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Dams, Rivers & People

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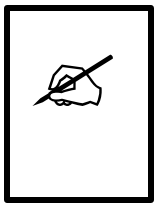
Lead Piece

The Union Budget 2007-08 & Rural, Agriculture sector

A farmer's Budget? Really?



The slogans that the Union Finance Minister wanted everyone to be impressed by in his speech for the Union Budget for 2007-08 were about inclusive growth, top priority for agriculture and second green revolution. A close scrutiny of the budget reveals that he has not put money on the issues of concern that he mouthed in these slogans, if we look at the budget from the perspective of rural, agricultural sector.

But first let us give him credit where it is due. The Groundwater recharge scheme that Mr Chidambaram has proposed is certainly an urgently needed step in right direction. However, the way he has described the scheme in the budget speech raises a number of questions. Mr Chidambaram said, "The strategy for ground water recharge is to divert rain water into 'dug wells'." However, Rs 4 000/- per structure allocated for this seems rather high. In Saurashtra (Gujarat) farmers have achieved these at a cost of few hundred rupees. We will also need to await details of how the proposed 7 million structures over about 850 blocks in 100 districts will be implemented. It is also not clear as to for what period the amount of Rs 1800 crores to be given through NABARD is.

The govt should make public the study based on which the figures have been arrived at, as it seems to assume that so many dug wells exist. 50% subsidy for large farmers is high, but it may be a good idea at entry level.

However, Indian water resource establishment is like a king that keeps trying to expanding his reign to new areas without bothering to see what is happening to the acquisitions. According to a World Bank estimate, India currently needs about Rs 17000 crores every year just to maintain the created infrastructure. Two years back in his budget speech Mr Chidambaram was ruing the fact that the efficiency of India's irrigation sector is one of the lowest in the world. He has done nothing to make amends on that score. Capacity equivalent to two thirds of the new storage capacity we are creating each year through large projects at huge costs is getting silted up and nothing is being done to arrest that destruction. On the contrary, he is doing exactly the opposite when he increased allocation for Accelerated Irrigation Benefits Programme (AIBP) by a whopping 55% to Rs 11000 crores.

However, Indian water resource establishment is like a king that keeps trying to expand his reign to new areas without bothering to see what is happening to the acquisitions. According to a World Bank estimate, India currently needs about Rs 17000 crores every year just to maintain the created infrastructure, but not an even a fraction of that is being allocated.

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Same is the story about irrigation component of Bharat Nirman, most of which goes for big dams and long distance canals, which have proved too costly and relatively unproductive over the years. The list mile schemes are in fact becoming incentive for starting new projects. And most of the money is going for projects like that Sardar Sarovar that cannot be called last mile project by any stretch of imagination.

On the urgent and expanding problem of farmer suicides, the budget has nothing to offer on one score that would really help: Ensure that farmers get remunerative prices for their produce. Only thing Mr Chidambaram offered was, well, another, (Dr R Radhakrishna) committee.

Here we should also examine the claims FM has made about achieving 2.4 m ha irrigation potential in 2006-07, including 0.9 m ha through AIBP. This was in addition to 1.45 m ha irrigation potential claimed to have been created in 2005-06 (see Economic Survey for 2005-06). We will need detailed break up of where this potential has been created to check the veracity of it. But the fact that agricultural growth rate was 6% in 2005-06 and is hoped to be 2.7% in 2006-07 should be sufficient to deny credibility to these claims. For, if these claims were true, than this should have been reflected in the agricultural growth rate, which it clearly has not. In reality, it is doubtful if the projection of 2.7% agricultural growth rate would be achieved, considering that agriculture grew at 3.4%, 1.7% and 1.5% respectively in the first, second and third quarter of current fiscal.

The 2007-08 is the first year for the 11tn Five Year Plan and neither the Approach Paper for the Plan, nor the Budget has any credible steps to achieve inclusive and sustainable agricultural growth. A sector, which the FM noted, supports 115.5 million families. It is doubtful if the FM would get even passing marks for this performance.

Compare those thousands of crores with a paltry allocation of Rs 100 crores for the National Rainfed Area Authority. Here it may be remembered that rainfed area is much larger than the irrigated area and is in urgent need for attention. And for what he described as his dream scheme two years back, namely repair, renovation and restoration of water bodies, worse is in store. The water bodies are to depend on the mercy of the World Bank and other aid agencies.

And for what he described as his dream scheme two years back, namely repair, renovation and restoration of water bodies, worse is in store. The water bodies are to depend on the mercy of the World Bank and other aid agencies. So Mr Chidambaram is expecting the World Bank to realise his dreams and he has no quarter in the national budget to allocate for his dream scheme.

So Mr Chidambaram is expecting the World Bank to realise his dreams and he has no quarter to allocate for his dream scheme. Moreover, the Finance Minister has nothing to offer to solve the biggest problem of India's Water Sector: Utter lack of transparency and accountability.

Furthermore, he has proposed nothing credible to arrest land deprivation, for increasing the productivity of small farms and national average yields of crops. One step he could have easily taken is to enthusiastically promote a new method of rice cultivation called System of Rice Cultivation, which has the potential to increase the yields even with reduction in inputs like water, seeds and chemicals.

The entry of corporate bodies in the agriculture sector (corporate farming, marketing) has in fact created problems for the rural people. But the Economic Survey for 2006-07, indeed calls private entry as improvement and novel (Box 8.2 in Economic Survey, 2006-07) and talks rather positively about Strategic Economic Zones.

On the urgent and expanding problem of farmer suicides, the budget has nothing to offer on one score that would really help: Ensure that farmers get remunerative prices for their produce. Only thing Mr Chidambaram offered was, well, another, (Dr R Radhakrishna) committee. The move to ban futures trading in wheat and pulses is too little, too late, though a welcome move.

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It is doubtful if the FM would get even passing marks for this performance. In fact the results of his performance were available a day before when election results showed that the people of Punjab and Uttaranchal had ousted the UPA governments.

It seems there is no inclination to learn lessons from these debacles.

SANDRP (A somewhat different version of this was published on rediff.com on March 1, 2007)

Cauvery Tribunal Award 2007

Why it fails the tests of science, efficiency and equity?

The Cauvery Tribunal Award announced by the 3 member Cauvery Water Disputes Tribunal headed by Justice N P Singh on Feb 5, 2007 fails on some crucial tests of equity, efficiency, technology and science. Immediately, the Award is bound to stand challenged by Karnataka and Kerala, even as apparently Tamil Nadu and Puducherry seem satisfied at this stage. Moreover, the ambiguity in the award about sharing the water during distress years is likely to create problems in future.

The Cauvery Award fails on the test of science as it does not consider groundwater availability in the Cauvery basin area while deciding the distribution of water among the claimants.

The Cauvery Award fails on the test of science as it does not consider groundwater availability in the Cauvery basin area while deciding the distribution of water among the claimants. Tamil Nadu, being the lower riparian, has significant availability of groundwater, while Karnataka and Kerala, being the upper riparian, have relatively little of it. Groundwater, in reality, is the water lifeline of this country, with over two thirds of irrigated foodgrains production, over 90% of rural water supply and over 50% of urban water supply dependent on groundwater. It's also well known than groundwater and surface water are in dynamic equilibrium. To illustrate, the utilisable surface water in Cauvery basin is 19 BCM (billion cubic meters; 670.89 TMC ft), and replenishable groundwater resource in the basin is 12.3 BCM (434.31 TMC ft), which shows that the groundwater available in the basin is about 67% of the utilisable surface water. To allow unrestricted groundwater use and not to include groundwater in calculating water availability and allocation, is unscientific, to put it rather charitably.

The Tribunal Award fails the test of efficiency as the tribunal does not reward efficient use of water. It is well known that the farmers in Cauvery delta are habituated to utilise larger amounts of water from the river for a longer time. The cropping pattern in the delta includes double crop of water intensive paddy. The award, instead of promoting and rewarding more efficient cropping pattern and use of water, seems to be rewarding extravagant water use by providing water for such use.

The Tribunal Award fails the test of technology as it did not consider the new water efficient method of cultivating Rice, called the System of Rice Intensification (SRI). This technique has been proved effective through actual practice over thousands of hectares in TN, Karnataka, AP and elsewhere over the last 3-4 years. SRI can reduce water requirement by over 50% and yet increase per ha yields by 50% or more. If SRI is indeed practiced along the paddy areas in Karnataka and Tamil Nadu, the perceived water distress in the Cauvery basin could be almost eliminated. A Tribunal award that does not take into account such proven techniques clearly fails the test of technology.

The Tribunal Award also fails the test of equity, as it did not consider the resources and needs of people at the micro level, but looked at the aggregate demands at the macro (state level). When you aggregate the demands in this way, the issues of equity and appropriateness at the micro level is lost entirely. This in fact has the potential of negating the potential water solutions for vast numbers of people in the catchment that contributes to the water in the river. In Cauvery basin this threat of losing sight of micro issues is very much real, as was seen when the tank desilting project in Karnataka was opposed by Tamil Nadu under the pretext that it will reduce water available at Mettur!

Indeed, as the well known commentator S Guhan noted, Cauvery dispute is somewhat different than the other water disputes like the Narmada and Godavari in the sense that Cauvery is already an overdeveloped basin, where the dispute is because of the seeming distress caused due to over development. It is precisely for this reason that the issues of efficiency, technology, equity and science should be even more relevant for the Cauvery case.

Ambiguity The Tribunal is also less than clear about the crucial question of sharing at the times of distress, when the real problems surface. It would have helped if the Tribunal had clarified exact manner of sharing the distress in each month of the year. The fact that Tribunal has used 50% dependable hydrology for adjudication heightens this issue, since this means that the distress will be felt in about 50% of the years. Here it may be added that the climate change due to global warming is only likely to increase the problems of dependability of flows in the rivers. The review period available now before the award becomes final should be used to help clarify such issues.

