor is there adequate attempt to go for generation options other than big dams. Here it won't help to just brush aside this argument saying that if DSM does not work we have to go for supply side options. If DSM has 35% potential, as Mr Prabhu rightly says, we must ask how can we tap this potential through some honest efforts.

**11. Financing resources?** According to 10<sup>th</sup> five-year plan, there are today 159 major, 242 medium and 89 ERM projects ongoing from the previous plans, some of them right from 2<sup>nd</sup> plan onwards. Those projects require over Rs 80 000 crores even by the most conservative estimates. We do not have resources to complete the projects and even the 10<sup>th</sup> plan envisages completing only a fraction of these projects! As mentioned earlier, we are unable to allocate enough resources for maintenance of existing irrigation capacities. Mr Prabhu, you were right in saying that our govt behaves like an emperor who keeps losing old territories even as he tries to acquire new ones. But saying that is enough, you will agree. The point here is that while we do not have financial resources for all this and for our minimum requirements, can we think of setting up restaurants on Mount Everest, even if the cost benefit analysis were to show, but some magic that our economists and consultants are expert at, that it would indeed be beneficial?

One of the ways Mr Prabhu plans to raise finances is by attracting private investment in the 34 000 MW hydropower component of the river link schemes. However, if we look at the experience of Power Ministry in this regard till date, one would be surprised if Mr Prabhu would be too hopeful about this. As a matter of fact, towards the end of his tenure as Power Minister, Mr Prabhu had been publicly saying that it was wrong to

expect any private investment in generation projects until we put our house in order in the power sector.

**12. Navigation Benefits?** Another benefit that has been putting forward in support of river link proposal is navigation benefits. Here one would like to draw your attention to the fact that a number of large dam projects in India have been doing exactly opposite: destruction of existing navigational benefits of rivers. One such destruction occurring right now is the destruction of navigational benefits in Narmada river in Bharuch area by the construction of Sardar Sarovar Dam in Gujarat. In fact, we do not even know (it is doubtful anyone has studied this) in how many river basins the large dams have already destroyed the available navigational benefits. Such benefits or their destruction do not even figure in cost benefit analysis of big dam projects.

**13. Polluted Rivers** Another issue that should cause considerable concern is the polluted state of our rivers, some of them being to the extent of being called toxic streams. In such cases, would it help linking such toxic streams with other not so toxic rivers? Pollution is in fact taking away the availability of fresh water in a number of areas from the hands of the people.

**14. National Commission** The only National Commission on Integrated Water Resources Development Plan (NCIWRDP) that Govt of India set up had assessment of river link option as one of its express terms of reference. That commission, in spite of many shortcomings in its functioning, in the report it submitted in Sept 1999 has been far from enthusiastic about river linking necessity even for our needs upto the year 2050. One is not sure what is Mr Prabhu's source of assessment that India would need 1441 BCM of water by 2050, but that National Commission, after looking at all the possible population and demand scenarios, have said that the higher level of projection of water requirement for 2050 is 1180 BCM, assuming the population of India would be 1581 M by then. In fact the population and demands are likely to be lower than that. We need to establish not only the need for such a proposal, but in fact the whole planning and decision making process has to be participatory, transparent to show that the selected option is indeed the least cost option for the society before we start considering the implications of any proposal.

One of the first useful steps that the govt can take is to make all the available information, studies and reports on river link proposals immediately public. That may help people see the reality of these projects. Based on this information the people can engage in a informed dialogue on this issue. One hopes, in the meantime the govt does not take steps that would destroy our rivers, else the generations to come would not forgive those who initiate steps in that direction.

**RIVER LINK NEWS****HOW OPPOSITION IS MOUNTING**

Farmers in the Dakshina Kannada district of Karnataka has come out strongly against the govt's plan to interfere with the natural course of rivers. As a part of its plan to inter-link rivers across the state the govt intends to turn the Nethravathi eastwards and change the course of a few other westward flowing rivers. Framers dependent on the Nethravathi have also begun to feel that the entire project would deprive them of the water of a river that has been flowing through this region for centuries and has been the main source of sustenance for thousands of families. (BUSINESS LINE 121202)



This scheme has been subjected to severe criticism since the days of the irrigation commission of British Govt and elaborate plans like Captain Dastur's "Garland Canal" was out rightly rejected quite long ago. Inter-linking of rivers was summarily rejected by the Centre in 1990 accepting the advice of then secretary water resources M S Reddy and array of other experts. A mammoth project to link the peninsular rivers will engender a human catastrophe of an unparalleled magnitude. It will be an utter disaster for the reason when there is substantial water if we care to utilise it frugally and carefully, there is never enough if our sole mode is to use as much as possible and the factors responsible for the Cauvery crisis is traceable to the latter practice. In the disastrous Sardar Sarovar Project lakhs of landholders had to lose their lands due to the network of canals. Of these 23 500 will lose upwards of 25% of their land, with 2000 losing all their lands. Not one these households are considered project affected and eligible for rehabilitation. Linking of all major rivers is tantamount to rejection of the decentralised water systems, which can meet legitimate requirements at cheaper costs. (NEWTIME 271202)

**SC on Dec 16** The Centre has submitted an action plan in the Supreme Court stating that it complete the proposed inter-linking of major rivers by the end of 2016. The plan was placed on 16<sup>th</sup> Dec. before the three-judge bench headed by Chief Justice, G B Pattanaik, by the Attorney General. He also informed the Bench of the constitution of a task force for the purpose. Suresh Prabhu would head the task force as chairman while C C Patel would be the vice-chairman and C D Thatte would be the member secretary. Recording this, the Bench adjourned the proceedings. This was following the SC order of Oct 31 2002. (THE HINDU & INDIAN EXPRESS 181202, DRP 0203)

**Not possible: Chhatisgarh**

The water resource minister of Chhattisgarh has said that inter-linking of rivers is not an easy task. The states like Uttaranchal, Uttar Pradesh, Bihar and others are not agreed on this project, he revealed after attending the national conference of water resource and irrigation ministers. He said that if all states were agreed then Forest Conservation Act would be violated and hence the Inter-linking of rivers is not possible. He said that if the states like Chhattisgarh and Orissa are not agreed on a small issue of Indravati River since many years, then how can it possible, where many states are involved. (RAJASTHAN PATRIKA 081203)



Though interlinking of rivers is becoming an obsession with the govt, and even as the PM defended it at least two states spoke against the project at the 12<sup>th</sup> National Conference of Water Resources and Irrigation Ministers in Delhi. Maharashtra's Minister for Irrigation said "Prime Minister's ambitious project of interlinking of national rivers would not at all prove beneficial to Maharashtra". He asked the Centre to divert water from its westward bound rivers to Godavari and Tapi instead. Alleging that the National Water development Agency was planning to divert water from its territory to adjoining states, he asked the Centre to setup fresh Krishna water Disputes Tribunal. Kerala also urged the Centre not to go ahead with the Pampa-Achanakovil-Vypar link project as the state is already facing water shortage in this basin. Kerala would also oppose plans to link rivers originating from the Western Ghats as part of the Centre's ambitious interlinking project, state Irrigation Minister said. As far as Kerala was concerned, interlinking the Western Ghats rivers sounded "unscientific", he added. (THE INDIAN EXPRESS, HINDUSTAN TIMES, BUSINESS LINE 060203 & BUSINESS STANDARD 140203)



The noted Geographer and Head of Dept of Environmental Science, Guwahati University Dr D C Goswami said that the decision of the Central govt was nothing but a step in the wrong direction. The basic flaw in the basin linking proposal is that it has not cared to assess the water requirement status of the so called water surplus basins. Without doing all the exercises seriously it is really incomprehensible as to how they could identify the water surplus areas. According to computer model of Brahmaputra, he said that the ground reality was such that in the so called excess areas like in Assam, there had been a gross

underutilisation of water resources, which might have led to the assumption surplus water. (ASSAM TRIBUNE 100102)

### Linking rivers can affect ecology, warns WWF

World Wildlife Fund director General Claude Martin has voiced reservation on the Centre's plan to interconnect rivers and warned that linking rivers like pipelines without looking at the ecological impact could lead to serious repercussions. Dr Martin said a river is an ecosystem and one cannot think of connecting them like pipelines. Doing so could lead to rivers getting dried up or getting filled up with silt and sand. Stating that such engineering solutions are basically flawed, he said a river is more than just water; there is a lot of biodiversity in it for it sustains the livelihood of all species living in and around it. He said that the concept of integrated river basin management had emerged at Johannesburg conference. (THE HINDUSTAN TIMES 100203, RASHTRIYA SAHARA 110203)



The water resource minister of Bihar has suggested that the Centre should link the tributaries of major rivers rather than linking large rivers. He claimed that tributaries could be linked within 20% expense of total estimated cost for inter-linking project and 80% problems could be solved. (DAINIK HINDUSTAN 240103)



The fact that the decision of inter-linking of rivers has come in response to a suggestion to this effect by the Supreme Court does nothing to erode absurd irony of the situation. The suggestion to the Central govt on the inter-linkage of rivers is monumental for potential impact and contentiousness. The govt's assurance to the court that it will achieve this by the year 2016 is grossly delusory or plain stupid. Perhaps both. The govt could have pointed out to the Court that, beginning with the '60s the idea to connect to country's rivers has been talked about at regular intervals. It has been rejected each time, with incremental doubts about the feasibility and viability about the project.... The govt itself has indicated to the Court that even a working figure for the overall project (even on the absence of firm details) would be Rs 5600 B. This implies that the govt is committed to finding Rs 400 B every year for the next decade. There is serious credibility question on such a claim. Moreover, the 10<sup>th</sup> plan adopted by the govt has no provision for this. The govt claims that its engineering exercise will transfer 1500 cubic m of water per second, from the surplus rivers to the Deficit Rivers. On the other hand, official estimate indicate that floodwaters in the Ganga, Brahmaputra, Mahanadi, and

the Godavari add up to 30 000 cubic m at peak flow. This mismatch indicates that the inter-linking plan would be totally incapable of solving the annual flood problems in the country. Govt depts would point out that digging large canals displaces local populations whose resettlement creates all round misery. Hydrological officials of coastal states have already begun to express fears that the curtailment of river flows to the deltas would lead to a large scale ingression of saline water from the sea. Recent experience has shown ample proof that the revival of dead ideas can be dangerous and disastrous. The new lease-of-life to the idea of mega-linking of rivers is just that. (BUSINESS INDIA 6-190103 Editorial)

**Sub-groups to undertake preliminary studies** The first meeting of the task Force on Interlinking of Rivers appointed five sub-groups to study various aspects of the issue. The five sub-groups will study the economic viability, social issues, ecology, engineering and international dimensions. The Indian Institute of Management, Ahmedabad will be an adviser to the task force on organisational structure for implementation of the project. ICICI bank chief K V Kamath has been appointed the head of the sub-group to recommend the financing structure for the project. (THE HINDU 070103, BUSINESS STANDARD 100103)



The Central govt's plan to interlink the rivers, including the Brahmaputra, is poised to snowball into a major controversy in Assam with the Assam Gana Parishad and other regional parties opposing the move, terming it a deep-rooted conspiracy to deprive the people of the State their due share of water. AGP president Brindaban Goswami said "when the Centre constituted Task force, the drought in some states was given priority over Assam's annual scourge" and cautioned, "it was necessary to find out what impact it would have on Assam". He said that there is enough reason to believe that the interlinking of the rivers is aimed at supplying excess water to the dry states by depriving states like Assam. The All Assam Students' Union and Asom Jatiyabadi Yuva Chhatra Parishad too have expressed opposition to the proposal. (SENTINEL 300103, THE INDIAN EXPRESS 310103)



W Bengal Irrigation Minister has written a letter to central water Resources Minister, protesting against inter-linking rivers, stating that the said project will pose a "potential threat" to W Bengal. He has sent a report with the letter stating that the Ganga basin is the largest river basin in the country, and since W Bengal is located at the "tail end" of the basin, it is a "deficit state". (THE STATESMAN 230103)

## Private role in river linking: Agenda Exposed?

The Chairman of the task force of river linking has called upon the private sector to participate in the linking rivers across the country. He said the private sector could boost hydro electricity generation, navigation as well as irrigation projects by the participating in this project. The private sector companies can also form user forums and even supply water for these projects. He also mentioned that the govt would not approach any international funding agency to finance the projects. He claimed that the total resource required would be less than 1% of the GDP per year. (BUSINESS LINE 120203)



The NWDA budgets the entire project at ₹ 5600 B (\$112 B) at 2002 prices. But Mr Prabhu himself says it could go up to \$200 B. The Himalayan component of this plan would cost Rs 3750 B and the peninsular part,

Rs 1850 B. Where is the investible capital of this magnitude available in the domestic economy? The only option would be funds from international sources. Apart from the fact that this would place a debt of about \$112 on every Indian (where average annual income is \$400-\$800), it also raises question about how this loan is to be returned. Moreover, annual interest on this amount would range between Rs 200 B and Rs 300 B. (NEWSTIME 271102, THE HINDU 020203)



Deputy Prime Minister of India has said, "On the one hand, most of the rainwater flows into the sea without being harnessed; on the other, groundwater is depleting due to its over extraction. Proper harvesting of rainwater could solve domestic and agricultural water needs. RIGHT, Mr Advani. Why then, at the same meeting, of all places on rural water supply, you also advocated, "garland of rivers"? Its clearly not confusion that is leading to this double talk? (THE HINDU 061202)



Amidst the complete anarchy, the govt even formulated a water policy. The very officials who prepared the water policy, are today engaged in figuring out the most costly, bizarre, and impractical plans of interlinking rivers. Even the tragedy of the raging drought was not able to have such discussions and plans declared not only inappropriate but also antisocial. If supposedly responsible people and ministers waste their time in idle fantasies, then what is left to say?