In fact past experience of implementing the Tribunal awards in the past has been far from happy one. The number of lingering inter state water disputes are increasing by the day. The Ravi Beas water dispute between Punjab and Haryana, the Krishna water dispute

between Karnataka, Andhra Pradesh and Maharashtra, the Godavari water sharing dispute between Maharashtra, Andhra Pradesh, Chhattisgarh and Orissa continue to linger. In the Narmada Valley, the disputes between the state and the people, a direct product of the Narmada Tribunal Award, continue, as the Narmada Tribunal Award (like all other awards) had heard only the state, not the people of the valley.

Upper Riparian's case The Karnataka state officials have given an indication of feeling aggrieved by the Tribunal Award. If we look at the table below, we can see that indeed Karnataka is the only state that has got less share in water than its share in the catchment of the Cauvery basin. When we add the fact that Karnataka area of Cauvery basin has less groundwater availability, we see that there is some justification this feeling.

Indeed, amicable solution of river water disputes is possible only when there is greater democracy in water resources planning and decision making, something that is totally missing today.

Basin Area and Water Allocation

	Area in Cauvery basin, sq km (%)	Water contribution, TMC ft (%)	Water claimed TMC ft (%)	Water allocated, TMC ft (%)
Karnataka	36240 (41.23)	392 (53)	465	270 (36.49)
Tamil Nadu	48581 (55.27)	222 (36)	566	419 (56.62)
Kerala	2930 (3.33)	128		30 (4.05)
Puducherry	149 (0.17)	(11)		7 (0.95)
Cauvery basin	**87900**	**740 (100)**		**740** (includes 10 for environment and 4 unavoidable escape)

Sources: Water contribution figures from Indian Express (150307) and the rest from Govt of India, report of the National Commission on Integrated Water Resources Development, Sept 1999

However, the interim order of the Tribunal had directed Karnataka to release 205 TMC water, and the final order requires Karnataka to release 192 TMC. Karnataka has been able to release more than the stipulated amount in eleven of the last fifteen years. If that was possible for 205 TMC direction, it should certainly be possible for 192 TMC direction? Some problems could arise as the Award now stipulates monthly release figures.

Karnataka also feels aggrieved that the tribunal has allowed Tamil Nadu the use of 21 TMC ft of water which Karnataka has to release to Kerala as its share.

Karnataka's options Immediately, section 5(1) of the Inter-State Water Disputes Act provides an opportunity for all concerned states to file clarification petitions (basically seeking explanation or guidance) before the tribunal over the next three months. Even after the final Award is notified after such review process, the states can go to the Supreme Court. Karnataka and Kerala are likely to explore these avenues. After the further award of the Tribunal, the centre has no option but to notify it. Participant states can delay the formation and implementation of the regulatory body mandated in the Award, but it is too premature to discuss such possibilities at this stage.

On March 15, Karnataka Legislative Assembly passed a resolution with near unanimity, terming the award *impossible* to implement and urged the centre not to issue notification until the issue is resolved. The resolution stated that the tribunal verdict was against the interests of the state and also asked the centre to support the state's cause keeping in view the drinking water requirement of cities, including Bangalore. On March 20, the Karnataka Chief Minister offered to meet the Tamil Nadu counterpart in next 8-10 days to resolve issues through dialogue. However, in a swift reaction the next day, TN CM rejected any possibility of meeting the Karnataka CM to discuss Cauvery issue.

Karnataka has decided to file a Special Leave Application and a civil suit in the Supreme Court, in addition to a clarification petition before the Tribunal.

Monthly releases from Karnataka to Tamil Nadu

	Final Award, TMC ft	Interim Award, TMC ft
June	10	10.16
July	34	42.75
Aug	50	54.72
Sept	40	29.36
Oct	22	30.17
Nov	15	16.05
Dec	8	10.37
Jan	3	2.51
Feb	2.5	2.17
Mar	2.5	2.40
Apr	2.5	2.01
May	2.5	2.33
TOTAL	**192**	**205**

The Cauvery Family Fortunately in the Cauvery basin, some useful work has already been done by a collective called *the Cauvery Family*, of farmers, technical experts and academics from Karnataka and Tamil Nadu, over their 9 sittings. This collective will have important role to play in days to come to ensure that appropriate solutions are brought into the picture missing in the Tribunal Award and to ensure that people's real needs are taken care of appropriately. If this family is allowed and enabled to perform such role, it can surely bring about significant improvements in the Cauvery basin.

Indeed, amicable solution of river water disputes is possible only when there is greater democracy in water resources planning and decision making, something that is totally missing today.

South Asia Network on Dams, Rivers & People (A somewhat different version of this article was published on www.rediff.com.)

Viability of Inter Linking of Rivers

AN EXAMINATION FROM A SYSTEMS APPROACH

S.G.Vombatkere**

Interlinking of rivers (ILR) is not simply a scheme to connect rivers by canals. It is a complicated system to connect high-discharge, fast-flowing Himalayan-sourced rivers with the seasonal rivers of peninsular India, transferring large quantities of water between river basins. The main aim of the mega-project is to transfer surplus water from flood-prone river basins to deficit river basins to eliminate flood and drought at the same time. This aim has been frequently repeated by President Dr APJ Abdul Kalam in his doubtless well intentioned but untiring promotion of ILR.

ILR is estimated (in 2002) to cost at least Rs 560 000 crores, occupy around 600 000 ha of forest, agricultural and other land, displace several lakhs of people in many states, and is probably the biggest project of its kind in the world. The questions about the project from concerned and informed citizens have been stone-walled and opposition by potentially affected people, intellectuals, experts and activists has been steam-rolled, even ridiculed. All this, while the Government of India Ministry of Water Resources (MoWR) website created to provide information contains only the barest outlines and no details. Several feasibility studies have been conducted but the Feasibility Reports (FRs) were made available only after activists agitated the matter and after repeated orders of the Supreme Court. The ILR project seems to have even has the blessings of the Supreme Court, which directed in 2002 that the project be completed in 10 years.

Any thinking person would wonder why there is so much calculated official opacity for a project of such enormous magnitude that promises such obvious benefits like solving flood and drought at the same time.

Any thinking person would wonder why there is so much calculated official opacity for a project of such enormous magnitude that promises such obvious benefits like solving flood and drought at the same time. Due to the lack of transparency on the part of government, there is growing, deep distrust regarding the ILR project. This has polarized opinions, namely, the government-corporate lobby – the "FOR" camp - earnestly selling the idea to a largely uninformed public with the carrot of solving all water problems for all time to come, and the "AGAINST" camp consisting of directly affected people who stand to lose land and livelihood due to displacement, and the activist-environmentalist lobby supporting affected people and demanding information but not getting it. Perhaps 90% of India's people are silent because they do not know about the project at all, while some others from the economically well-off classes are convinced by government propaganda that the project is beneficial to the nation. The FOR camp mainly holds that if detailed information is provided in the public domain, there will be opposition to the project that will delay its commencement and completion. But they fail to realize that suspicion and opposition are best overcome by giving information freely (to which, in any case, the public is entitled), and that information in driblets and commencement of projects by use of police force only leads to social tensions and time-cost overruns as has happened in innumerable projects in the past.

The FOR camp, mostly consisting of officials and engineers of MoWR, appears to view the mega-project as a problem in hydrology to the exclusion of social, environmental, economic and geo-political consequences. It is disturbing that some officials in government criticize the democratic dissent of opposition to ILR as being anti-development, even anti-national. However, Dr Kalam's criticism is milder, terming it as "being negative". Some in the AGAINST camp question the propriety of the President taking sides in a growing controversy.

ILR will have serious social ill-effects due to involuntary displacement of lakhs of project affected families (PAFs) from the forest, rural and urban land to be acquired for dams and canals, roads and bridges, and other connected structures. This assumes significance since governments have a miserable track record of rehabilitation over the past six decades due to overbearing and/or corrupt officials. Though the present article focuses on the systems view of ILR and its technical aspects, it does not in anyway dilute the seriousness of the social problems that will accrue from forcible displacement of populations.

Design of the project A project that involves people, especially very large numbers, cannot be successfully designed, leave alone executed and operated, unless it takes into account the benefits and costs to people. The benefit: cost (B:C) ratio is inherently an inaccurate parameter because of the impossibility of quantifying intangibles (like social and environmental costs) and for several other reasons, not the least important of which is the fact that those who bear the cost by displacement and consequent loss of land and livelihood are not those who benefit from the project. The inaccuracy of calculation and arbitrariness of the acceptable B:C ratio together go to make it a dehumanized parameter, which however appears to be acceptable to engineers, economists and bureaucrats.

The technical design of any system has to be based upon what are known as design assumptions. The successful functioning of the completed system is only as good as the design, which in turn depends upon the validity of the basic data which form the design assumptions. For example, consider construction of a dam across a river – it is a geo-technical system to impound a certain (designed) quantity of water. If the dam is designed to withstand an earthquake of a certain assumed intensity (called the "design earthquake"), and it is subjected to an earthquake of much higher intensity, it may collapse. If the actual earthquake is only slightly more than the design earthquake, the dam may not collapse but may develop defects that may or may not be repairable but will reduce the functional effectiveness and life of the dam. This indicates the importance of the initial assumptions in carrying out the design. Though some of the design assumptions of some of the individual dam-canals in the ILR project may be obtained from the FRs made public so far, the design assumptions for the ILR project as a whole have not been defined.