Digging a well as the fire rages: thus goes an old adage. The fire of famine raged and the government started digging wells. Probably in the proverb, water is found once the well is dug. But this time there was no water to be found when the wells were dug. Water was rushed to Gujarat in tankers, trains and ships. Only aeroplanes were not put into use.

It is the first famine of the 21st century, much touted by our politicians for the past two decades or more as the beginning of the brave new millennium, into which they were steering India. So much noise is being made about the great revolution in information technology, yet famine entered half the country 'quietly' without giving any sign to the great children of the great revolution.

But famine never comes quietly. It is not a guest barging in without having announced the date well in time. When monsoon wrapped itself in September, it rained the information as to which all places had recorded insufficient rainfall. But for a few exceptions neither the sons of the soil nor the collectors bothered to collect this important information. In villages, fields and cities, water was drawn out of the soil just as in the past. The result was that in 6-7 states the water table

kept declining. The level dipped so low that water could not be pulled up even by the might of electricity.

We should not forget that famine never comes alone. The famine of good deeds and ideas precedes it. Here there is no difference between ideas and actions. Action, field work, grassroot-level work are necessary preconditions for well-thought-out planning. Conversely, a good idea comes from a good thought. Neither of them is a one time sprout like a terminator seed.

Even in this famine, there is an example of good deeds following good ideas in the Alwar region of Rajasthan, where an organisation called Tarun Bharat Sangh has been active for the past 15 years. The first good idea which took seed there was to build check-dams to link the small ponds and nullahs. Some 600 villages of that region and the surrounding areas quietly undertook to save every drop of rainwater. These dams revived the waters of five dried-up rivers of the region.

Good ideas led to good deeds and could easily take on the challenge of the failed monsoon. The streams, ponds and wells remained full of water. And yet, the farmers had the foresight to decide to avoid planting such crops which require substantial amounts of water. Only those crops were sown which were resistant to a dry spell. The farmers did lose some money in the process but the area is like an oasis amidst the raging desert and famine. Here the government neither have to rush in water tankers nor carry out relief operations.

In Alwar, it is not just rivers that have been linked to one another but it is people and villages who have been re-linked to their ponds and to their rivers. It is not just

money that was invested in this work, but people's sweat and labour. It is this mixture of good work and good ideas that has kept the famine at bay here.

Anupam Mishra ([riverlink@yahoo.com](mailto:riverlink@yahoo.com)),  
March 18 2003, From Manushi Issue 118)

### An appeal by Concerned Scientists of West Bengal

We are greatly concerned to learn from the media about the intended project of interlinking of rivers proposed by the Govt. of India in response to a suggestion of the Supreme Court of India. It is reported that this mega project will cost US\$ 112 B. Taking into account the usual cost overrun of such water projects the final bill to be paid by the people of India may be \$ 500 B which is larger than the present GDP of India. We urge the Govt. to consider the following before proceeding any further on the project:

1. Make available all information on this project for a transparent and independent professional assessment.
2. What precise parameters does the project use to characterise river basins as surplus or water-scarce?
3. Any withdrawal of water at upper catchment may cause depletion of water resources lower down the river. This may cause severe inter-district, inter-state, inter-country disputes as we witness in the cases of Cauvery or Ganges. There will be a danger of severe social strife that can break the country.
4. How are the environmental damages to be caused by the interlinking project identified and their financial and human costs estimated? A systematic full cost - benefit analysis for the project on ecological changes caused in the total basin may turn out to be economically fatal for the present & future generations.
5. The criss-cross of canals for inter-basin transfer of water will completely jeopardize the hydrological balance of the region creating immense problems of waterlogging and salinization of land.
6. 3600 or more big dams constructed since independence have caused crores of oustees who have not yet been properly rehabilitated. Such a mega project will cause loss and livelihood of lakhs of people, mostly tribals & dalits, creating tremendous social strife.
7. The mountains, glaciers, rivers, deserts, oceans, forests & climate are all connected like a web in a macro-dynamics of nature. We cannot tamper with such macro forces without a proper understanding.
8. The proposal of Govt. of India may go through a series of public hearing throughout India leading to the establishment of an independent commission consisting of geologists, geographers, hydrologists, sociologist & economist to go through the public opinion to assess the best option before the nation to fulfil its justifiable prioritised needs within the parameters of sustainable and equitable development.
9. The skewed Hydrograph of any river does not indicate excess water in the basin. The monsoon flow flush the sediment load from the riverbed and deposit

fertile silt on the flood plain and thereby restore the dynamic equilibrium of the river.

10. The idea of transferring water from so called surplus to deficit areas is hardly possible in view of high infiltration and evaporation of water in dry areas. Such attempts would impair the ecosystem in both the areas.

11. The project, if implemented, would ultimately lead to total decay of the existing river systems, especially deltaic distributaries and invite an ecological disaster.

Samar Bagchi and Kalyan Rudra on behalf of  
some concerned Scientists of West Bengal.

### EXPERTS REJECT RIVER LINKING PLANS

At the Jawahrlal Nehru University, a 3-day National Workshop on Fresh Water Issues, with a Round Table on National River Linking Plans on March 31-April 2 2003 came to an end with most of the speakers rejecting the river linking proposals. Speaker after speaker from academia (JNU, DU, Punjab University, IIT Kanpur) dismissed the project and said the claims about irrigation and electricity are based on old data, which are no more relevant. They said it is painful that there is no transparency. Geological Survey of India is also not sharing information. Some of the questions raised at the meeting included: Are citizens, communities willing to have interlinking? Who is to evaluate the performances? Is there any credible evaluation of existing projects? Can advocates of this project be judges of the project too?

The Workshop was inaugurated by the Vice-Chancellor of JNU. The workshop was organised at the request of Mr Suresh Prabhu. The feedback from the workshop is to be sent to him. As to what he will do with the feedback, only Prabhu knows, said Prof. V Subramaniam, School of Environmental Sciences (SES), JNU while concluding the workshop on 2nd April. He added, the National Workshop concludes that no body is favour of this grand plan.

Earlier Prof. Rajamani said, it is bewildering that the govt is not making all the reports done so far on the issue public. Prof. Rajamani asked, where is the water? He said, go down stream there is no water. Even if it is there no state will say it has. Govt has no hard-core data. One speaker of SES said, the plan is based on old data, which does not have contemporary relevance. This idea might be fine only on paper. Dr V Ravi of JNU asked, what about fishery-will it not be destroyed as a result of shifting of water.

When a govt official was asked whether Ganga is a surplus or a deficit river, he had no answers. The question about the basis of claims about irrigation and electricity benefits went unresponded.

Gopal Krishna ([riverlink@yahoo.com](mailto:riverlink@yahoo.com), 050402)

**Thoughts on Interlinking of Rivers****Can we manage existing systems?**

It is relevant to look in to the Water Vision draft of AP to understand the status of our "temples of Modern India". Irrigation efficiencies of some projects:

Nagarjun Sagar Right bank canal	23%
Left bank canal	33%
Sriram sagar	17%
Rajolibanda	32%
Tungabhadra LLC	46%

The figures in other states are similar. The figures of irrigation capacity generated and utilised are better not looked in to, to avoid making all of us unhappier. The game is simple. We invest Rs 10 out of which Rs 5 has magically disappeared; out of the remaining five rupees, three Rupees did not reach where it had to but created more problems (water logging and salinisation). The strange thing is that those who have invested are happy- because it was not their money. Our irrigation system is a proverbial proud farmer owning a herd of cows but has to buy milk for drinking tea but dreams of buying more cows.

I went to Nalgonda the other day. They regularly drill borewells (about 20-30 per year/ village). It is an accepted practice now to drill borewells taking money from the lender (called borewell agents)- three fourth of the wells give lots of dust while drilling, and water flows from the eyes of the farmer (thinking of how to repay the debt). The "successful" yield water for a few years or until the neighbour drills a deeper well. The well first becomes intermittent. Marginal cost of pumping is zero (Flat rate).

Standing by the side of a field, I wanted to check the yield by filling an empty bottle "scientifically". It took that 5 HP borewell 5 minutes. The farmer had abandoned all but 50 sq m of paddy field out of 2 acres - he is still hopeful. The electricity dept official accompanying me was so disgusted with "wastage of energy"; he thought he should advise the farmer (We "the educated" have fundamental duty, right and responsibility to advise the illiterate farmer of things that we don't know and can't practice) "why can't you do some other activity instead of growing Rabi rice". The farmer replied "Sir, you are educated and wise, you get your salaries. Please leave your job for a year and explore alternatives, then show us the way. We will follow your footsteps".

"Any culture which mismanages land and water is doomed". This is an old lesson, which we have forgotten again and again. More and more villages are joining the bandwagon all across the semi-arid tracts.

With this waging "War for water" some villages have become very permeable, (so many holes in to the rock-

it is a sieve). Farmers have created an excellent system to increase the groundwater recharge I was wondering why do we have to invest money on "Neeru Meeru". By the way, "Water vision" hopes to increase the percolation / recharge from current 9 to 15 %. How this state which has more unterraced cultivated lands than that terraced and bunded (that means lots of runoff), is going to increase recharge is a matter of intellectual debate but how it is going to be implemented is known already- just play with few numbers- no one is hurt, everyone is happy. I have heard a song long back "we are messing up the land, messing up the sea, messing up everyone" or words to that effect.

We are very good lawmakers. Please don't ask about implementation- the "Maya" will be lost. Who is going to bell the cat? The leaders fear that it may be "politically incorrect to implement" these- let the utilities measure agricultural electricity and charge based on consumption first (if they do measure, the last opportunity for juggling the theft and other losses under agriculture will also be gone). Spike Miligan discovered long back that every culture requires a faceless enemy who can't be seen and is far enough. We have ours- so feel safe.

Modern temples of India, green revolution, conjunctive use, interlinking rivers- we feel safe under the umbrella of slogans. Leaders generate slogans "let us develop "unutilised waters" wasted in to the sea".

Is it not high time to think about how to manage what we have rather than invest more to benefit few? Do we want more investments while we can't manage what we have already? Are there really any "unutilised" waters? How reliable is the data on unutilised water resources? Why are many large and medium dams not filling up if there are unutilised waters? If and when we build our interstate "link projects" will they also have the same fate? Does the terrain offer opportunities to divert waters and use it beneficially? Have we run out of ideas to invest on more socially beneficial programmes? Do we want to grow more food while we are unable to distribute it to the needy? Are (over) irrigated crops the only remaining options for us? Can we make farmers grow crops that irrigation systems are designed for? (Or will head enders grow sugarcane while the irrigation designers designed for irrigated dry crops?) Can we manage available water in meaningful ways?

These are uncomfortable questions. Let's try to analyse the situation clearly. Let's not give the same medicine dose to elephant and dog. Lets forget our hallucinations of towing ice from Antarctica and cultivating Annam (rice) in Andhra and see what options still remain and what we can do to cope the crisis.

Gopal Krishna Bhat ([gkbhat@taru.org](mailto:gkbhat@taru.org),  
Edited message on DNRM discussion group 290303)

## The Bhakra Project in North West India: Reality Behind a Legend<sup>1</sup>

(An on-going study conducted for Manthan Adyayan Kendra  
by Shripad Dharmadhikary and Swathi Seshadri)

The Bhakra project in India consists of a huge dam on the Sutlej River, thousands of kilometres of canal network and several inter-river linkages. The dam, built during 1947-63, brought irrigation to about 2.8 M Ha of land in Punjab, Haryana and Rajasthan. Haryana and Punjab saw explosive growth in agriculture production in the late 60s and in the 70s and this was attributed to the Bhakra project. The Bhakra project was credited with single-handedly pulling India out of the dependency on foreign food aid. In the process, the project has almost become a legend in the country and is cited as a justification for any large dam based irrigation project in India.

This study sets out to research the long-term impacts, efficacy and sustainability of the Bhakra project and especially its role vis-à-vis food security of India. The study is also looking at the debates, discussions and the decision-making process at the time the project was being planned to understand the process and factors that influenced the decision to go ahead with the project.

The preliminary findings of the study are startling, and indicate that the benefits and contributions of the project have been grossly exaggerated. They also indicate that while there was increase in agriculture production after the project, this cannot be credited only to the project but the principal factors lie elsewhere.

The first important thing is that popular perception attributes the agricultural growth in Punjab and Haryana to the Bhakra project, whereas the areas irrigated by Bhakra project are only a portion of the total irrigated area of the two states. The study is in the process of estimating the proportions of the areas irrigated by Bhakra project and other sources, and the contribution to food production of each of these.

Further, there is mass of evidence to indicate that the real forces driving productivity were the "chemicalisation" and industrialisation of agriculture - with massive inputs of chemicals, financial subsidies, energy and the explosive growth in withdrawal in ground water due to the enormous increase in tubewells. These groundwater withdrawals are greatly in excess of the recharge, including the recharge from the canals, which has been claimed as one of the important benefits of canal irrigation systems in general and Bhakra in particular. That the principal driving

forces of increasing production lay elsewhere is also clear from the most ordinary rates of agricultural growth between 1950-1967. 1953 was the year when the first irrigation from the project began.

The study also indicates that this system - which provided growth in the initial years - is highly unsustainable and today stands on the verge of collapse. Indeed, in many areas, this collapse is already a reality. The growth rates of food grain production are falling, and have even become negative in case of some significant crops like rice. The soils are highly degraded, and require increasing amounts of inputs of fertilisers. The agriculture system is dominated by just two crops - wheat and rice - and both are becoming financially highly un-remunerative. Attempts since 15 years to diversify the crops have failed due to economic, financial and ecological reasons. The soils have been rendered unfit for several crops.

Vast tracts of lands have become waterlogged and saline. On the other hand, huge areas are facing water levels that have fallen to unviable and unsustainable levels. Groundwater extraction - the very foundation of the agricultural growth in the area - is becoming increasingly difficult and expensive.

All these have led to large number of farmers committing suicide in the most prosperous, agriculturally most developed state of India - Punjab. This, together with the fact that farmers with less than 0.8 Ha are considered virtually landless is a grim indicator of the kind of prosperity that is the result of 50 years of the project. This has been the long-term outcome of the project. Given that the legend of the project derives directly from the agricultural prosperity that it is supposed to have ushered in, it is clear that this has proved to be a short-lived and unsustainable phenomenon.

On the other hand, the reservoir behind the dam is silting up at an alarming rate. Today, over 10% of the live storage and 30% of the dead storage has been lost to siltation. What is alarming is that the silt has formed a hump, forcing most of the new silt inflow to deposit in the live storage. This too has a big impact on the water that can be delivered to the command and this is likely to fall sharply over the years.

<sup>1</sup> The summary of the initial findings were presented as the World Water Forum, Kyoto

Meanwhile - 50 years after the project, the people displaced by it are still seeking justice and proper resettlement. Many settlements do not even have a proper source of drinking water.

Looking at the historical data, a startling fact that emerges is that the dam did not "bring water to water-scarce areas" as is the popular perception. Rather, much of the Bhakra commanded areas were already being served by a vast network of diversion canals, drawing water from the very same river from as early as 1880. Indeed, a large part of the water of the river was already being used in the commanded areas. It is true that some of the very arid and semi-arid lands - in the

Ministerial Declaration at World Water Forum:

A ministerial meeting tackling the world's water problems fell short of producing a clearly defined programme of action in its final declaration, which was released here Sunday. Also missing in the final text seeking to achieve water security was language recognising the right to water as a human right. This was in spite of the UN Committee on Economic, Social and Cultural Rights stated late last year that "The human right to water is a prerequisite for the realisation of other human rights... State parties have to adopt effective measures to realise, without discrimination, the right to water."

Furthermore, the ministerial declaration omitted mention of the need for a global mechanism to monitor the progress being made to solve water-related problems, particularly the lack of safe drinking water and adequate sanitation. The other significant themes in the declaration are the need for community-based approaches in managing water, the recognition that

**Bankrupt Math:**

The glaring mismanagement of the world's water is one of the great social and environmental tragedies of the 20th century. US water analyst Peter Gleick estimates that if water and sanitation services do not radically improve, as many as 135 million people will die from water-related disease over the next 20 years.

So what kind of radical improvement would it take to stop this deadly scenario? The world water Establishment has put forth more big infrastructure projects and privatization as the core of their proposed solution to this crisis. This approach which will only worsen the problems they seek to solve and hinder the

SW Punjab and W Haryana - did get the waters due to this project. However, these are some of the very areas that are experiencing the worst impacts in terms of waterlogging and salinisation.

The decision-making process during the period the project was planned and implemented is still being studied.

In sum, it is clear that the project's benefits have been highly exaggerated; its actual role in the agricultural growth was limited. Even this limited growth has proved to be highly unsustainable - economically, financially, ecologically and socially.

cooperation is a must among countries that share rivers to avoid future conflicts and that countries must improve the "efficiency of agriculture water use." As it is, the declaration endorsed at the ministers' meeting, which attracted representatives from over 100 countries, identifies key areas where urgent work is necessary. Among them are exploring new ways of financing water projects, including private sector participation.

But NGOs at the Kyoto forum, which ran from 16-22 March, issued a statement to the ministerial meeting denouncing the efforts underway to privatise water. They objected to the development model being given legitimacy at the TWWF that stresses on "the commodification of water and the renewed push for large-scale infrastructure projects that undermine local, participatory, decentralised actions". (IPS (Kyoto), 230303)

## Flawed Solutions to Water Supply Problems

adoption of real solutions that are both available and affordable. The real solutions to this problem will not be simple, but neither does it lend itself to a solution that relies on an army of water-privateers taking over water supply around the globe.

It is time to question their assumptions at every level, and to press for an approach that promotes local, small scale initiatives. Herein, we re-calculate the water establishment's "gloomy arithmetic" of water supply, and find it rife with error.

Patrick McCully (For full article, see World Rivers Review, Feb 2002)

*In early February, CSE broke a remarkable investigative story exposing the dangerous pesticide levels in bottled water in India. The story was testimony of the failure of the various govt agencies, the industry, the consumer action network and even media. CSE needs to be congratulated for this remarkable story. The media response was remarkable. The various govt agencies contradicted themselves, but some changes are likely. The industry response has been mostly misleading and untruthful, to put it charitably. The moot point of is that very few people have bothered to understand or note that the trouble is much bigger. The very source of the water for the industry is highly polluted and most people in India depend directly on that source. The criminal conspiracy of silence about the safety of vast majority of people has escaped the notice of most. That, as they say, is another story. Here we have only put together the responses of various players, which are self-revealing.*

**The Case** The Pollution Monitoring Laboratory of the Centre for Science and Environment had conducted a study and revealed that, most of the brands of packaged water available in the country contain pesticides significantly higher than permissible limits. It can cause serious physical impairment ranging from damage to the central nervous to lung cancer. Samples of as many as 17 brands of packaged drinking water sold in and around Delhi were tested by CSE. The PML randomly bought two bottles of each of different brands from colonies and shopping areas and tested the 34 samples with a widely and internationally used methodology, approved by the United States Environment Protection Agency for pesticide detection in drinking water. The Test results were compared to the European Economic Community's directive on drinking water called 89/778/EEC. This standard provides 62 parameters on the "quality of water intended for human consumption", and is used as the norm all over Europe. The directive parameter number 55 sets the limit for how much of a particular pesticide, and all pesticides taken together, can be allowed to exist in drinking water. It sets the maximum permissible concentration at 0.0001 mg/l for each substance and at 0.0005 mg/l for the sum of compounds.

The study says that while packaged water brands in Delhi have 36.4 times higher total pesticides content than the permissible limits, Mumbai brands have 7.2 times the standard content. The pesticides, which were tested for organochlorines, organophosphorus, chlorpyrifos, malathion and DDT, among other compounds. The EEC directs that the maximum residue limit for total pesticides is 0.0005 mg/l and 0.0001 mg/l for single pesticides. This revelation has put serious question mark over the reputation of the Bureau of Indian Standard. The bottled water industry in India is estimated at about Rs 10 B and is growing at a rate of 40 %.

The highest pesticides content was in Hello Brand (45 times higher than the prescribed EEC limit). And other brands Mcdowell (43 times), Paras (31 times) Volga (29 times) and Bisleri (14-30 times). Packaged natural mineral water brands Evian (Imported from France),

Himalaya and Catch were the top three brands in terms of total pesticides content. The top seller, Bisleri was the third worst brand out of the total of 17 brands checked.

Once the results were in, the PML decided to check the quality of water being used by the manufacturers as their raw material. PML resource person went to plants – located in and around Delhi – to collect water from within the plant premises. They were not allowed to inspect the Aquaplus, Bailley, Hello and Kinley Plants. Most companies use borewells as source of water.

**Govt Response** The BIS regulations for drinking water says pesticides should be "absent" for packaged and for mineral water it should be "below detectable limits". The BIS has separate certification for the packaged mineral water (IS 13428) and packaged drinking water (IS 14543). The BIS comes under the Ministry of Consumer Affairs (MoCA). The Consumer Affairs Minister had ordered an investigation by a high level committee. The committee had to examine whether the BIS norms and tests were adequate and if they are being enforced properly.

Scientists and experts of the Dept of Science & Technology have confirmed the findings of the CSE about high levels of pesticides in bottled water. The dept has recommended standard procedures to monitor the quality of water and fix responsibility at various levels including packaging. The Union Minister for Science & Technology emphasised that the standard prescribed by the BIS for packaged and natural mineral water under the Prevention of Food and Adulteration Act is inadequate. These standards simply say that pesticide residues should be below detectable limits. In a letter to PM the Ministry of Science and technology suggested (i) the BIS standards for packaged drinking water and natural mineral water need to be set up into more precisely defined and quantitative standards; (ii) responsibility needs to be fixed at different levels, including at packaging level; (iii) standard procedures for monitoring of quality need to be set up; and (iv) correct, accurate and quantitative labelling needs to be evolved and mandated.

The Union Health Minister said that the water available in the market so far was meeting the BIS criteria. As such, it was in consonance with all the legal requirements. That no action could be taken against the manufacturers. She said the methods and standards used by the CSE to test the samples of bottled water were more "sensitive" and in line with the international standards and India should adopt these standards.

According to Mr Wajahat Habibullah, secretary consumer affairs, it was decided to go with WHO parameters, because aligning with EU would increase the cost of the end product. The packaged drinking water being sold in the market is absolutely safe for humans despite the presence of pesticides according to the BIS. This is because, under the WHO/CODEX guidelines there is something called "acceptable daily intake."

The Director General of BIS had requested Union Health Ministry to amend the specifications of packaged drinking water and mineral water in line with amendment carried out in BIS specifications, which are as per EU Norms. The BIS has affected a change in its standard for packaged drinking water. The amended code says packaged water will have to be tested for 32 pesticides; individually, the quantity of these pesticides can not exceed 0.0001 mg/l and total pesticide residue should be less than 0.0005 mg/l. It says groundwater will have to be tested, but it does not elaborate and licensee manufactures of bottled water will need permission from CGWB. The 32 pesticides include malathion, DDT, parathion, BHC, fenitrothion, carbaryl, aldicarb, methyl parathion, carbofuran, dimethoate, phosalone, monocrotophos, ethion, dichlorvos, propoxur, diazinon, chlorpyrifos, fenthion, phosphomidon, endosulphan, cypermethrin, deltamethrin, fenavalerate, permethrin, atrazine, simazine, captafole, acephate, dithiocarbamate, metalaxyl, fosetylal and lindane. Mr Sharad Yadav said that, "The amended standard have been drawn upon what the committee considered the world's best standard."