The ILR system has three major flaws, and while it is true that every system has drawbacks, the ILR system is different on account of scale. One, the system envisages mass transfer of water during flood in the monsoon season of July-September, when the water in rivers carries a large load of sand and silt. Any mass transfer of water will inevitably involve transfer of substantial volumes of sediment along with the water. This will clog canals in a very short time, reducing the flow in the canal and making it inefficient, necessitating heavy recurring expenditure to dredge the canals. Two, rivers like Ganga and Brahmaputra shift their courses by upto one or two kilometers over a period of a few years and could leave the canal head works dry or with reduced capacity for off-take of water. This necessitates expensive "river training" maintenance works to be constructed almost every year so as to maintain supply to the canal.

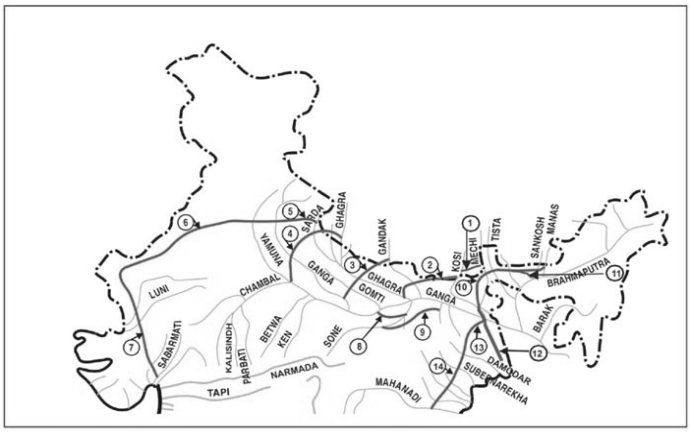
The example of Farakka barrage across Ganga is a case in point, where large sums are being spent every year just to prevent Ganga from by-passing the barrage, making it useless.

The example of Farakka barrage across Ganga is a case in point, where large sums are being spent every year just to prevent Ganga from by-passing the barrage, making it useless. And three, water flowing in canals over very long distances involves heavy evaporation and seepage losses, resulting in increased cost of water delivered.

In the prevailing situation of social and political unrest, deliberate interference with any link canal or canal head works by one or more of several methods of sabotage to cause system failure, cannot be ruled out.

PROPOSED INTER BASIN WATER TRANSFER LINKS

HIMALAYAN COMPONENT



1. Kosi – Mechi
2. Kosi – Ghagra
3. Gandak – Ganga
4. Ghagra – Yamuna *
5. Sarda – Yamuna *
6. Yamuna – Rajasthan
7. Rajasthan – Sabarmati
8. Chunar- Sone Barrage
9. Sone Dam – Southern Tributaries of Ganga
10. Manas –Sankosh - Tista - Ganga
11. Jogighopa – Tista – Farakka (Alternate)
12. Farakka – Sunderbans
13. Ganga (Farakka) – Damodar – Subernarekha
14. Subernarekha – Mahanadi

* FR Completed

FIGURE – 1 THE HIMALAYAN SUB-SYSTEM

For example, a $3.6 billion 540 km long 24 m top width, 5 m deep canal from Lake Havasu to Tucson in USA, is fenced on both sides for its entire length, there is 24x7 land and air patrolling, and electronic alarms at all key structures along the length. If similar security is to be provided for the ILR system of about 14,000 km length, the cost of security will add to the cost of water, possibly making it uneconomical.

The recurring heavy cost of security, maintenance and water losses needs to be considered in computing the economic viability of the ILR. There is no evidence that this has been taken into consideration.

The ILR project The National Water Development Agency (NWDA) of MoWR has published a map indicating the link canals, 14 in the Himalayan region and 16 in the Peninsular region, as shown in Figures 1 and 2 respectively. For water to be transferred from a river, it is necessary to construct a dam (or a barrage, if the river is broad and sloping gently, like the lower reaches of Ganga or Brahmaputra) to feed water into a canal. The ILR project may involve construction of about 150 large dams, but MoWR has not stated how many dams would be involved, though it proposes 30 large canals.

An important consideration is the fact that out of 1,300 irrigation projects taken up for implementation since 1951, only about 900 have been completed, while 400 are incomplete, and on-going major and minor irrigation

projects are languishing in various stages for want of funds to the extent of Rs.80,000 crores. The questions here, that MoWR is not about to answer, are:

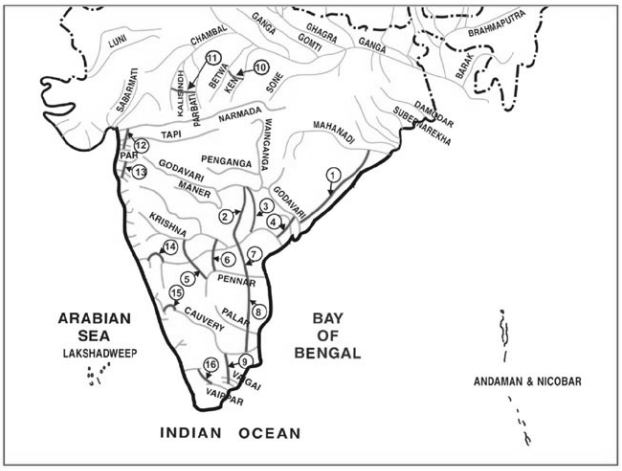
(a) Are the incomplete projects being abandoned or being integrated into the ILR system?

(b) If Rs 80,000 crores are not available to complete the projects in progress, what is the justification or financial-economic wisdom in incurring a fresh expenditure of Rs 5 60 000 crores?

Relieving drought or flood? Ganga in the Himalayan sub-system (Figure 1) has been identified as a "surplus basin". Considering that in many parts of the Ganga basin (especially in Bihar, from where a canal is to divert water southwards to Subarnarekha) flood and drought occur simultaneously a mere couple of kms apart, the logic of assuming Ganga as a surplus basin is questionable. Even so, the claim of relieving flood by diverting water needs to be examined.

It does not call for great intelligence to understand that ILR cannot relieve flood in Ganga and Brahmaputra, and the most generous interpretation that can be given to pro-ILR propaganda is that the proponents are misinformed.

PROPOSED INTER BASIN WATER TRANSFER LINKS
PENINSULAR COMPONENT



1. Mahanadi (Manibhadra) – Godavari (Dowlaiswaram) *
2. Godavari (Inchampalli) – Krishna (Nagarjunasagar) *
3. Godavari (Inchampalli) – Krishna (Pulichintala) *
4. Godavari (Polavaram) – Krishna (Vijayawada) *
5. Krishna (Almatti) – Pennar *
6. Krishna (Srisailam) – Pennar *
7. Krishna (Nagarjunasagar) – Pennar (Somasila) *
8. Pennar (Somasila)–Palar- Cauvery (Grand Anicut) *
9. Cauvery (Kattalai) – Vaigai – Gundar *
10. Ken – Betwa *
11. Parbati – Kalisindh – Chambal *
12. Par – Tapi – Narmada *
13. Damanganga – Pinjal *
14. Bedti – Varda
15. Netravati – Hemavati
16. Pamba – Achankovil – Vaippar *

* FR Completed

FIGURE – 2 THE PENINSULAR SUB-SYSTEM

Average Ganga floods carry 50,000 cubic meters per second (cumecs) during the 4 monsoon months, while for technical reasons a 100-m wide 10-m deep canal can divert at most 2,000 cumecs to provide 4% relief, that too only downstream of the off-take point. Likewise, Brahmaputra floods carry over 60,000 cumecs and a similar canal can provide at best 3% relief. However, for the balance 8 non-monsoon months every year, average Ganga flows are 5,280 cumecs, and diversion of 2,000 cumecs will deny Bihar 38% of Ganga water when it is needed most, even if the demand of lower riparian Bangladesh are not counted at the moment. Thus, clearly, the claim of relieving flood in Ganga or Brahmaputra by canals cannot make economic sense. The diversion of 38% of Ganga water in the dry season can only lead to the most serious socio-economic consequences. The alternative of using the canal for the 4 monsoon months (to divert a mere 4%) and keeping it idle for 8 months would, of course, be economic nonsense. Perhaps that is the reason that the Himalayan part of ILR has been considered "not feasible" by MoWR, as brought out below.

It may be seen from the map showing the Peninsular sub-system (Figure 2), that some canals draw water from rivers that are not flood-prone. For example, Links Nos. 2 & 3 start on upper Godavari in areas that are actually drought-prone, and draw water for release into upper Krishna, while Link No. 4 takes water from lower Godavari to release it into lower Krishna. Also Link Nos. 5 & 6 draw water from upper Krishna and deliver water to upper Pennar. Notwithstanding that those areas of Krishna, Pennar and Palar are water-deficit according to MoWR, Link No.8 takes water from Pennar to Cauvery. All these links do not serve the main purpose of ILR, namely, relieving flood and drought. They are merely links that complicate management and interfere with the existing stable *ayacut* system.

Systems view of ILR Mr. Suresh Prabhu in his capacity as Chairman of ILR Task Force (TF) had compared the proposed network of canals to the road, rail and electric power network in India, unmindful of the fact that water in canals flows only in one direction. However, in a sense, Mr.Prabhu is correct if we substitute the word "system" for "network".

The success of the ILR scheme is based on functioning of a system of canals, in which northern river basins supply water to river basins that are more to the south by link canals forming a "chain of supply". The Peninsular sub-system depends upon the Himalayan sub-system for Brahmaputra water to be transferred to Ganga, and Ganga water to Subarnarekha, and so on southwards to Mahanadi, Godavari, Krishna and Pennar to finally deliver water to Cauvery in Tamil Nadu. Apart from providing water for the Peninsular sub-system, the Himalayan sub-system also supplies water to Rajasthan and Gujarat through a series of links to transfer water from Kosi to Ghaghara, Gandak to upstream Ganga (across Ghagahara & Gomti), upstream Ghaghara to Jamuna (across Ganga), and from Sharada to Sabarmati (across Ganga, Jamuna and Luni). These links may be seen in Figure 1. Barring Brahmaputra, which only gives water but receives none, the

functioning of both sub-systems is dependent upon chain-supply of water, each river basin donating water in exchange for water received from a river basin to its north. The concept of donating water in exchange of water received, being the basic assumption for the ILR system to function, as mentioned in the FRs.