The MoCA has constituted an inquiry committee under the chairpersonship of Satwant Kaur Reddy to investigate whole issue. The terms of the committee has been extended two times and yet to submit final report to the MoCA.

The BIS has suspended the license of 20 packaged drinking water bottling plants run by some of top companies after samples showed high levels of pesticide, officials said. The companies are Pepsico India, Bharuch; Bisleri International, Bangalore & Noida; Kothari Beverages, Thana; Ion Exchange, Mumbai; Vaibhav Aqua, Mumbai; Sadul Mineral Water and Soda, Jamshedpur; Vaishali Mineral Water, Hazipur; Surat

Beverages, Dadra, and Maharashtra Manufacturing Corp, Thana; Sri Agencies, Secunderabad; Avon Food & Beverages, Hyderabad; Annam Associates, Eluru; Pallavi Industries, Visakhapattanam; Tora Purified Water (Spring up & Rainbow Brand); Rainbow Mineral Water, Sattur; Sri Springs, Eluru; Ganga Mineral Water, Poonamalli and Udayak Agro Products, Guwahati (Parle Balley brand). Companies are not allowed to sell packaged water without ISI mark. The MoCA also issued warning letters to two units – the Hindustan Coca-Cola Beverages plant at Khera and Surbhi Milk Food plant at Kalol.

**Industry Response** Amit Mitra, the Secretary General of FICCI and FRAC, said that groundwater contamination in India was far higher than the European countries, so it stood to reason that bottled water in India would have more pesticides than European bottled water.

According to Kinley Brand, pesticides residue in groundwater in India is a national problem, however the brand meets more than the prescribed requirement of the govt. Bisleri Chairman said the brand meets BIS norms. "We don't have pesticide. We don't know what the study is about and how they have done it." According to Pepsi Foods official, "We follow WHO prescribed standards. No residual pesticide has ever been detected in the product as per our tests."

**Rejoinder** Ms Sunita Narayan, director of CSE, wrote a letter to Union Consumer Affairs Minister saying the EU norms were used because they were the only available and established norms for packaged and mineral water. She added that CSE did not recommend the use of EU norms but only said that more stringent quantifiable norms should be imposed by the govt. "The WHO has guidelines for only five of the 20 pesticides tested in the bottled water and is completely silent on deadly pesticides like chlorpyrifos, endosulphan, phosphomidon and malathion," said CSE.

(Down to Earth 150203, BUSINESS STANDARD, THE HINDU, THE INDIAN EXPRESS, THE ECONOMIC TIMES, THE TIMES OF INDIA, BUSINESS LINE, THE HINDUSTAN TIMES, THE TRIBUNE, Rajya Sabha Questions, 050203, 060203, 100203, 130203, 140203, 150203, 200203, 260203, 040303, 070303, 100303, 110303, 170303)

**PIL for control over bottled water price** A PIL in Delhi High Court has sought to control and fix a reasonable price for bottled water by notifying it under the Essential Commodity Act in public interest. The PIL by Free Legal Aid Cell also sought Court directions to ensure that drinking water was not packed in low standard plastic bottles causing injury to public health. It asked the Delhi govt, MCD, NDMC and DJB to arrange for and manage free drinking water facility in various public places, colonies and populated areas. (BUSINESS LINE 021202)

## DAMS

**NRIs to fund the Pulichintla project?** The NRIs hailing from Krishna, Guntur, Prakasam, Nalgonda and parts of W Godavari district have come forward to contribute for the construction of the Pulichintala project in Andhra Pradesh. The Telugu Association of South California met and decided that if the state govt floated bonds for the project they would buy in large quantities. ([www.projectsmonitor.com/detailnews.asp?newsid=6249](http://www.projectsmonitor.com/detailnews.asp?newsid=6249))

**Wazirabad dam height to be raised by 2 m** To address water scarcity in Delhi, DDA has decided to raise the height of the Wazirabad dam by 2 m. The feasibility study is being conducted by IIT-Delhi. (RASHTRIYA SAHARA 091102)

**UKP** Bagalkot town is slowly getting submerged by the Almatti dam. The Almatti dam was raised in 1996 to 509 m, submerging 6 villages fully and 10 others partially. In 1997, as the level increased to 514 m, 145 families of Bagalkot were shifted to Navanagar Township, where people even now are miserable. There is as yet no electricity or water supply. In 2000, when the reservoir level reached 515.2 m, 400 more families had to be moved out. Now, the stored water level is 519.6 m and 89 488 people across 136 village are affected. The Upper Krishna Project after completion is expected to irrigate 2.5 M Ha in N Karnataka and have 1200 MW installed power capacity. It will displace over 2 M people. Apart from flooding Bagalkot Town, the UKP will submerge 176 villages. (THE INDIAN EXPRESS 071102, DRP 0202 p. 17)

**Cost of delay in SKDP** As the Sahpur Kandi Dam Project in Punjab has not been completed; the Ranjit Sagar Dam at present generates only 100 MW against installed capacity of 600 MW. The Punjab govt is toying with the idea of handing over the project to a multinational company. (THE TRIBUNE 021202, DRP 0202 p. 16)

**'Big dams bring miseries to people'** The International Consultation on Water Resource Development in South Asia and the Report of the WCD have demanded a legally enforceable right to information regarding planning, decision-making, implementation, operation and decommissioning of all water and energy resource projects. Speaking at the end of the regional meeting, Medha Patkar, member of the WCD, said, "Having reviewed and discussed the situation in the South Asian countries, we recognise that many of the existing development policies in the region are undemocratic, anti-people, anti-environment and anti-life. They favour the elite and corporate interests." South Asia has one of the largest numbers of existing and planned big dams, reservoirs and irrigation channels in the world. These have brought untold misery to the people and extensive and irreversible environmental destruction beyond

compensation, says the declaration paper. About 200 participants from mostly Nepal, India, Pakistan, Bhutan and Sri Lanka had gathered in Kathmandu to review water resource policies and projects. (The Rising Nepal 111202, DRP 0202 p. 9-10)

**Norwegian assistance for Dam Study** The Norwegian Agency for Development and Cooperation has funded Rs 12 M "Investigation of Geological Hazards in Dam Reservoirs for Safety of Downstream Structures", a project of the Central Soil and Materials Research Stations under the Ministry of Water Resources as part of India - Norway bilateral development cooperation. CSMRS has already completed two projects on 'tunnelling Technology' (1993-6) and Environmental Geotechnology (1997-2000) under institutional cooperation with Norwegian Geotechnical Institute. (THE HINDU 131202)

## NEWS FROM THE NARMADA VALLEY

**Properties of Maheshwar dam attached** The district administration of Khargone has seized and attached the immovable properties and 326.7 Ha of land of the S Kumars promoted privatised Maheshwar HEP in MP, including all dam site lands, on behalf of the MPSIDC under the MP Public Money (Recovery of Dues) Act 1987 and the Madhya Pradesh Land Revenue Code, 1959. This attachment was for the recovery of a short-term loan of Rs 447.5 M taken from the MPSIDC by the S.Kumars in 1999-2000. This loan was taken in the form of Inter-Corporate Deposits by the Induj Energetech Limited (formerly S.Kumars Power Corp) – of which the the Shree Maheshwar Hydrel Power Corporation Limited is a 100% held subsidiary, for the purposes of financing the Maheshwar Project. Both Induj Energetech Limited and Shree Maheshwar Hydrel Power Corp Limited are group companies of the S. Kumars. This attachment of the movable and immovable properties of the Maheshwar Project and recovery actions against the Induj and SMHPCL has confirmed and vindicated the concerns consistently raised by the NBA about the large-scale abuse of public funds by the S.Kumars and grave financial irregularities in the Project and the multiple instances of diversion of public funds and wilful defaults by the Promoters.

**REC refuses to fund Maheshwar HEP** The attachment of the Project assets has come on the heels of the formal refusal of the REC to participate in the Maheshwar Project as a strategic partner. The REC had been approached by the S.Kumars to participate in the equity of the Maheshwar Project but after studying the Project as well as the issues raised in the legal notice served by the NBA to the REC, they declined to participate in the Project. (NBA PR 311202)

**Power generation** MP is expecting to get power from Sardar Sarovar from Sept 2004 and from Indira Sagar

project Sept 2003. NHDC has also started the construction of 520 MW Omkareshwar HEP. At present, generation from 405 MW Bansagar project has started, while 90 MW is being generated at Rani Awantibai Sagar project. The construction work of fourth unit of Bansagar project with a capacity of 20 MW is underway and is expected to be completed soon. Plan has also been finalised for setting up of five HEP in the upper Narmada area by NVDA. This includes 62 MW Basania HEP, 35 MW Rosra HEP, 20 MW Raghavpura HEP, 20 MW Chiknihiranpur HEP and 20 MW Gopalpur HEP. Principal Secretary, NVDA said that a study was being conducted to explore the possibilities of power generation from the tributaries of Narmada. (Central Chronicle 281102)

#### The Proposed large dams at upstream of Bargi Dam

	Project	Type	Status	Capacity	Cost (M Rs)
1	Singarpur	HEP	Proposed	60 MW	1657.20
2	Rosra	HEP	Proposed	35 MW	320.00
3	Raghavpura	HEP	Proposed	20 MW	266.40
4	Upper Narmada	Irrigation	Proposed	12 800 Ha	585.50
5	Budhner	Irrigation	Proposed	9 500 Ha	598.00
6	Halon	Irrigation	Proposed	11 730 Ha	450.00
7	Matiyari	Irrigation	Completed	10 110 Ha	300.00

The Feasibility Reports are under progress. 70 % of the people living up stream of the Bargi dam are Gond tribals who are totally dependent on agriculture. The govt has not informed the people to be affected due to these projects. (Lokmat Samachar 070103)

**People Resolve to Assert their Right to Land** As part of the strategy of silencing the voices of the SSP affected people who assert their right to land for land rehabilitation, the Madhya Pradesh govt has used the police to forcibly acquire agricultural lands for building relocation sites, while destroying the standing crops. The brutal incident took place on 9 Dec 2002, in the fields of Bhavaria village in Dhar district. The police arrived early in the morning with bulldozers and tractors and destroyed 15 Ha of standing crops belonging to farmers of the Bhavaria village. The protests of the villagers against this atrocity was met with beating and arrests. To protest against this brutal assault on people's right to land, hundreds of people gathered in the destroyed farms and conducted Jan Sunvai and mass action to restore the 15 Ha. Mr Sunil and Mr Rajiv from the Indian People's Tribunal and Ms Meenu Jose from Communalism Combat presided over the Jan Sunvai. After the meeting, people from different villages united in one voice to assert their rights by doing shramdan to level the land and make it cultivable again. (NBA PR 1202)

**Govt unconcerned on leakage from Bargi gates** Substantial leakage is taking place from the gates of Bargi Dam in MP. Authorities say that the leakage is a 11-years-old-matter and no efforts has been made to

stop the leakage. The leaking flow is around 9.04 cusecs and from security point of view it is a very serious matter, say sources from the dam. Out of 21 gates, leakage can be seen in 19 gates. (CENTRAL CHRONICLE 161102)

#### HYDRO PROJECTS

**No Private sector offer for Sawra-Kuddu HEP** The HP Cabinet has decided that the 144 MW Sawra-Kuddu HEP will be executed jointly by four states of the BBMB and the HP Govt. The HPSEB would work out modalities for the venture. Earlier, the govt had decided to execute the project through International Bidding in the private sector but *there was no response from private sector*. (THE TRIBUNE 011202)

**Almatti height may hit AP power generation** According to an International Consultant, SNC Lavalin, which conducted simulation studies for Almatti reservoir, raising of the Almatti reservoir level in Karnataka may reduce power generation at Srisailem and Nagarjunsagar HEPs in Andhra Pradesh by 1000 MU per year. The APGenco sources said that the simulation studies were based on the inflow data for 1971 - 2002 in Krishna River. The Srisailem reservoir had received lowest-ever inflows this year. Raising of the Almatti reservoir level from 515.5 m to 519.8 m leading to the storage of additional 60-tmc ft of water had also contributed to the poor inflows. (BUSINESS LINE 011202)

**NJPC is now SJVN** The 1500 MW NJPC has been renamed as the Sutlej Jal Viduyut Nigam Ltd. The change of name is in line with the strategy to take up more projects in the Sutlej basin. The SJVN will shortly sign an agreement with the HP govt for execution of the 439 MW Rampur HEP to utilise the tailrace waters of the NJPC. Other projects being considered are the 400 MW Thopan Powari HEP and the 400 MW Shongtong Karcham HEP. (THE TRIBUNE 051202)

**Karcham HEP** The 1000 MW Karcham Wangtoo HEP in Kinnaur district in HP, it is claimed, have been granted Environmental clearance. The DPR of the project re-submitted in view of flash floods in Sutlej in July 2000 is still awaiting CEA clearance. The Rs 37.84 B project is under agreement with JP Industries in Nov 1999 and is expected to generate 4228.5 MU power annually once completed by Nov 2009. (THE TRIBUNE 171102)

**Central counter guarantee for J&K HEPs?** The Centre has agreed, it is claimed, to consider the Counter Guarantees for the Baglihar and the Sawalkote HEPs, compensation of loss suffered by J&K on account of the Indus Water Treaty and taking up works of HEPs transferred to NHPC expeditiously.

**Baglihar** The govt has also decided to float public bonds worth Rs 27 B to complete the first phase of

Baglihar HEP, estimated to cost Rs 46 B. The project has so far received Rs 14 B. On another front, the eight day strike by the workers in the Baglihar project ended with the agreement between JP Industries' Sameer Gaur and workers. Agreement includes release of land compensation to the local villagers, employment to the local people, compensation to those injured or dead during construction. (THE TRIBUNE 011202, 031202, THE HINDU 071202)

**Approval for Parbati II** The Central govt has approved the 800 MW Parbati HEP II in Kullu district of HP. NHPC has been asked to complete it by March 2007. NHPC is soon expected to submit the DPR for the 231 MW Chamara III. (THE TRIBUNE 101202)

**Anandpur Sahib HEP II stuck** The 36 MW Anandpur Sahib HEP II has been hanging fire since its inception in 1984. The project was estimated to cost Rs 1.5 B initially but more than 1 B has already been spent on machinery and civil works. If the price of the land is also included the total cost of the project would come out to be more than Rs 2.5 B. The area of the project is over 80 Ha. The project was abandoned after a controversy over SYL canal erupted as the project is linked with the SYL, though experts feel that was not necessary. (THE TRIBUNE 291202)

**HEPs under construction in MP** MP deputy CM said in the assembly that the HEPs under construction in MP are: Bansagar (425 MW), Madhikhera (60 MW), Rajghat (13 MW), IDSP (1000 MW), Omkareshwar (520 MW), Maheshwar (400 MW), Radhopur (20 MW), Rosra (35 MW), Shigarpur Vasania (60 MW). (Central Chronicle 081102)

## DAMS IN NORTH EAST INDIA

**Big dams on Brahmaputra pose high risk to Assam** According to Dr Malik Kar, an expert on the Flood Hazard and Disaster Management, if big dams are constructed in upstream areas of the river as in Arunachal Pradesh, Nagaland, Manipur and Bhutan it would cause high risk for Assam as the lower Brahmaputra valley has very low slopes and high density of population. He maintained that small dams would be able to reserve sufficient water for harnessing significant hydro electricity and would also remain safe. Commenting upon the 6 proposed dams on the river Kapili and its tributaries mooted by the CEA of generate 335 MW, he expressed doubts over the success of such dams as the area has limestone topography that would, in every likelihood, cause leakage of water. The chance of survival of big dams in Arunachal Pradesh is bleak as the soil is very soft in the area and the area falls under high seismic zone coupled with very high rainfall. In case of collapse of such dams, there is very possibility, of sudden floods in downstream areas besides the surging water will leave loads of silt and sands, creating additional flood hazard. (ASSAM TRIBUNE 131102)

**Subansiri HEP yet to get clearance** According to NHPC, the DPR of the 2000 MW Subansiri Lower HEP along the Assam-Arunachal border has been submitted and yet to receive clearance from the ministry of Environment and Forest. The estimated cost of the project is Rs 74.68 B at March 2001 prices, to be completed in 6 years. NHPC has claimed that the dam is so designed that it will be able to cope with a quake of 9 magnitude on the Richter scale. NHPC also claimed that experts from Forest Institute of Arunachal Pradesh and NEHU have been involved in the Environmental impact assessment. (ASSAM TRIBUNE 141202)

## SOUTH ASIA

At the time when Nepal and India were negotiating for power trade, Maoists had attacked a transmission line tower that connected three major power plants, Khimti, Bhote Koshi and Sunkoshi, to the national grid in Nepal, destroying the 132 KV transmission line tower situated at Sukute of Sindhupalanchok in Nov. This attack had isolated these three power plants, robbing 100 MW of power from the national grid. On the other hand, construction of Middle-Marsyangdi, the third largest HEP of the country, is likely to stretch for one more year, due mainly to escalating domestic violence and worsening security condition of the country. The construction works of 70 MW project, with a capacity of generating 422 MU of electricity annually was started one and half years back and was expected to be completed by the end of 2004. The Maoists also have threatened to stop this HEP. (The Kathmandu Post-Nepal 291102, The Himalayan Times 301102 & Nepal Samacharpatra 111102)

**Nepal River management policy draft prepared** The Ministry of Water Resources has prepared the draft of a first-ever 'River Management Policy' to make river control initiatives more effective and to reduce water-induced disasters in the country. The policy proposes to bring better co-ordination between different govt organisations working to prevent water-related disasters, including the Dept of Water-Induced Disaster Prevention, Home Ministry and Dept of Soil Conservation. The draft will allow the private sector to manage rivers and carry out economic activities in the area where it works to save lands from water-related disasters. (Kathmandu Post 061202)

**Indo Nepal power deal** A high-level committee formed to investigate the quantum of electricity the Nepal Electricity Authority can export to India has finalised the volume and price of electricity that the state utility could export to India during different seasons of a year. The committee has decided to propose Rs. 4.80 (Indian Rs 3) for a unit of electricity "for all seasons" and Rs. 4 (Indian Rs 2.50) for winter season. Since most of Nepal's HEP are run-of-river types, they can't generate a fixed amount of electricity all the year round. But India

has shown interest to buy fixed and uninterrupted supply of electricity from Nepal to its northern states. According to figures made available by the utility, the "peak load" in the NEA's system currently hovers around 420 MW, but there is a surplus of energy equivalent to nearly 80 MW. The NEA's power system, however, would need 625 MW by 2006, given the average annual consumption growth rate of 9 %. Under the existing PPA, the two countries can exchange up to 150 MW electricity, and the current price for a unit of electricity stands at NRs 4.32. The NEA has been paying over 6 US cents for a unit of electricity generated by the IPPs like the 60 MW Khimti and 36 MW Bhote Koshi HEPs and experts question selling of that electricity to India at lower rates. 82 % of the Nepalese people, most of them living in the rugged terrain or rural hinterlands of the Terai and the high mountains, do not have access to electricity as yet.

Meanwhile, Power Trading Corp of India has entered into an agreement with Powergrid for construction of the Indian portion of the 132 KV double circuit line from Anandnagar in UP to Butwal in Nepal to enhance Indo Nepal Power Exchange. (Kathmandu Post 221102, THE HINDUSTAN TIMES 131202)

Nepal Electricity Authority and Sunakoshi Hydropower Company has signed a PPA for 4.5 MW Lower Indrawati HEP for 25 years. NEA will buy electricity at Rs 4.25 per unit in dry summer season and Rs 3 in the rainy season. The agreement quotes 6 % rise in the price every year. The construction of the \$ 10 M HEP will start in 2003 and is expected to finish in 2005. NEA has already bought 121 MW of electricity through PPA with private sector, including 5 MW Mailun Khola, 10 MW Langtang Khola, 2.6 MW Sunkoshi and 1 MW Barmachi. (Kantipur Daily-Nepal 131202)

The Norway govt is providing Rs 360 M, of which 140 M will be used for conducting the feasibility study of 250 MW Tamakoshi Project and 220 M for rehabilitation of the 12.3 MW Jhimruk HEP that was destroyed by Maoist rebels 8 months ago. Butwal Power Company started power generation from Jhimruk project in 1994. Intercraft, a Norwegian Company, initially had 20% share in BPC but now it has only 8 %. BPC has signed an Independent PPA with NEA at Rs 3.80 per unit of electricity. A previous study by NEA has indicated that the Tamakoshi HEP could be one of the cheapest in Nepal, requiring \$ 1100 per KW. (Kantipur Daily 071202)

**WB scraps 9 irrigation projects in W Nepal** "The WB came up with the decision since the construction works on several canals could not be completed on time in Nepal due to lack of explosives," a source at the Regional Irrigation Directorate in Nepal said, though some of these projects under the Nepal Irrigation Project were nearing completion. The WB is the main donor for these projects. The security forces have tightened their grip on development projects regarding use of explosives. The 25 irrigation projects under the

NIP that started with the inception of the Ninth Plan year should have completed by July next year. Sources at the NIP, however, claimed that the govt on its own hopes to complete 16 of these projects. Some projects that the WB decided to scrap are Lungdimadi Irrigation Project, Gita Chaur Irrigation Project, Gajulfagam Irrigation Project, Lodhachaur Irrigation Project, Kalagadh Irrigation Project, Kalapani Irrigation Project, and Dofan Jyula Irrigation Project. NIP launched dozens of irrigation projects in 40 districts across the country with the participation of the consumers' committees, with the consumers' committee bearing 15 % of the investment cost in the plain belt, 12 % in the hilly region and 7 % in the mountainous regions. Meanwhile, a total of 104 irrigation projects were completed in the last fiscal year that provided irrigation facilities to 17 256 Ha. (Kathmandu Post 031202)

**Japan grant for water supply project in Nepal** The govt of Japan has agreed to extend grant of \$ 7 570 000 to Nepal govt for the execution of the project for improvement of water supply facilities in Kathmandu Valley. (KATHMANDU POST 081102)

**WB not to fund Mangla Dam height increase** The WB is not funding the proposal and have written letter to this effect to Anti Mangla Dam Extension Action Committee. The WB's Country Director for Pakistan have stated that although the WB played important role in financing the construction of the Mangla Dam in 60's, under current circumstance the bank is not funding the project, which is against the interest of the people.

**Kalabagh Dam after consensus** The Federal Minister for Water and Power said that all controversial irrigation projects like the Kalabagh Dam would be launched only after a national consensus, and a guaranteed share for the NWFP in the net profit of HEPs. (The Dawn-Pak 261102)

**Irsa rejects Punjab's Mangla water stand** The Indus River System Authority of Pakistan has rejected Punjab's claim of exclusive rights over Mangla Dam water after raising its height. All the three provinces, particularly Sindh, had strongly objected to the Punjab govt's claim to reserve whole storage capacity of Mangla Dam for utilisation in Punjab after raising its height. The govt has launched Rs 53 B project for raising of the Mangla Dam height by 40 ft. This replacement project is to reclaim country's storage capacity by 3.5 MAF, which has so far been lost due to silting and sedimentation. The Punjab govt has been informed that all western rivers - Indus, Jhelum and Chenab - were part of the Indus system that also comprised five barrages and eight link canals. The whole 114 MAF water in three rivers had to be shared by the four provinces according to apportionment agreed to under the 1991 accord. Due to excessive sedimentation inflows in the river water, all the three

storages - Tarbela, Mangla and Chashma - have lost around 30 % of their storage capacity. (Dawn 051202)

**WB threatens to halt loan to Pak** The WB has threatened to halt disbursement of loan to Pakistan for a 1400 MW Ghazi Barotha HEP. The WB said that the country has failed to implement agreement to protect the environment and settle displaced people. The WB has already disbursed \$ 350 M loan for the project due to be completed in Oct 2003 at a cost of \$ 2.2 B. (THE TIMES OF INDIA 201202 & POWERLINE 1202)

**Pak Govt urged to shelve Thal canal project** The Sindh water conference held under the aegis of the Sindh Water Committee, demanded the govt to shelve the greater Thal canal project. A resolution, adopted at the conference, said that the canal was illegal, unconstitutional and immoral and it would convert Sindh into a desert. In another resolution the conference sought the attention of UN, SAARC, OIC, Amnesty and other organisations to solve the long-standing water dispute between Sindh and Punjab. (Dawn 311202)

**Pak: Neelum-Jhelum project** Pakistan has decided to start construction of Rs 87 B 960 MW Neelum-Jhelum HEP in Kashmir to maintain its legal rights over the Jhelum River. If the project is not started immediately, Pak would be obliged under the 1960 Indus Waters Treaty to allow India to divert Jhelum waters for power generation. WAPDA has offered to make available Rs 10 - 15 B out of its own resources and has asked the federal govt to arrange similar amount to start the project in the current fiscal year. The WAPDA has now prepared even the documents for inviting letters of interest from the private sector to construct the project. India had requested Pakistan to allow the diversion of Jhelum waters in the Indian Kashmir for its proposed Kishanganga HEP. It had assured that there would be no storage and the diverted waters would be re-routed into the Jhelum through Wullar barrage. Pakistan has already put India on notice to address its concerns regarding the 450 MW Baglihar HEP on the Chenab. (Dawn-Pak 021202)

**Drought in Pakistan** Five districts in Sindh province of Pakistan and 3000 human settlements are reeling under a prolonged drought. 194 798 families living in the districts of Thar, Mirpurkhas, Sanghar, Dadu and Thatta have borne the brunt of the dry spell. The total population of this area is 1.38 M. (DOWN TO EARTH 151202)

**Arsenic poisoning in Bangladesh water** According to a paper published in the journal *Science* there is widespread presence of arsenic in well water in Bangladesh. The WHO has called it "the largest mass poisoning of a population in history" and said it might be the result of excessive use of groundwater. It is believed that river sediments from the Himalayas to the

Bangladesh delta transport arsenic. Many wells in Bangladesh have arsenic levels many times WHO's maximum permissible limits and millions of Bangladeshis suffer from arsenic poisoning. According to study by the team of scientists of the Massachusetts Institute of Technology, injecting molasses into the test wells led to initial rise in the arsenic concentration followed by a drop. These chemical changes were consistent with a scenario where the microbial activity liberated the arsenic from the soil sediments. About 40% of the recharge received by the aquifers is in the form of carbon-rich surface waters, which enters in the dry season when groundwater usage is maximum. These waters could be heavily loaded with untreated wastes from the population, leading to increased microbial activity. The effects of irrigation, though are complex.