Here we come up against an anomalous situation. Page 9 of Volume I of the Report of the National Commission for Water Resource Development states, "The Himalayan river linking data is not freely available, but on the basis of public information, it appears that the Himalayan river linking component is not feasible for the period of review up to 2050". From a system viewpoint therefore, this statement of a national document raises the following important question: If the Himalayan sub-system is not feasible, then what is the source of water to feed Subarnarekha basin and onward to the river basins to its south (Mahanadi, Godavari, and so on) for each basin to supply water to the next basin?

The ILR system is delicate, failure-prone and subject to many if's and but's, mainly because it is too complicated to be practical, and the risk of system failure is high. Thus, from a system standpoint, the entire ILR scheme is unworkable.

According to the "exchange concept", if a (recipient) river basin does not receive water from another (donor) river basin for any reason whatever, it will not be in a position to feed water (as a donor) into the next link canal in the system. For water to reach Cauvery, all the links have to function as a system, conveying water from North to South. But even neglecting the absence of water supplied from the unfeasible Himalayan sub-system, let us discuss the Peninsular sub-system. The then Chairman of the ILR TF Suresh Prabhu assured that links not found feasible will not be constructed. It is of course known that engineers are not above manipulating FRs and B:C ratios to establish feasibility and obtain sanction for a project. But there are other causes for any particular link canal not functioning adequately or not at all, such as siltation of canals, canal breaching, political agitations not permitting release of water, etc.

According to ILR TF, there are pumped lifts within three link canals requiring 4,000 MW of dedicated electric power, planned as follows: Ganga-Subarnarekha 60-m, Subarnarekha-Mahanadi 48-m, and Godavari-Krishna 116-m. If any of the pumped lifts between Ganga and Krishna fail to function for any reason whatever (equipment failure, power failure, etc.), the recipient basin will not only not receive water, but there will be severe flooding at the pump input point besides disrupting systemic water flow.

In the Peninsular sub-system, supply to Cauvery is predicated on the reliable and continuous operation of the chain of links to its north, that is, Subarnarekha-Mahanadi-Godavari-Krishna-Pennar. Suppose, for example, that Krishna-Pennar links Nos. 5 and 6 fail to operate for some reason or are not found feasible and therefore not constructed. In such circumstances, Cauvery at the tail end cannot receive the quantity of water that it is supposed to receive, because farmers of the Pennar basin will certainly interfere with release of water southward since it will directly and immediately reduce water availability to them.

Therefore, even putting aside the argument that canals cannot relieve flood in Ganga or Brahmaputra as already demonstrated above, with the Himalayan links not being feasible, there is no reason to take up the Peninsular links because water from Brahmaputra or Ganga will not reach Mahanadi, and the system of water supply to Cauvery will necessarily fail. The ILR system flow plan - if indeed MoWR engineers have prepared one - indicating the design flow quantities has not been made public by ILR TF or MoWR. The FRs consider each link separately and there is no evidence that NWDA or ILR TF have considered all of them together to take a systems view of ILR. In sum, the ILR system is delicate, failure-prone and subject to many if's and but's, mainly because it is too complicated to be practical, and the risk of system failure is high. Thus, from a system standpoint, the entire ILR scheme is unworkable.

Objections by States the Govt of Andhra Pradesh has raised the following objections with regard to the Peninsular sub-system: (1) Nagarjunasagar *ayacut*, now getting dependable Krishna waters by gravity has to depend upon Godavari water pumped from Inchampalli Project nearly 300-km away, (2) Srisailam and Nagarjunasagar Power Stations may have to be shutdown, (3) Proposed Inchampalli and Polavaram Power Stations may not materialize due to lack of flows, (4) Dependable flows will be diverted and instead Andhra Pradesh will be made dependent on flood flows, and (5) Andhra Pradesh reiterated a number of times that there is no balance water (out of dependable yield) in Godavari, after meeting the requirements of basins States. Thus, in the balance, it would appear that Andhra Pradesh stands to lose by becoming a part of the ILR system. ("Comments of various State Governments on Inter Basin Water Transfer Proposals of National Water Development Agency" on NWDA website)

The Government of Orissa has questioned NWDA's assumption that Mahanadi (at Manibhadra) has surplus flow that can be transferred to Godavari, and has objected to the submergence of productive lands by the proposed Polavaram dam on Godavari. There are also various objections by state governments of Chhatisgarh, Maharashtra and Madhya Pradesh. Even Gujarat, one of the most vocal of ILR proponents that is to receive water from Sharada in the Ganga basin, objects to parting with

water from Damanganga for supplying Mumbai with water (Link No.13, Figure 2). Gujarat argues that transfer to surplus Pinjal basin in Maharashtra is against the national policy since it "diverts water from surplus basin to surplus basin" while "(emphasizing) diversion of water from surplus to deficit basin". Whether the argument is valid or not, the truth is that Gujarat does not want to part with water.

Kerala, despite its high annual rainfall, suffers from serious water shortage in the non-monsoon months, and as far as ILR is concerned, is always only a donor state. It has passed a resolution in the Legislative Assembly that it opposes ILR. Tamil Nadu, which is always a recipient and has always been in favour of ILR, has objected to a dam proposed on Pennar by (upstream) Andhra Pradesh, on the grounds that it will deplete flow in Tamil Nadu – a simple case of wanting more! Thus it is clear that no state would like to spare water even though every state is keen to receive water - such attitude is also present at intra-state levels. In this general ambience of water demand, cobbling together inter-State consensus regarding water sharing can only be a pipe dream. Orders by the Supreme Court regarding water sharing are impractical since they can never be truly accepted at the farmers' level. If a Chief Minister is forced to share (release) water even when his own state is running short, he will have to face the political consequences of such action, as erstwhile Karnataka CM Mr SM Krishna did in the elections ensuing release of water to Tamil Nadu in the Cauvery water dispute with Tamil Nadu in 2003.

Given the objections from states regarding ILR, it passes understanding how a water-sharing dispute between states of different river basins may be resolved by a fiat of the Supreme Court, and what will be its local and national political cost.

Given the above few examples of objections from states regarding ILR, it passes understanding how a water-sharing dispute between states of different river basins may be resolved by a fiat of the Supreme Court, and what will be its local and national political cost.

Local farmers' perceptions of water needs cannot be countered by calculations in an engineer's office, nor by an agreement or MoU signed between Chief Ministers. It is common knowledge that politicians and bureaucrats can be induced to agree to almost anything (in this case, sparing "surplus" water) by application of political pressures, or offer of benefits, or threats of exposing past indiscretions, etc. But finally, the will of the people must supervene. ILR cannot function as a system.

Risk and consequences of system failure Any system can fail. The failure can be minor and dealt with easily, or major with serious consequences. When a system fails there is some loss to people, immediate and/or distant in both time and space. It is axiomatic that the consequences of system failure become more serious as the system gets more complex. An airline operator takes insurance against system failure (like say the crash of a passenger aircraft) to enable payment of compensation to survivors and next-of-kin, but strict inspections for airworthiness and safety procedures, etc., are a part of the insurer's conditions. In this straightforward example, the passengers were in the ill-fated aircraft by choice and the compensation is paid to the victims of the failure. However, the ILR system is not only entirely different in nature but is on a gargantuan scale compared to an aircraft.

The ILR Project is an extremely complex system of dams, canals, appurtenant structures and ancillary projects like power generation, bridges, buildings and roads. The risk of failure of each sub-system like a dam is the equivalent of many passenger aircraft. Physical failure of even a part of a sub-system has long range (in time and space) physical, social, environmental, economic and political consequences. Contemplating the effects of systemic failure of the ILR Project is unpleasant. Suppose for a moment that the completed ILR Project does not function because of an erroneous basic assumption such as "water is surplus in the Ganga basin in Bihar". In such a failure situation, all the money spent would be a colossal waste, all the people who were displaced would have been displaced in vain, the national debt would not be repaid because benefits would not accrue from the project, India's economic standing and credit in the international arena would be lost, etc. This is the reason for people asking to know what are the basic assumptions on which the ILR Project is based, and also questioning the assumptions that have been put out, such as declaring a river basin as surplus, simultaneously relieving flood and drought, generation of 30,000 MW of net electric power, etc. The risk that there may be flaws in basic assumptions is too great to be left unquestioned. Hence the basic assumptions and the performance criteria of the completed ILR Project need to be spelt out, and discussed transparently at district, state & national level.

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India has about 4,500 large dams and it is pertinent to mention here that to date, no transparent review of the completed dam projects, each one a system in itself, has

been done to verify if it has met the technical and economic performance criteria that were stipulated at the time the projects were designed and sanctioned. This opaque technical-cum-administrative track record, combined with the unwholesome track record of rehabilitation of about 50 million displaced families since 1947 naturally causes any informed and socially sensitive citizen to question the basis and demand a risk assessment of the ILR Project. The risk of failure of the ILR system is of such magnitude and type that no nation, leave alone a poor, developing one like India, can afford to take. The social risk already taken by displacing about 50 million people (since 1950) is manifesting itself in the display of heightened social tensions in both rural and urban contexts in the past several years.

Rather, a perverse, inverted planning method has been followed by which ILR has been assumed as the solution and then a network of canals has been prepared without consideration of the performance of the project as a system.

Conclusion The economic feasibility of a project can be determined only when there are comparisons of expected cost of the product with present cost, considering affordability and present availability. The cost of water based on alternative scheme(s) of watershed management needs to be compared, but even without doing so, determination of economic feasibility of the ILR project as a whole has not been carried out. The best planning can go awry if the end product is not economical. Privatization in India's electric power sector has demonstrated this adequately by producing power at unaffordable cost, leading to breakdown of agreements, expensive litigation and continuing shortage of the product.

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May be that India possesses the technical and management resources necessary to construct all the dams and link canals planned in the ILR project, and that financial resources can perhaps also be found. However, the matter at issue is not whether ILR can be constructed, but whether it should be constructed and whether, if constructed, it can perform what it is designed to perform. The accepted planning method in which alternatives (such as watershed management in the instant case) are considered and evaluated and the best alternative, or the best combination of available alternatives, are evaluated environmentally, technically and economically, has not been followed in the ILR project. Rather, a perverse, inverted planning method has been followed by which ILR has been assumed as the solution and then a network of canals has been prepared without consideration of the performance of the project as a system. The ILR project scheme has been prepared by engineers and uncritically approved by bureaucrats and the judiciary, and by politicians who, along with the bureaucrats and engineers, have seen opportunity in the mega-project. It is significant that ILR is strongly supported by the industrial-corporate lobby (CII, FICCI, etc) that influences decision-making at the highest levels.

The ILR project is a system of dams and canals that is meant to operate by each river basin supplying water to another river basin in exchange of water received from another "surplus" river basin. The concept of "surplus" water is one on which different states have different perceptions, and the quantification of "surplus" is even more contentious. Thus the design basis of the ILR project is itself delightfully vague, while the functioning of the system of canals cannot be ensured especially since the "source" of "surplus" water, namely Brahmaputra and Ganga are in the Himalayan region where, by admission of the Govt of India appointed National Commission, ILR is not feasible. Entering into this Rs 560 000 crores ($112 billion) project which looks like a colossal system design failure that cannot perform, can only end in social, environmental, economic and political ruin for India.

As a final perspective, with the IPCC Report on global warming that threatens reduced rainfall in peninsular India and speeding up of recession of Himalayan glaciers that feed Ganga and Brahmaputra, all calculations of river flow (and consequent "surpluses") are certain to go haywire, making the ILR system even more, not less, unviable. India can be saved from very serious water shortages and consequent widespread unrest if and only if

(1) Immediate investment is made in local watershed management and rainwater harvesting,

(2) The ILR project is shelved permanently as being misconceived and unworkable, and

(3) The apparently limitless greed of industrial and commercial corporations and individuals in power is curbed by democratic process.

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DAMS
SARDAR SAROVAR

Backwater Impact not even assessed

In a shocking revelation, an official document indicate that the impact of SSP at Maximum water level of 140.21 m and back waters thereof has not even been assessed in computing the number of people to be affected due to SSP. A letter from Commissioner (Rehabilitation/ field) of Narmada Valley Development Authority dated Feb 21, 2007 to the Narmada Control Authority and Sardar Sarovar Rehabilitation Agency, says that according to the Clause XI, Sub Clause II (2), all the buildings and the land of such buildings are to be acquired, which are between Full Reservoir Level (138.68 m) and Maximum Water Level (140.21 m) or are to be affected due to the back water levels due to MWL. The letter says that it is not clear to NVDA as to what will be the submergence due to MWL and back water level thereof and how many people will be thus affected. The letter also goes on to say that while computing backwater impact, the submergence impact in the tributaries should also be done. The letter also asks that full village wise impact of such submergence be made available to NVDA so that further action can be taken up. What this means is that in the figures of affected population so far, there is no count of the lands and buildings to the affected due to MWL and backwater impact thereof, both along the Narmada river and along the tributaries. These additional numbers are likely to be in thousands, and this only goes to show how callous the official agencies have been in even assessing the impact of submergence of the Sardar Sarovar Reservoir.

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Gujarat's propaganda bubble The Gujarat government plans to set up *SEZs* in various parts of Gujarat. One such proposed SEZs is to be set up near Vadodara in the villages of Por, Ankhi, Fazalpur, Puniyaad and Bamangam. Paryavaran Suraksha Samiti (PSS) is involved with the farmers of these villages who do not want to give away their precious land that got the Narmada canal waters from past one year. Several meetings have been held with the villagers and memorandums have been given to the chief Minister, Gujarat, President of India, etc. This nails the lie of the Gujarat CM that there is no problem about SEZs in Gujarat and that they are only coming up in barren lands. By this claim of the Gujarat CM, SSP is providing water to barren lands. This raises further questions about justification of the SSP.

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Saurashtra Branch Canal Pump Inaugurated The Gujarat CM on March 20 inaugurated at Dhanki village in Surendranagar district the first part of the pumping stations that would pump water to the Saurashtra Branch Canal of the SSP. Claimed to the world's largest water pumping systems in volumetric terms, the pumps at this stage started pumping 230 cumecs (cubic meters per second, to increase to 410 cumecs ultimately) of water through a height of 71 m. The total scheme, which costs Rs 444 crore, will pump water up the ascending terrain by means of five pumping stations and discharge 54,432 million litres per day into the Bhogavo II reservoir to irrigate 5.4 lakh hectare and supply water to 4,620 towns and villages. KBL claimed that the siphon design, which has been applied to the project, would save 34.96 million units of electricity per year for Gujarat and in value terms about Rs 12 crore annually. Under the siphon design, which has been awarded the US Patent, the concrete volute pump technology was introduced for the first time by the company. The 10 concrete pumps with 20 cumecs capacity each, and six 5-cumecs capacity pumps complete the first pumping station. Rest of the 32 motors would be placed in remaining four pumping stations in subsequent stages. The height gained in the process would translate into 30 mw of hydro power capacity using waterfalls created at Rangpura, Khavad, and Haripura. Of 230 cumecs that will be available now, 55 cumecs each would go to Maliya and Valabhipur branches; 20 cumecs each for Limdi and Dhrangadhra branches; and 40 cumecs for Morbi and Botad branches along SBC.

Govt spent Rs 77 lakh for inauguration When on Jan 19, '07, the Chief Minister of Gujarat dedicated the 1450 MW SSP power house to the nation, Gujarat Govt used 887 Gujarat State Road Transport Corporation buses to transport people from all over state to the function. Now a bill of Rs 77.37 lakh has been sent by the GSRTC to SSNNL. So the govt had to incur huge expenses even to bring people for dedication of the project that is supposed to be the state lifeline. (PSS, Indian Express 210307)

Damages at Indira Sagar Dam It has come to light that there have been large-scale breakages in the Indira Sagar dam structure built on the Narmada river in District Khandwa in Madhya Pradesh, and that thousands of cubic meters of cement on the "bucket" and "slip-way" portions of the dam have been washed away in the last monsoon. The Narmada Bachao Andolan demands that the Government of Madhya Pradesh take responsibility for the potentially life-threatening negligence that has caused these breakages, and make a public statement to the people of the State about the causes behind the large-scale breakage of the dam, the extent of damage, and the action taken in this regard. The Madhya Pradesh High Court has not permitted the Indira Sagar dam to be filled up to Full Reservoir Level of 262.13 meters for the last two years because of the R&R of thousands of oustees is yet to be completed. However even without the dam being filled to full capacity, the current breakages have taken place, raising questions about the quality of construction. The NBA has filed a complaint in this regard with the Union Ministry of Water Resources and the Central Water Commission and has demanded an enquiry (NBA PR 240207)

Maheshwar Struggle Hundreds of oustees affected by the Maheshwar dam being built in the Narmada valley protested in Bhopal on Feb 12, '07 demanding that work on the dam should be immediately stopped in the light of the human, financial and technical flaws in the project, and that the State must issue a White Paper placing the truth about the project in front of the people of the state. The oustees also called on all banks and public financial institutions not to put money into this anti-people project. It may be noted that the people of the Narmada valley have been struggling for the last ten years against this project which will submerge the homes, lands and livelihoods of thousands of families. (NBA PR 120207)

Issue of safety of Koyna Dam raised in Parliament On March 9, BJP member from Karnataka, Mr Ananth Kumar raised the issue of safety of Koyna dam in Lok Sabha, "The Koyna region where the Koyna dam is situated, is very much earthquake-prone and it is a matter of history that a couple of decades back, because of severe earthquake near Koyna region, there was a breach in the Koyna Anicut and hundreds of people died and it was a great disaster. This Koyna dam has been a dangling sword on the head of the State of Karnataka, especially northern parts of Karnataka and Maharashtra including Meeraj, Sangli and Satara regions also. Every time, because of the insecurity feeling of the Koyna dam engineers, the State Government of Maharashtra suddenly allows for the discharge of huge waters. Therefore, there will be artificial flood-like situations in the northern parts of Karnataka taking toll of lots of lives and livestock. Therefore, is there any plan by the hon. Minister and the Union Government to come out with an earthquake-resistant technology to make Koyna dam stronger so that it does not create such a havoc and insecurity for the lower riparian States and regions?" Following this question, Union Science and Technology Minister assured the Parliament that he will visit the Koyna Dam and look into the issue. (Deccan Herald 100307)

2 million displaced in Gujarat According to a study by the Vadodara based Centre for Culture and Development, about 2 million people have been displaced and 3.2 million ha of land has been used up by various projects in Gujarat between 1947 and 2004, which is 5% of the state population. Of the total land used, 61% has been for big and medium irrigation projects. Of 4.33 lakh families displaced in Gujarat, 20.23% were displaced in North Gujarat, 38.42% in Central Gujarat, 32.3% in South Gujarat and 10.5% in Saurashtra and Kutch. The quantum of land acquisition has remained higher in backward districts, mostly due to cheap and easy availability of land. This has resulted in trends such as the govt acquiring over 35% of the geographical area in Narmada and Bharuch districts, the study says. (Indian Express 130307)

Pagladiya dam cost escalates to Rs 1,069 cr Even as the Centre blamed the Assam Government for the inordinate delay in execution of the multi-purpose Pagladiya dam, revealing that Rs 14 crore sanctioned for the project has been refunded to the Central Government, cost of the project has escalated to Rs 1069 crore at 2004 price level. Uncertainty prevails over the fate of the project, which was initially estimated to cost Rs 542 crore, with the Ministry of Water Resources and the Assam Government passing the buck to each other. An amount of Rs 46.47 crore has been released to the Brahmaputra Board for the project from Dec '07.