**Not testing the waters** Victims of the Arsenic poisoning in the Bangladesh have taken the British Geological Survey to court. They contended that BGS did not test for arsenic in the water of wells funded by a project, which had partners such as UNICEF and the WB from 1983 to 1992. Consequently, they unknowingly consumed water-containing arsenic over a long period. A part of the money for digging these wells was given by the UK and the expertise for the project was provided by BGS. According to BGS sources, since the presence of arsenic in the area was not known during the period in question, they cannot be blamed for the poisoning case. But according to the experts from School of Environmental Studies, Jadavpur University, Kolkata, the presence of contaminant in river basins of the region was known even in 1984. (THE HINDU 241102, Down To Earth 301102)

## AROUND THE WORLD

**Silted reservoirs of Japan** A survey conducted in Japan in 2000 covering 782 dams with a capacity of 1 MCM or more showed that 124 had reservoirs where mud accounted for 20 % or more of the volume. Most of the dams were owned by power generation companies. The survey by the Ministry of Land, Infrastructure and Transport covered dams run by central and local govts, electric companies and the Water Resources Development Public Corp. The worst was Chubu Electric Power Co.'s Senzu Dam in Shizuoka Prefecture, which was 97.7 % filled with mud. Of the 124 dams that are filled 20 % or more, 83 are owned by the nation's nine power utilities and the Electric Power Development Co., and 25 are managed by prefectural govts. By region, many are concentrated in central Japan. Thirteen are in the Kiso River and its tributaries, nine each in the Oi River and Tenryu River and seven each in the Tone River and the Sho River. Many of the dams were built either in the 1920s and '30s or the postwar reconstruction period of the '50s and '60s. After 1957, dam designs were supposed to limit sediment

buildup to levels that would not hamper operations during the 100 years of a dam's expected working life. Of the 45 dams designed that way, 18 have already exceeded the maximum level anticipated, with the ministry's Shinaki Dam in Gunma Prefecture the worst at 75.8 %. Dredging can cost central and local govt millions of yen per dam annually, but no clear answers to the muddy problem are in sight. (IHT/Asahi-Japan 191102)

**Committee to review Japan's dams** Experts from Japan and the US launched a committee to examine Japan's love affair with dams, hoping to draw on US experiences in reviewing and decommissioning such projects. The announcement was made during a session of the ongoing World Water Forum. The US-Japan Dam Committee is chaired jointly by Nagano Prefecture Governor Yasuo Tanaka, who purses a no-dam policy, and Daniel Beard, a former head of the US Bureau of Reclamation, who declared in 1994 that the era of big dams is over. Japan has more than 2,700 dams across the country. The committee, which has about 10 members, will evaluate dams and their possible removal from administrative, engineering and scientific viewpoints. "In the US, an organization that includes govt officials is reviewing and removing dams," said Reiko Amano, chief of the committee's secretariat and representative of the NGO Association for Public Works Review, a Gifu-based group of nongovernmental organizations. "We want to learn from US experiences and review existing dams in Japan." **In the US, more than 200 dams have been removed over the past decade mainly because of financial, social and environmental costs.** In Japan the idea has yet to become a trend, but some projects are under review. (Japan Times 220303.)

**92 dam projects scrapped in Japan** Former Nagano Governor Yasuo Tanaka drew considerable attention and a no-confidence vote for his effort to suspend construction of dams. But shelving dam projects is not unique to Nagano Prefecture. According to Asahi Shimbun of Japan, since fiscal 1996, the govt of Japan has scrapped plans for 92 dams, of which at least 70 % were deemed unnecessary because water needs anticipated years ago are unlikely to materialize. The Kiyotsu River dam project in Niigata Prefecture, which was cancelled in 2002, Planning was begun 36 years ago for a dam and reservoir to hold up to 170 MCM of water to supply the Nagaoka area. Of the 92 projects dropped, 19 involved dams with reservoirs containing 10 MCM or more. Construction never started for most of them. 29 of the dams were blessed by the central govt and 61 were prefectural projects, with two others planned by the national Water Resources Development Public Corp. In many of the 68 projects that were dropped because of an abundance of water, the reduced demand for tap water came about because of recession, water-conservation efforts and flat population

growth. Local govts just could not justify the cost of construction. A dam over the Kii-Nyu River in Wakayama Prefecture that would have provided tap water for Osaka Prefecture was dropped in May 2002, after Osaka halved its projected intake. In Kyoto, Kochi and Kagoshima prefectures, irrigation dams were dropped as the farm population dwindled. 20 of the dams were simply not economically viable, and officials had found other ways to divert floodwater and thereby eliminate nine other projects. Nearly 400 other dam projects are still on the drawing board or under construction nationwide, but they may also come under scrutiny. (IHT/Asahi 130802)

### **Upgrading dams could light 30 M US homes**

According to Voith Siemens Hydro Power, campaigning to upgrade generating equipment at the US's HEPs, an additional 30 000 MW could be squeezed from those dams based on data from the US Dept of Energy, enough to run about 30 M homes. The US stopped building big dams decades ago due to a scarcity of suitable sites and growing opposition to damming more rivers. Voith Siemens, world's one of the biggest hydropower turbine maker, is a joint venture between German industrial giants Voith and Siemens AG. While the company is still building massive HEPs in developing nations like China, Brazil and India, it is refurbishing dams in the US and Europe. There are more than 3 500 HEPs scattered across the US, with installed capacity of about 100 000 MW or 13 % of the nation's total. The modernization of the HEPs has largely been ignored. (Reuters 281002)

**Bujagali too expensive: Panel** According to experts, electricity from the proposed \$ 550 M Bujagali dam, which would be east Africa's largest single FDI project, could cost \$ 280 M more than necessary over the 30-year lifetime of the contract because of an unfavourable deal with AES, the US company due to build the dam. Construction of the dam is suspended while the WB and the US Justice Dept investigate allegations of corruption in the project. According to IRN "This project represents a serious burden for a highly indebted poor country like Uganda. This study clearly demonstrates that the WB has misled the public and provided bad advice to the Ugandan govt." IRN had commissioned Prayas Energy Group, a team of independent energy experts in India, to analyze the project contract. The Prayas review concludes that the Bujagali project is excessively expensive. With a cost of \$ 2.9 M per MW, Bujagali is more than twice as expensive as a comparable dam in central India, a project with a similar design and a cost of \$ 1.2 M per MW. On top of the high construction cost, the Bujagali contract contains several unusual requirements that put the Ugandan govt at an undue disadvantage. The PPA for this project was reviewed for 11 months in the Ugandan parliament. NAPE, IRN and Greenwatch from Uganda have for many years requested the public release of the PPA,

which defines Uganda's financial obligations for the project over 30 years. The WB, AES and the Ugandan govt have consistently refused to release it. On Nov 12, 2002, the Uganda High Court in a case by Greenwatch ruled that the PPA must be released to the public, but the govt is thought to be planning an appeal. According to Uganda's National Association of Professional Environmentalists "The Bujagali dam is not in the best interest of the Ugandan people and should be cancelled". Bujagali is a 200 MW HEP on the Victoria Nile in Uganda. It was awarded to the AES Corp, without any competitive bidding. The project's funders include the WB, the African Development Bank, and public financial institutions from Sweden, Switzerland, Norway, Finland, and the Netherlands. An additional guarantee from the WB Group is still pending. In June 2002, the Inspection Panel, the WB's independent investigative unit, found that the Bujagali project violated five operational policies of the Bank. The Panel also noted that the cost of Bujagali was much higher than the average cost of HEPs. Due to serious allegations of corruption, all funding for the dam was suspended in July 2002. (Financial Times-US 211102 & IRN PR 201102)

#### **Michigan Citizens Fight Ice Mountain/Nestle Waters**

Concerned citizens in Michigan are organizing against a water bottling plant recently built by Ice Mountain / Nestle Waters that pumps and bottles groundwater from a tributary of Lake Michigan. The plant's use of water from Lake Michigan opens the door for other multinational water sellers to use international trade agreements such as NAFTA to ship and send Lake Michigan's water all over the world. The Michigan Citizens for Water Conservation is currently fighting Nestle Waters with a lawsuit to try to protect the Great Lakes, and a Michigan Rep. has submitted an amendment to the Water Resources Development Act that would prohibit the diversion of all groundwater that feeds tributaries of the Great Lakes. ([www.waterissweet.org](http://www.waterissweet.org))

#### **Human Rights Crisis at 3-G as Reservoir Starts Filling**

The reservoir of the controversial Three Gorges Dam in China's Yangtze Valley will start filling on April 10, aggravating already serious human rights problems in the affected areas. A new report documents that the resettlement problems of this dam have not been resolved, and that project construction is linked to systematic human rights violations. At the annual session of the UN Commission on Human Rights in Geneva, International Rivers Network and Friends of the Earth International have called on China to suspend submergence until the project's human rights problems have been resolved.

They have also called on Western govts that fund the dam to ensure that the project complies with international norms. So far, 640,000 people have been

displaced. An investigative report published by IRN reveals that the record of compensating and rehabilitating the affected people has been abysmal in many areas, and does not meet international standards. "Land and jobs to rehabilitate affected people are no longer available", says Doris Shen, coordinator of IRN's East Asia program. "No independent grievance mechanism exists in which people can claim their right to fair compensation, and the police have used excessive force to quell many protests against the project. Many people have been detained, and in some cases sentenced to long prison terms, for engaging in peaceful protests."

FoE International and IRN are also holding the govts that have provided funding for the Three Gorges Dam accountable for the human rights impacts of the project. Brazil, Canada, France, Germany, Sweden and Switzerland have extended export credits and guarantees to the tune of more than \$1.4 B for the project. In many cases the governments claimed that their involvement would reduce the risk of human rights abuses. On March 31, the environmental groups called on the involved govts to closely monitor the human rights situation in the project area, and to extend no further export credits as long as the problems have not been resolved. In response to the IRN report, the Swiss foreign minister committed to "gathering additional information from a variety of sources" on the problems of the Three Gorges Project. (IRN & FOE PR 030403)

**China starts mega water project** The Chinese govt has started \$ 59 B mega water project that calls for building three massive aqueducts – each as big as medium sized river to transfer water from South to the North. The first two will be up to 1 300 km in length and link Beijing and other northern industrial cities with Yangtze, China's largest river. A third to be finished in 2050 will cut through the high mountains near Tibet to link the Yangtze to the headwaters of the Yellow River, which chronically dries up from overuse. According to experts, the diversion will disrupt entire ecosystem, and the same amount of water could be saved through conservation. (THE HINDU 281202)

**Vuotos Dam rejected in Finland** The Finnish Supreme Administrative Court rejected the Water Act licence for the Vuotos Dam Scheme. Vuotos is an important nature reserve in Eastern Lapland. The power company Kemijoki Ltd has been planning a reservoir and a HEP on it since the 1960s. The decision of the Court is final. There are no possibilities for further complaints. According to Finnish Association for Nature Conservation, this is one of the biggest victories in the history after a 10 yearlong struggle. (IRN PR 181202)

**Thailand Senate panel wants Burma dam scrapped** The Senate foreign affairs panel in Thailand has called on the Electricity Generation Authority of Thailand and

MDX Plc, a construction group, to scrap project to build dam on the Salween river in Burma, citing concerns for national security and image. According to the panel, the project would lead to more human rights violations in Burma, forcing more oppressed Burmese people to seek refuge in Thailand. Thailand already had to deal with more than 4 M Burmese immigrants. MDX was set to sign a MoU in Rangoon on the construction of a 3 600 MW dam, called Ta Sang, on the Salween river in Burma's Shan state. Meanwhile, Egat is pushing the govt to give the green light to two other dams to be built downstream, opposite the Thai district of Mae Sariang in Mae Hong Son. The Salween project was discussed at a recent Asean summit in Cambodia, where energy ministers agreed the project would go ahead. The Thai Action Committee for Democracy in Burma has said the dams would destroy one of Southeast Asia's richest river ecosystems. The Salween was the lifeline of more than 10 M people in 13 ethnic groups. Thailand had no real need for the HEP at the moment because the country already had a huge oversupply of electricity.