The delay in execution of the Pagladiya project has been due to non-completion of Zirat Survey and non-availability of land for the project due to the stiff resistance of the affected people. The increase in cost estimate is mainly due to change in design, additional requirement as per actual conditions and price escalation since last estimate. The Government of India, Ministry of Water Resources and Brahmaputra Board are pursuing the matter with the Government of Assam for completion of the Zirat Survey and making the land available for the project. The Government of Assam had formed a cabinet committee on implementation of the project. Two meetings have been held so far. The Bodoland Territorial Council has intimated Brahmaputra Board in December last year that it has no objection for implementation of the project. The Government of Assam has also taken the initiatives to remove the hurdle in the implementation of the project and recently instructed the civil administration to prepare fresh land acquisition proposal for the project. Preparatory works like preparation of tender drawings and documents, construction of colony, approach road for the Pagladiya dam project have been carried out by the Brahmaputra Board. (Assam Tribune 050307)

HYDRO PROJECTS

ADB to fund hydro projects in a big way

The Asian Development Bank is planning to expand loans to hydropower projects in a big way. In India, shockingly, ADB plans to fund several NHPC hydro projects in Uttaranchal and elsewhere. In Bhutan, ADB has approved a USD 1.91 million project (includes USD 1.6 M grant from Japan Special Fund and USD 0.31 m from the Bhutan govt) to help Bhutan accelerate hydro power development and also expand rural electrification network. ADB has so far not funded large hydro project anywhere in India or Bhutan, so this is a strange change in its policy for which there is no apparent reason. As a matter of fact, all the available reasons shows that large hydro projects in general in India are far from economically viable, environmentally sustainable or socially just and democratic. On top of it, to fund projects to be developed by NHPC, a company that has a far from acceptable track record on social, environmental and economic issues. Moreover, ADB, it seems is going to fund the three Kotli Bhel projects in Uttaranchal, which is further strange as JBIC (Japanese Bank for International Cooperation) has rejected funding these projects. The public hearings held for Kotli Bhel 1A and Kotli Bhel 1B have seen numerous violations and the EIA of both the projects has a number of fundamental inadequacies. ADB is well aware of these issues, as these were directly conveyed to them by SANDRP, let us see what is the decision ADB takes. The experience of the four small hydro projects being funded by ADB in Uttaranchal is indeed far from happy one. In spite of numerous issues raised by the affected people, SANDRP and others on these projects, ADB has taken the stand that the projects can go for registration for CDM credits even with all the underlying inadequacies. The EIAs of the four projects are yet to be made available by ADB or the Uttaranchal Jal Vidyut Nigam to the affected people in their language. (Power Line Feb '07, meeting with ADB officials in Feb '07, other sources)

Nine HEPs planned in Narmada valley The Narmada Valley Development Authority has planned to take up nine hydel projects in the Upper Narmada zone. The projects proposed to be taken up for construction are Raghavpur (20 MW), Rosra (35 MW), Basania (60 MW), Chinki (50 MW), Sitarewa (15 MW), Handia (51 MW), Boras (55 MW), Hosangabad (60 MW) and Gopalpur (25 MW). These projects will collectively create a total power potential of 371 MW. Of these projects, to be constructed at a cost of Rs 30 B, Handia, Boras, Hosangabad and Gopalpur are targeted for completion by 2010-2011. The remaining projects are slated to be completed in 2011-12. At present the environmental impact study were being conducted. (THE HINDU 191106)

HIMACHAL HEPs

Sawra Kuddu HEP hopes for CDM credits The Pabbar Valley Power Corp (promoted by the HPSEB) has been entrusted with the execution of Sawra Kuddu HEP in Himachal Pradesh. The project is located at Rohru in Shimla district. The 111 MW project will cost Rs 6.48 B for which The Power Finance Corp has sanctioned loan. The 9 m high dam will submerge 50 ha land. The PVPC has invited Expression of Interest from firms for preparation of Project Design Document and other related processes for getting CDM credits for the project. (THE TRIBUNE 061106)

Kullu people agitated over SHP Mangarh Panchayat in Lug Valley in Kullu district has passed a resolution against a small hydro power project being planned there by Shobhala Hydro Power Company as they fear that the hill behind the village is landslide prone and could destroy the village. Survey work for the project is currently underway. People have sent copies of the resolution to the Chief Minister and Power Minister. (*Dainik Jagaran* 301206)

HP cabinet quashed HEPs The Himachal Pradesh State cabinet has quashed the bidding process for two key hydel projects following serious objections of the locals, which were opposing the project for environmental reasons. The Gharopa HEP (99 MW) is located on Beas river and the local residents had claimed that the diversion of the water would adversely affect tourist activity like river rafting. The cabinet also ordered the cancellation of the MoU for Chamba HEP (126 MW), located in Chamba district. The company has failed to start the work of the project. (THE INDIAN EXPRESS 081106)

HEPs to private sector The Himachal Pradesh Cabinet has taken decision to allot three HEPs with total installed capacity of 1240 MW to the private sector. The state would have the first right to purchase power from these projects. The global tenders for the projects had been invited in 2005. Brackel company from Netherlands have been allotted Jangi Topal and Topan Powari HEPs (480 MW each) in Kinnaur district. Another company BST has been allotted 280 MW Kuthaid HEP in Chamba district.

- **Seven projects in limbo** The HP cabinet that met on March 13 once again deferred the issue of privatisation of seven HEPs all below 100 MW capacity. For these seven projects the govt had chosen to follow the MOU route rather than the competitive global bidding. Some 25 companies, a few of them also owned by politicians from Uttar Pradesh, Delhi, Punjab, Haryana and Gujarat have submitted bids. The proposals were finalised by the State Infrastructure Development Board headed by the Chief Secretary. Opposition have been making serious charges of changing the parameters to favour a chosen few companies. (*DIVYA HIMACHAL* 261106, Indian Express 140307)

WATER POLICY

ADB driven Orissa Policy-2007

The Orissa govt's decision to come out with a new Water Policy is at once a cause for celebration and apprehension. The decision could be hailed since it means that the controversial draft Water Policy-2003, has been buried. The draft policy was a virtual replica of the National Water Policy, 2002 and did not take the realities of the state into consideration. However, the govt's utterances and conduct in recent years do not inspire the confidence. The Govt policies over the last decade or so have assigned a disproportionate role to the 'market' and pushed the 'people' to the sidelines. What reinforces such apprehensions is the fact that the state govt has all but inked a deal with the Asian Development Bank for a massive investment in the water sector in Orissa. In a way, it is a throwback to the nineties when agreement for the World Bank funded Orissa Water Resources Consolidation Project was signed in 1996. One of the preconditions the World Bank had put was the promulgation of a new water policy. As a result, the 1994 policy reflected the Bank's concern rather than that of the people at large.

As the govt prepares to sign the deal with the ADB, there are apprehensions that the new Water Policy might prepare the grounds for the pursuance of ADB's privatization agenda. The broad contours of the proposed policy announced by the Chief Secretary are no different from the 2003 draft policy. The Chief Secretary said that digging of new tube wells and indiscriminate use of river water by industries would be restricted in the new policy. But surely, the existing rules are more than adequate to achieve the objective. Under the Orissa Irrigation Act, 1959, subsequently amended in 1993, anyone using river, ground or sub-surface water without permission of the Water Allocation Committee is liable for punishment. So, what prevents the govt from taking action against the erring industries? If it cannot prevent industries from using river water despite an Act, how is it going to do it with a mere policy? In fact, apprehensions over the new policy are largely based on the way the govt has gone about its business of managing the state's water resources in the last few years. While the policies have given precedence to irrigation over industries, the govt has done the exact opposite by allocating water from the Hirakud reservoir meant for irrigation to industries. Conversely, it has imposed restrictions on digging of tube wells for irrigation purposes in Jajpur district even while turning a blind eye to the digging of massive bore wells by industries in the Kalinganagar area. Misgivings about the new policy thus have a solid foundation. It is up to the govt to allay them by making sure that the proposed policy does not become a document ghost-written by the ADB.

T Padhi, Regional Centre for Development Cooperation, Bhubaneswar

IRRIGATION

Centre relaxes AIBP norms for the fifth time

To escalate agrarian crisis

The Central Govt has relaxed the criteria for central assistance under the accelerated irrigation benefit programme to cover drought prone areas identified under the Prime Minister's package for agrarian distress. The Bharat Nirman Plan seeks to create 10 M Ha additional assures irrigation by 2009. Achieving this goal requires the Govt to scale up irrigation projects from the current pace of covering 1.42 M Ha annually to 2.5 M Ha. Among the relaxation announced was removing the distinctions between fast track projects and others, states that delivered on reforms and those did not. Irrespective of these distinctions, the Centre will release 25% of project cost for all projects in non-special category and 90% for special category states. The Centre also decided to scale down the stipulation that surface water minor irrigation schemes should benefit at least 100 Ha. The limit has now been fixed at 50 Ha. Besides the identified drought hit districts, the AIBP project would be extended to drought prone and tribal areas and states with lower irrigation potential as compared with national average. The criteria of taking up another project only after completion of the on-going project would relax for the drought prone and tribal areas, states with lower irrigation potential and identified districts under PM's package.