**Thai PM backs the dam** Thailand's PM gave the first public indication of govt support for dams on the Salween river during a visit to the EGAT. He said they were an essential part of the plan by eight Asean members to develop the Asian power grid. The project will see the development of two 5000 MW dams on the Salween river along the Thai-Burmese border. (Bangkok Post 191202, International Water Power and Dam Construction 180303)

## IRRIGATION OPTONS

**A man who changes the fate of a village** A man with indigenous mind changed the 60 Ha of barren land into lush paddy fields in Durg district of Chhattisgarh. 60 year old Brij Lal Sahu, started his work 40 years ago when he backed two uncles, took up the task the diverting water from the semi-perennial Godarra river into his fields in Kudari-Dalli, a village 112 km from Durg and accessible only through a near earthen roads. The investment paid off as, for more than two decades, the river provided assured irrigation to 3.5 Ha of the Sahu family land. Following the innovative irrigator's advice, the villagers got together for shramdan and built a new water channel close to Sahu's fields. "Had the drought not happened this year, the water scheme could have covered 140 Ha of land — that's almost 92 % of the total agricultural land in Kudari- Dalli, " says Sahu. Without using any blasting material or mechanised tools he cut down giant boulders and granite rocky surface. Irrigation dept officials have visited the villages frequently to study the possibility of expanding it by spending Rs 6.2 M, though this has not enthused most of the villagers. (THE INDIAN EXPRESS 031102)

**Watershed fund created in NABARD** The Union Agricultural Minister has disclosed that Rs 2 B watershed development fund has been created in NABARD. The fund would be utilised to create necessary framework condition to replicate and

consolidate the isolated successful initiatives under different programmes in the govt, semi-govt and NGO sectors. A number of extremely aided projects funded by the WB and through bilateral assistance were also operational. About 9.60 M Ha area in the country has been treated through Watershed Development Programme of the Ministry during 8<sup>th</sup> and 9<sup>th</sup> Five Year Plans involving an expenditure of about Rs. 29.90 B. The watershed programmes have now been subsumed under Macro-Management Mode, under which the States have the freedom to develop and pursue activities on the basis of their regional priorities. (PIB PR 041202, THE FINANCIAL EXPRESS 051202)

**Centre approves Zerenga Watershed project** The Union govt has sanctioned Zerenga Watershed Project for Sivsagar district in Assam involving expenditure of Rs 36 M. This project will be completed in five years, will render 6 000 Ha of water logged land of the district suitable for various purpose. (SENTINEL 291202)

**Watershed Grants siphoned off** Watershed programmes undertaken by different organisations in Maharashtra villages are steeped in corruption, in the absence of physical audits. According to the study report of the govt-run Tribal Research and Training Institute, Grants meant for the works have been siphoned off. The report *stealing from the poor* said, "It is easier to steal from poor precisely because they are poor. They neither see nor understand programme guidelines, false measurement books of work done, and false receipts of payment made". As for example, in four Nashik villages, the report said, "The expenditure under the scheme was Rs 2.4 M of which Rs 1.5 M is the estimated misappropriation". (THE HINDU 241102)

## IRRIGATION

**Scam in Punjab** The Punjab govt has suspended some officials right upto Chief Engineer level in connection with a multi-million scandal pertaining to Upper Bari Doab Canal remodelling project. The state CM has set up a special inquiry committee. The suspension has been ordered on the basis of the preliminary report submitted to the govt by the committee. The remodelling project was taken by the Irrigation Dept a few years ago. It was worth Rs 1.80 B and out of it Rs 1 B has been already released. While 75 % of the funds were provided by the Union govt, the remaining by the state govt. The inquiry committee had found several faults in the execution of the work. The lining work on the canal collapsed at several places following the release the water. Rules and procedures under design guidelines were violated with impunity. The preliminary inquiry has concluded that the entire expenditure of Rs 1.12 B on the remodelling project has gone down the drain. Sources say that the family members of some of the senior politicians were project contractors. Some

officials seem to have started the cover up efforts as soon enquiry was announced by the Punjab govt.

**Canal breach drowns 240 Ha** Following a 70 ft wide breach in the Kasoor Branch Lower canal passing through Alladinpur village near Tarn Taran in Punjab, even as the canal was carrying water at just about 80% of its capacity. 240 Ha of cultivated land was submerged in 3.5 ft deep water and over 30 tubewells have become non functional. Kasoor canal is part of the Upper Bari Doab Canal network and starts from Sathiali. The breach has affected thousands of people in five villages and the loss is reported to be in millions. The Irrigation Dept, Majitha division said that in April, the dept had widened the canal from 60 to 72 ft during remodelling of the canal. Hundreds of bags containing foodgrains stored at an FCI godown were also damaged. (THE TRIBUNE 011202 & 041202, INDIAN EXPRESS 141202, 151202)

.. A black marble plaque at a shed on the abk of the Krishna River in Sangli district in Maharashtra announces that the Mhaisal lift irrigation project was commissioned on May 16, 1999. The Maharashtra Krishna Valley Development Corp, who owns the project, claims inability to foot the bills for the power used to test the system. Ever since, the 64 pump sets each with 1250 HP capacity and costing over Rs 4.2 M have been left to the mercy of rust. The Rs 765.1 M property is lying unused. Mhaisal project sums up the MKVDC (formed in 1996) saga. Similar conditions prevail at MKVDC projects in eight western Maharashtra districts. The Corp targeted completing 495 minor and major irrigation projects within 48 months to harness 475 tmc ft of water. The Corp has so far spent Rs 75 B. Each project has now been transformed into a battleground for contractors demanding their dues, employees demanding payments, and peasants demanding a fair deal. The budget that was Rs 71 B in 1996 rising to Rs 83.17 B in 1999 and now to Rs 150 B. MKVDC was asked to raise money from public besides the Rs 35 B promised by the state govt. The Corp floated bonds to raise Rs 9.75 B in 1996-7, Rs 9.6 B in 1998-9. Three subsequent issues raised Rs 132.23 B, Rs 6.36 B and Rs 7.93 B. It now wants to raise Rs 5.04 B and Rs 2.81 B soon. Having guaranteed the bonds, the cash strapped state govt today spends a major chunk of its irrigation budget as interest to bond holders. And the worst part of the mess is that there are almost no worthwhile benefits. (INDIAN EXPRESS 031103)

**Scam in Haryana** The Haryana Vigilance Bureau has claimed to have unearthed a scam in Irrigation Dept, resulting in loss of over Rs 38.8 M to the public exchequer. According to a report from revenue wing of Irrigation Dept, five fisheries ponds had been filled with water illegally since the Rabi crop of 1996-7 in the area falling under the jurisdiction of subdivision in contravention of Section 24 and 25 of the Canal

Drainage Act. The Bureau had recommended departmental action under rule 7 of the punishment and Appeals Rules, 1987 against some officials. (THE TRIBUNE 201202)

**Irrigation Funds diverted** According to CAG of India, 13 states have diverted funds allotted by the Union govt for irrigation. The funds allotted under the Command Area Development Program for better utilisation of irrigation potential have been utilised by the 9 states (AP, Assam, Bihar, Goa, HP, J&K, Karnataka, Kerala and Maharashtra) in other programmes. While the four states, UP, Rajasthan, West Bengal and Orissa have not used the allotted amount. The CAG has recommended for recovery of the entire amount of Rs 950 M. (RASHTRIYA SAHARA 091102)

**Polavaram performance not optimum** The Polavaram project, aimed at utilising another 400 tmc of the Godavari waters, remained a non-starter despite agitation by the people demanding proper utilisation of Godavari waters. The state has been availing only 500 tmc out of total 1495 tmc of its share from Godavari. It was proposed to divert 80 tmc water of Krishna to bring 0.5 M Ha of land under irrigation. As per the proposed plan, water would be allowed to enter the river between Prakasam barrage and Pulichintala project. The proposals were not materialised owing to several reasons. It was proposed to extend the right canal up to 174 km as part of the Polavaram project. The canal was intended to pump 80 tmc of water in to the Krishna. (NEWSTIME 041102)

**Poor Performance of Major Irrigation in Bihar** The Centre has taken strong exception to the poor state of four Command Area Development Programmes in Bihar and set 2007 as the deadline for optimal utilisation of the created irrigation potential, ruling out any further extension. It was decided to continue the four CADAs as the last chance to set thing rights. The four agencies are Gandak CADA (Muzaffarpur), Kosi CADA (Saharsa), Sone CADA (Patna) Kiul and Chandan Badua CADA (Bhagalpur). In the Gandak CADA, against the created irrigation potential of 0.96 M Ha, only 0.35 M Ha have been used, while in the case of Kosi CADA it is 0.23 M Ha and 0.179 M Ha. Sone CADA, it is claimed, has been able to utilise 90 % of the created potential of 0.7 M Ha. Set up in 1974-75, the much-hyped CADAs have so far failed to deliver. (THE HINDUSTAN TIMES 131102)

**Gandak project in ruins** The Gandak project, one of the largest irrigation projects of the country, has been reduced to a white elephant. It was designed to ultimately irrigate 1.48 M Ha of land in India and Nepal. Due to lack of maintenance most of the smaller canals are defunct. While the project was designed to improve the lot of the farmers of Champaran, Saran and Muzaffarpur, the reality is that administrative

mismanagement has turned the gigantic project into shambles. Hardly 10% of the required maintenance budget is actually available. Many of the contractors are history-sheeters. They prevail upon the officials to accept their tenders and pass their bills, in many cases without doing any work. (THE HINDUSTAN TIMES 131102)

**Water User Cooperatives Fail: Privatisation on Cards in Maharashtra?** Frustrated over the "failures" of the water user cooperatives in managing canals and ensuring equity in water irrigation water distribution and payments of water rates, the govt is edging towards a decision that such rights should be auctioned to any entity. A recommendation by a 3-member Cabinet sub-committee to this effect had been made, as a nearly two-year-old decision to transfer such tasks to cooperatives had not met with much success. None of the N Maharashtra districts have any except Nasik district, it is claimed. Recently, the sources argued, a survey and satellite monitoring showed that sugarcane was under reported by some 60%. (THE HINDU 191202)

**Karnataka hikes irrigation tariff** Karnataka has revised the irrigation tariff for all the command areas under the major and medium projects with retrospective effect from July 2000. The revision is the first in 37 years. The revised rates will be applicable to over 1.9 M Ha of land. Under the revised rates, the farmers have been divided into two categories – those coming under the jurisdiction of water users societies and those who do not. While a fixed seasonal flat rate would be charged based on the type of crop being grown for farmers not under the water users co-operatives, a tariff based on the volume of water consumed at the rate of Rs 12 per 1000 cubic meter would be charged for areas having such co-operatives irrespective of the crop grown. The societies are to retain 50% of the revenue for canal maintenance. (DECCAN HERALD 211102)