This is the fifth time that centre has relaxed the AIBP norms since the launch of the programme in 1996. In the face of dismal performance of the AIBP programme and in view of the culture of extending the facility to fund projects that do not fit into the last mile project definition, these relaxation are shocking. These are only likely to increase the unjustified funding to non viable large irrigation projects.

Such funding to large irrigation projects in the name of allocation to agriculture is in fact part of the reason for the prevailing agricultural crisis in the country, where growth rates are 2-3% and where foodgrains production and yields are stagnating for a decade. It is well known that such projects benefit the contractor and engineering lobby. (FINANCIAL EXPRESS, THE HINDUSTAN TIMES 171106)

Center's terms for clearing Chambal project The Centre has not cleared over Rs 560 M proposal of Rajasthan Govt for renovation of Chambal distributaries. The Union Ministry of Water Resources has put various conditions before clearing the project. The Rajasthan Gov has claimed that renovation will improve the irrigation system in existing 42000 Ha Chambal command. The Centre has ordered the State to hand over distributaries to the water user's committee of farmers. The Centre has stated clearly to the Rajasthan Govt that without constituting WUC, the fund will be not released. (*DANIK BHASKAR* 281106)

AGRICULTURE

Dow paid money to officials to register pesticides The Securities and Exchange Commission in US on Feb 13 slapped a civil penalty of USD 325 000 on Dow Chemical as its Indian subsidiary DE-Nocil Crop Protection Ltd made improper payment of estimated USD 200 000 to the Indian govt officials for registration of pesticides during 1996-2001. The registration committee and the Central Insecticide Board would be asked to review all the products of DE-Nocil registered during the period 1996-2001. (The Financial Express 170207)

Drought prone Maan Taluka All 156 villages in Maan Taluka and 60 villages in adjoining Khatav taluka in the eastern part of the Satara district fall in the rain shadow area and are permanently drought prone. 8 to 10 villages also need water from tankers. Last year when the entire Maharashtra received excess rainfall, Maan taluka recorded only 200 mm. On the western end of the district, the Mahabaleshwar taluka has recorded 5740 mm rainfall. There is not a drop of water in the river Maan which flows across the taluka. 200 percolation tanks are empty. Urmodi and Tembhu dam projects are delayed. Kolhapur-type bunds and percolation tanks were started two years ago but are moving very slowly. Out of proposed 21 bunds only 10 have been completed in Maan taluka. In Khatav, 16 bunds were proposed only 11 have been completed. The state govt has announced the area in dark groundwater zone and restricted the use of groundwater. (THE INDIAN EXPRESS 100806)

Capitalist penetration through contract farming A study by Sukhpal Singh of the Indian Institute of Management - Ahmedabad's Centre for Management in Agriculture noted, "Contract farming, in political economy, is one mode of capitalist penetration of agriculture for capital accumulation and exploitation of farming sector by the agribusiness companies." The contract farming is being practiced in India by MNCs like Cadbury(cocoa), PepsiCo(potato, chilies, groundnut), Unilever(Tomato, chicory, tea, milk), ITC(Tobacco, wood trees, oil seeds) and Cargill(seeds). There are domestic corporate in the field like Balarpur Industries, JK Papers and Wimco in Eucalyptus and popular trees, Green Agro Pack, VST Natural Products, Global Green, Intergarden India, Kempscity Agro Exports and sterling Agro in gherkins, United Breweries in barley, Nijjer Agro in tomato, Tarai foods in vegetables, M todd in mint and Namdhari Seeds in seeds. The study noted a general monopoly of corporate being loaded against the interest of farmers and suggested formation of 'new generation cooperatives' for increasing the bargaining power of contract growers. (THE FINANCIAL EXPRESS 140806)

Redefined corporate farming A group of farmers of 16 villages of Khambat in Gujarat's Amreli district have established a company, like the corporate world. They have set up a private limited company, Avirat Agro, under the Companies Act, 1956. In neighbouring Dhari taluka, 10 villages have come together to set up a similar company. Two local NGOs acted as catalysts to that formation. The committee has appointed two directors those who will contact directly with Cotton Corporation of India, IFFCO, GNFC, GEDA, and some agriculture implement manufacturing firms. They will procure directly from those companies at agency rates rather than go through traders. The company has also initiated to set up a pesticide plant in the village for which they earlier depends on a company in Rajkot. The Dhari company has also set a shop to sell seeds. (THE FINANCIAL EXPRESS 280806)

Dependence on Agriculture According to a paper presented at the 48th Annual Conference of the Indian Society of Labour Economics, in five states (Kerala, Tamil Nadu, Tripura, W Bengal and Punjab), less than 50% of the employed work in Agriculture sector. In 10 other states (including Haryana, Sikkim, Gujarat, Uttar Pradesh, Manipur, and Jharkhand) 51-60% of the employed worked in Agriculture sector. Author of the paper said that the Plan panel's objective stated in the Approach paper to the 10th Plan, on transferring 10 million workers out of the agriculture assumes that the sector has exhausted its potential for absorbing more workers. Such suggestions could be socially disruptive. (The Financial Express 170207)

Lack of awareness on MSP In the Latest report of audit for the period of 2000-05 by Comptroller and Auditor General has stated that 71% of the farmers of Punjab and Haryana have not heard about Minimum Support Price. The Centre has raised the MSP for paddy by Rs 40 per 100 kg for the Kharif season and that of wheat by Rs 100 for the Rabi season. In the report it has also said that the shocking information come from the state of Punjab and Haryana both those state together contribute 56% of all rice procured and 85% of all wheat procured in the country. Report mentioned Centre has made very little effort to bring about awareness about the MSP amongst the farmers. (THE TRIBUNE 280806)

SC on farmer's suicide Supreme Court on August 14 has issued a notice to the Centre on a public interest petition expressing serious concern over suicide by hundreds of farmers due to starvation and poverty and seeking the court's intervention to prevent such deaths. The petitioner submitted that in the last five years over 10,000 farmers had committed suicide and most of them were from Maharashtra, Andhra Pradesh, Karnataka & Kerala. (THE HINDU 150806)

Vidarbha crisis 2 lakh farmers of agriculture minister Sharad Pawar's district Baramati get Rs 4200 crore as annual credit plan where as 20 lakh farmers of Vidarbha get only Rs 1305 crore. Increased credit outlay will cover only additional 5% cotton farmers of the region as against 10% covered earlier forcing the remaining 85% farmers to take crop loan from private money lender. Since June '05 number of suicides has been 712. (PR Vidarbha Janandolan Samiti 060806)

POWER SECTOR

Reduction of T&D loss in Rajasthan The Rajasthan Vidyut Prasaran Nigam has affirmed that the effective vigilance had led to a significant reduction in the transmission and distribution losses of electricity. The losses had been reduced by 7.38% in Jodhpur, 5% in Jaipur and 4% in Ajmer. (THE HINDU 200806)

Tadadi project The 4000 MW Tadadi ultra mega thermal power plant in Uttar Kannada district will use sea water after desalination. The project had to come up in the coastal region as the coal is to be imported through the sea route. Uttara Kannada, Mangalore and Udupi were the candidate districts but in last two districts 2000-3000 acres is not available. (DECCAN HERALD 100806)

Privatisation far from satisfactory Minister of state for Planning in a written reply to the Lok Sabha has stated, "It is clear that privatisation is neither a necessary nor a sufficient condition in itself for power sector reforms… It is a fact that the experience with privatising distribution in Orissa and Delhi has not been completely satisfactory." The assertion by V.S. Verma, Member (Planning), Central Electricity Authority, that the distribution system is faulty and inefficient has exposed the claims of the Delhi govt as well as the private distribution companies that the poor situation on the power front was due to high incidence of power theft. Delhi Power Minister had stated that Rs 3000 crores was lost due to power theft. Experts felt that there is hardly any effort from Delhi govt to seek the scrutiny of the private power projects. Thousands of crores of rupees of subsidy and central assistance for the past four years to private players have not changed the scenario because they have not invested fully and properly in augmentation of the distribution network. (THE HINDUSTAN TIMES 040806)

Gap between target and actual capacity addition 12 states (including W Bengal, Orissa, Punjab, J & K, Chhattisgarh, Jharkhand) have not added any capacity of power generation in the present Five Year Plan so far and out of target addition of 11901 MW for state sector, only 4574 MW has been achieved. In the 8th and 9th Plan addition of power capacity achieved was only 50% of the target (8th Plan target - 14870 MW; addition - 6835 MW; 9th Plan target - 10748 MW; achievement - 5061 MW). Haryana, Delhi, Manipur and Tripura have met or exceeded their target.

State	10th Plan Target	Actual addition		Capacity addition (02-06)
		02-03	05-06	
Gujarat	664	16	325	629
Madhya Pradesh	1422	92	456	748
Maharashtra	892	27	216	338
Rajasthan	660	75	0	520
Tamil Nadu	434	94	150	344
Uttar Pradesh	710	0	210	210
West Bengal	670	0	0	0
State sector	11901			4574

(THE ECONOMIC TIMES 100806)

POWER OPTIONS

Power conservation potential in Delhi The govt and its various departments though know that power conservation is essential still they have not adopted any measure for conservation. International airport in Delhi consumes approximately 60 MW of power for which they pay Rs 4 crore, but has not installed any energy efficiency device. Similar is the case of Indian Railways which consumes 15-20 MW of power. Others like Water Treatment plant in Sonia Vihar (4-5 MW), Delhi Metro (10 MW), shopping complexes (4-6 MW per mall), five star hotels (4-8 MW), Pragati Maidan (3-4 MW), Akshardham Temple (1.7 MW) are all major consumer of electricity and have the same story of the power conservation.