**RIDF is a flop, despite claims** Even though NABARD officials make grand claims, the Rural Infrastructure Development Fund is a flop, confirming the findings of the independent research paper. The total corpus of RIDF (I to VIII) as of 231202 is put at Rs 285 B, sanctions at Rs 259.9 B and disbursements at Rs 150 B. Under RIDF VII sanctions were Rs 49.89 B, disbursements Rs 16.25 B and under RIDF VIII sanctions were Rs 25.81 B and disbursements at Rs 3.71 B. While NABARD claims about completion of many projects, there is no mention of quality. The Benefits are far below anticipated benefits. The anticipated irrigation potential was placed at 6.84 M Ha, while benefits achieved have been 4.62 M Ha. Some 321-power projects (system improvement and mini hydro) were taken up with a sanctioned amount of Rs 7.84 B and disbursements have been Rs 1.8 B. (BUSINESS LINE 251202)

**NABARD guidelines finalised** The NABARD along with the govt of India, has finalised operational guidelines for the implementation of the centrally sponsored scheme for 'On Farm Water Management' in eastern India, including Assam. The scheme is aimed at developing irrigation facilities by tapping the ground water resources in a planned manner. The Centre has agreed to provide back ended subsidy at 30 % of the investment cost under the scheme through NABARD and margin money of 20 % and bank credit up to 50 % were prescribed. For Assam, the Centre has allocated an amount of Rs 86.4 M as subsidy for the year 2002-3. Nabard has since prepared district and block wise banking plan for Assam in consultation with the banks and the state govts. For the current year, the plan has proposed to finance 3160 shallow tubewells with pumpsets, 7406 low lift points and 8038 pump sets, a total financial outlay of Rs 290 M. (ASSAM TRIBUNE 181102)

**Situation in Upper Ganga Canal grim** The Upper Ganga Canal originates from Ganga at Haridwar in Uttaranchal and irrigates over 0.904 M Ha. Of this 18000 Ha are in Uttaranchal and rest in UP. In Nov 1998 the canal flow was 22 300 cusecs of water and now it has been reduced to one third. According to an executive Engineer of UP irrigation Dept, the Uttaranchal has developed 1800 small canals. Over 2 000 cusecs of water is consumed by these canals. UP fears that after commissioning of Tehri HEP the situation would be very grim. (AMAR UJALA 261102)

**Japan to fund 10 irrigation projects in AP** The govt of Japan has agreed in principal to extend financial assistance to 10 medium irrigation projects in AP at an estimated cost of Rs 20 B. Veligallu project in Cuddapah district, Bhoopatipalem project in W Godavari district, Palemwagu project in Khammam district, Komaram Bheem project in Adilabad district are in the first phase. Six other projects would be taken up in the 2<sup>nd</sup> phase. (NEWSTIME 091202)

**Mitigating Drought** The Centre had sanctioned no new irrigation projects sanctioned since 1990, according to a member of Planning Commission. The Plan outlay of Rs 13 B for irrigation is spent on paying the wages of the department's 7 000 engineers. But Rs 600 B was invested in communication, the money for which should have come from the private sector, he rightly said. He went on to say that water problems of 83% of drought prone areas can be solved by community actions and this should be the focus of the 10<sup>th</sup> plan. (THE TRIBUNE 041202)

COMMENT: The contention that no irrigation projects have been started since 1990 is obviously wrong. According to 10<sup>th</sup> Five Year Plan, 13 major, 37 medium and 36 ERM projects were undertaken during 9<sup>th</sup> Plan (1997-2002) alone.

**Farmers protest for water** Farmers in the Visakhapatnam district of AP have demonstrated for release of more water for irrigation from Raiwada project. The farmers were protesting against reduction of water supply to agriculture from the project and diverting their due share of water to the steel city. The police lobbed teargas shells and fired 25 rounds to prevent the farmers from forcibly releasing water from the project. Several people were injured and arrested. (NEWSTIME 031202)

**Madduvalasa inaugurated** The Madduvalasa irrigation project has started providing irrigation benefits in Vangara mandal in AP. The CM said that the project would provide irrigation to 7 000 Ha and this would go up to 9 900 Ha on completion. At present the water holding capacity of the project is 3 tmc and after completion it would be 4 tmc. (NEWSTIME 011202)

**Two dead in clash over water** Two persons have died and several injured in a dispute over canal water in Barah and Harpura villages under Aswar police station near Bhopal in MP. The canal was without water for many days. When the water was released, the people of Barah village stopped it. The villagers of Harpura asked the Barah villagers to remove the obstruction. This started the dispute, leading to ugly fight. (CENTRAL CHRONICAL 261102)

The HP govt has is to start an ambitious plan to provide irrigation to 0.35 M Ha of land. The total cultivable area in the state is 0.58 M Ha. The state CM claimed that 5 years ago only about 50 000 Ha was under irrigation. During past four years the govt has launched three major schemes, which when completed would irrigate 20 787 Ha. These include the ₹ 1.43 B Shah Nehar irrigation scheme from the left bank of the existing Mukerian hydel channel, Rs 336.2 Sidhata medium irrigation project in Kangra district and Rs 283.7 M Anandpur hydel channel scheme. In addition, four medium irrigation projects including the Bhabour Saheb Project II (Rs 114.5 M, 2640 Ha) and Giri Irrigation Project (Rs 82.7 M, 5623 Ha) and 200 minor irrigation projects were completed, he claimed. (THE TRIBUNE 221102)

## WATER SECTOR

**Water for Health Declared a Human Right** A UN committee has declared formally for the first time. "Water should be treated as a social and cultural good, and not primarily as an economic commodity," the committee said, siding with those who object to the privatisation of water supplies. The United Nations Committee on Economic, Cultural and Social Rights took the unprecedented step of agreeing on a General Comment on water as a human right, saying, "Water is fundamental for life and health. The human right to water is indispensable for leading a healthy life in human dignity. It is a pre-requisite to the realisation of

all other human rights." A General Comment is an interpretation of the provisions of the International Covenant on Economic, Social and Cultural Rights. Although the Covenant does not expressly refer to the word "water," the committee determined that the right to water is "clearly implicit" in the rights contained in two sections of the Covenant. The General Comment means that the 145 countries which have ratified the Covenant "have a constant and continuing duty" to progressively ensure that everyone has access to safe and secure drinking water and sanitation facilities – equitably and without discrimination. "Countries will be required to 'respect, protect and fulfil' individuals' rights to safe drinking water and sanitation," said World Health Organisation Director-General Dr. Gro Harlem Brundtland, quoting from the General Comment. (ENS 041202)

**Water rights and Indian Laws** Water rights are fundamental to resolution of conflicts, whether it is between farmers in an irrigation system (as in head and tail reaches) or between irrigation systems (same basin in different states) or between irrigation and other sectors (e.g. industries and municipal requirements). The central conflict over water resources revolves around the question of the ownership, access and control over water. Surface water in India belongs to the state and this is direct consequence of usurpation of traditional and customary rights by the state. One of the early legislation in the area of water resource management was the North India Canal and Drainage Act 1873. The preamble to the Act says, "the provincial govt is entitled to use and control for public purpose the water of all rivers and stream flowing in natural channels, and of all lakes and other natural collection of still water." Without talking about ownership the Act asserts the right of state to use and control water. The India Easements Act 1882 also legitimised customary right of the people and provided rule for their recognition. But again under the 1882 Act all these rights are subject to overriding provision of "any right of the govt to regulate the collection, retention and distribution of water of rivers and streams flowing in natural channels, and natural lakes and ponds, or of the water flowing, collected, retained or distributed in or by any channel." In an important case the court ruled the power of govt for water management was conditional upon the fact that the traditional supplies of water should not be diminished. The govt had the power to regulate in the public interest, the collection, retention and distribution of water of rivers and streams flowing in natural channels or in manually constructed works, provided that they do not thereby inflict injury or any other riparian owners and diminish the supply that they have traditionally utilised. The right of enjoyment of pollution free water is now a fundamental right under Article 32 of Indian Constitution. (EPW 071202)

**World water crisis** According to report by the International Food Policy Research Institute and the International Water Management Institute, worldwide if current trends in water policy and investment hold or worsen, the world will face threats to the global food supply, further environmental damage, and ongoing health risks for the hundreds of millions of people lacking access to clean water.

- By 2025, water scarcity will cause annual global losses of 350 MT of food production – slightly more than the current US grain crop.
- Consumption of water for all non-irrigation uses will rise by 62 %.
- Industrial water demand will increase significantly in developing countries and, by 2025, a major shift will occur. Industrial water demand in the developing world will exceed the demand in developing countries.
- Water scarcity will cause substantial shifts in places where the world's is food grown. Developing countries will dramatically increase their reliance on food imports. In the sub Saharan Africa, grain imports will more than triple. Poor countries, unable to finance imports, will experience increased hunger and malnutrition.
- In 1995, 11% of India's rural households had accessed to pipe water. Under the business as usual scenario (BYS), this number will go up to 47% by 2025; under the water crisis scenario, it would go up to 13%.
- In 1995, India harvested an estimated 37.8 M Ha of grains under irrigation. Irrigated land will reach 47.1 M Ha by 2025 under BYS. In 2025, India will consume 396 km<sup>3</sup> of water under BYS. This is more than double that of projection for the US (191 km<sup>3</sup>) and nearly one fifth of the total global water consumption that year.
- Domestic water use in India is projected to nearly double between 1995 and 2025, from 21 to 41 km<sup>3</sup>.
- A quarter of the world's population will suffer severe water scarcity within the next 25 years, even during years of average rainfall. This poses the single greatest threat to food security, human health and natural ecosystems. (THE PIONEER 141102)

## GROUND WATER

**Grim situation in AP** A study by the AP Pollution Control Board stated that water that was recharging the groundwater contained high levels of mercury and other pollutants. This was leading to economic loss for cattle breeders and farmers. Around 21 000 habitations were facing problems due to depletion of groundwater. According to AP groundwater Dept, at present about 80 % of rural water supply and 42 % of irrigated agriculture requirements were being met by ground water. According to Water Conservation mission sources, drinking water to be supplied from the Krishna water project would cost people of the Hyderabad city four times more than the present rate.

**Low Recharge, High Runoff** According to experts from the Hyderabad Water Conservation Mission, the groundwater recharge is only 9 % while the water run-

off is as high as 40 %. "If this high run-off can be arrested and used to recharge groundwater table, then most of water problems will be solved," Mission sources said. The nitrate level in groundwater at Vijayawada rose from 1.8 mg/l in 1982 to 22.3 mg/l in 1991 while the safe limit is 10 mg/l. "The groundwater in and around Hyderabad shows very high levels of mercury, arsenic, manganese, nickel, strontium, fluoride and other harmful chemicals". (NEWSTIME 301102, THE TIMES OF INDIA 011202, DRP 1202 p. 27)

**WB for stiff Power tariff in AP** The WB has recommended to the state govt to increase agriculture power tariff as a disincentive for high consumption and to prevent excessive exploitation of groundwater. In a case study conducted on power supply to agriculture sector in AP, the WB suggested further advancement of graduated tariff rates (higher per unit rates at higher consumption levels) that, it said, would help in dealing with groundwater degradation. The Bank also suggested metering of agriculture pumpsets that would help improve pricing of water to better reflect its scarcity value. Regulating access to water through registration of wells and regulation of well depth, spacing and pump capacity could also help limit overuse of water. (Deccan Chronicle 101202)

**Delhi** The Post Monsoon readings of the groundwater in Delhi have been taken and the results are very alarming. On average levels have fallen by 2.5 m in just a year. In the "safer areas" the fall has been between 0.5-1.5 m. According to the CGWA sources, "the discharge or the pumping out of water is four times the volume of recharge and the quantum of recharge through artificial rainwater harvesting is negligible." In a paper presented by the CGWA experts, the total roof top area, available for water harvesting in Delhi had been calculated as 140 sq km. Experts say that even if rain over 10 % of this area was harvested, 1 320 M gallons water would be available annually. Delhi's requirement is 800-880 MGD. The total rooftop area constructed for water harvesting in Delhi in the past three years does not exceed 10 sq km. (THE INDIAN EXPRESS 101202)

**Fluoride contamination** The groundwater in Chopan block of Sonbhadra district in UP is highly contaminated with fluoride. The people of 15 villages of Chopan block are affected from different disease due to fluorosis and close to 10 000 people have various kinds of deformities. According to an official examination of water in the district, the fluoride level in the water samples was found to be as high as 6 ppm, whereas the permissible limit is merely 0.5-1 ppm. The Allahabad High Court ordered the UP govt to file an affidavit indicating steps taken to prevent, treat and control fluorosis in the Chopan block of Sonbhadra district. It also demanded details of the measures taken to rehabilitate the affected villagers. The HC acted on a

PIL filed by Allahabad based Diocesan Development and Welfare Society on behalf of 18 villages. (DOWN TO EARTH 311202)