About four lakh street lights in the city can on an average consume 50 MW of electricity but their actual consumption is between 80 to 100 MW. This means that almost 50% of the power is being illegally tapped. Similar trend is also found in case of park lights. BSES has recommended changing the voltage of street lights from 220 volts to 110 volts thereby making it difficult for anybody to tap power from such lights. The power from 110 volt system is insufficient to light up homes. (THE HINDUSTAN TIMES 300806)

Wind-solar combination Hybrid wind-cum-solar systems are proving to be cost effective. 1.8 KW capacity of miniature wind mill with solar panel costs Rs 2.6 lakh after a 50% subsidy from govt. The cost per unit of electricity is Rs 8, which is high but it can give power continuously for 15 to 20 years without any recurring expenditure. Maharashtra energy development Association has taken initiative to promote the hybrid scheme. (THE INDIAN EXPRESS 110806)

Power potential from waste The ministry of non-conventional energy sources has taken initiative to promote power generation from urban waste. Ministry has estimated power potential from urban waste may touch 2900 MW in 2007, which could go up to 5650 MW in 2017. In 2002 the ministry was projected the potential at 1925 MW. The ministry has been implementing an accelerated programme on energy recovery from urban waste, for which ministry will provide financial assistance in the form of capital subsidy ranging from Rs 1.5 to Rs 3 crore per MW to all states and union territories. However, the issue of pollution created due to incineration of urban waste remains to be addressed. (THE ECONOMIC TIMES 230806)

Cogeneration potential The Minister of Non-Conventional Energy Sources has informed that there is a potential for power generation of about 15000 MW through co-generation in various core industries including pulp and paper industry, breweries, textile mills, rice mills, solvent extraction units etc. (PIB 300806)

Narmada Adivasis decide to restart Micro hydro

Nearly 1200 tribals in Bilgaon in Narmada Valley have now decided to join hands and revive a micro hydel project, which provided electricity to 12 tribal hamlets, through community labour. "We have now decided to collect money from the families living in these 12 hamlets. That money will be used to procure and repair the dynamo and bearings. The construction work will be done through community labour," says member of the local Panchayat Samiti Ajit Pawra. Nandurbar's collector expressed ignorance about the electricity problems of the village. "I am not aware about the washing away of the project."

The project, which was the inspiration for the *Swades* film, had been washed away in Aug '06 due to the backwater effect of the Sardar Sarovar Dam and has been lying shut for the past seven months due to government apathy, plunging 250 houses into darkness. "These villages had no access to electricity since Independence until this project was started. We have asked the government for help to resume this project help but we still haven't got any response. In view of this we have now decided to collect Rs 100 from each villager to restart the project," Pawra said.

Activists of the Narmada Bachao Andolan along with the villagers had decided to start a microhydel project tapping power from a waterfall located on the river, a tributary of the Narmada River. The NBA and local tribals funded the project built at in a nine-month period at a cost of Rs 10 lakhs. The micro hydel model designed by People's School of Energy (Kerala) generated 15 kilo watts of electricity supplying power to 12 tribal hamlets located within six kms of the village. "This project which started operation in Jan '03 was completely run by the tribals. We used to charge Rs 10 for each tube light and Rs 30 for a television set every month. This money was used to carry out the maintenance of the project," headmaster of the local primary school Vijay Patle said. "The local tehsildar carried out a Panchnama in August to assess the damage, however till date no help has been received from the government," Pawra says. (The Hindustan Times 140207)

Mini waterwheel Ian Gilmartin and Bob Cattley from Scotland have designed an off the shelf waterwheel system which can generate electricity from a water fall of as low as 20 cm. His waterwheel has been generating at least 24 units of power a day. It will possibly cost 2000 pounds. (The Times of India 030107)

Haryana renewable projects The Haryana Renewable Energy Development Authority has cleared six projects based on non-conventional energy sources including biomass power projects and small hydropower category. They are set to generate 16.7 MW. The small hydropower projects proposed to be set up are all in Karnall district. The sites are the Musapar augmentation canal, the Khukhni augmentation canal and WJC main Branch, Gauripur. (THE TRIBUNE 011106)

Wind energy potential yet to explored The chairman of Indian Wind Energy Association, Dr Anil Kane has claimed that twenty years ago, the ministry for non-conventional energy sources had put India's wind energy potential at 45 000 MW. In-WEA analysis puts the potential at 100 000. This excludes offshore sites. He said that there is mismatch between the rate of setting up transmission infrastructure and the rate at which wind farms are being set up. (THE ECONOMIC TIMES 231106)

Wind energy can grow at 40% The CMD of Suzlon Energy Ltd Mr Tulsi R Tanti has been awarded the Ernst and Young Entrepreneur of the Year Award for 2006. He has said that the wind energy industry is growing at about 10-15 percent per annum and if some obstacles are taken care of, the industry can grow at 40 % per year. In the next 18 months the company is going to invest Rs 7.5 B in a manufacturing plant in Karnataka. The company will set up plants of 750 MW capacity at Coimbatore and Baroda. (THE HINDUSTAN TIMES 201106)

Govt to install water heaters at homes The Ministry of New and Renewable Energy has launched a subsidy scheme for solar water heaters. According to the scheme, domestic consumers will be offered finance at 2% to set up solar water heating system. Institutions will have to pay 3% and commercial establishments 5% under the scheme. It has been estimated that one million solar water-heating systems can result in saving of 1000 MW of electricity per year apart from cutting carbon dioxide emissions by 1.5 M tonnes. The Govt plans to install 10 M sq m of solar collectors in the 11th plan. The proposed installation plan would involve solar heaters in about 3.5 M homes. The Union Minister for New and Renewable Energy has said that India has a potential for renewable power of generation of about 200 000 MW. The MNRE has also tied up with local bodies in various cities to amend building by-laws in six months to make use of solar water heating system. (FINANCIAL EXPRESS 031106, THE INDIAN EXPRESS 061106)

Top Wind Power Generating Countries of the World As per the British Wind Energy Association, the top eight wind power producing countries and their installed capacities, as on Feb 8, 2007 is:

1. Germany	20,622MW
2. Spain	11,615MW
3. USA	11,273MW
4. India	6,053MW
5. Denmark	3,136MW
6. Italy	2,123MW
7. UK	2,016MW
8. Netherlands	1,564MW

(BBC 090207)

ENVIRONMENT

Plan to set up Environment Courts The Union govt is considering setting up a network of courts exclusively for cases relating to environmental laws. The proposal is part of a draft bill finalised by the law ministry and will be put up before the cabinet soon. The Ministry of Environment and Forests has suggested creating national and state environment tribunals with status of high courts. No other courts will have power to enter into the jurisdiction of these tribunals. The appeal against the tribunal's order would be allowed only in the Supreme Court within thirty days of the orders, extendable by another thirty days. The tribunal will have a chairperson and a member from judicial background. The remaining eight members would be experts from relevant fields. With the implementation of the new act, the National Environmental Tribunal Act (not implemented in any case) and the National Environment Appellate Authority Act would be repealed. This seems to be an attempt to stop the High Courts and Supreme Court from making inconvenient (for the govt) orders. (The Hindustan Times 030107)

Earth quake prospects in Bihar Satellite images of Bihar has suggested that faultlines are developing in Motihari, Madhubani, Saharsa, and areas along the Himalayan range and that saturated energy under its earth crust may explode any time. A faultline extends from Motihari to Patna in a straight line. It goes on to Fatuha, Munger and Samastipur. If a quake measuring 6 on the Richter scale rocks Bihar, an estimated 6.13 lakh houses will be razed, 11.33 lakh dwellings will be partly destroyed and nearly 20 lakh houses will develop cracks. Patna was even more vulnerable than Bhuj. Patna would be more at risk because of its vicinity to big reservoirs, waterbodies and large scale mining activities. (THE HINDUSTAN TIMES 220806)

RIVER LINK NEWS

Orissa Proposals The State Government will submit a proposal to the Central Water Commission to link the Mahanadi - Brahamani and Mahanadi - Rishikulya Rivers. As per the proposal, excess water of the Hirakud reservoir will be released in the Brahamani River. A 100 kms long canal of will be dug up from the Hirakud to the Rengali reservoir. Excess water will be diverted to this canal and it will be released near Gahira in the Brahamani River. A 150 MW hydropower unit will be set up near Garadanala. As per the Mahanadi-Rishikula River linking proposal, a 15 m embankment will be set up near Barakul. A 185 km long canal will be dug up for which Rs 300 crore will be spent to irrigate one lakh ha. The State will go ahead with the proposal once the Centre gives its nod. (The Pioneer 150207)

Rural development minister disagree with ILR The Union Minister for Rural development Raghuwansh Prasad Singh has stated that the country is facing major challenge of water sharing. He also stated that river linking would not be solution to the problem and also it was not possible due to inter-state disputes. He suggested that water conservation, watershed and water management are the only solutions to the problem. (THE INDIAN EXPRESS 111106)

ILR Status In a separate reply to a question, the Union Water Resources Minister told Parliament that field surveys and investigations for 12 river links in the Indian portion were in advanced stage of completion under the Himalayan component of the National Perspective Plan for Water Resources Development. Out of the 14 links identified for preparation of feasibility reports under the Himalayan component, reports on two links have been completed. A study carried out by the United Nations has indicated that the population of India by 2050 using medium projection would be 1.6 billion. (Assam Tribune 050307)

ISSUES ABOUT RIVERS

Swan River embankment project delayed The Swan river Integrated Management scheme was started in 2001 with the help from Japan Bank for International Cooperation. The 33 km embankment work of first phase was started at an estimated cost of Rs 1.06 B and had been scheduled to complete in 2007. Till date only 26 km embankment work has been completed. (*DANIK JAGRAN* 241106)

Encroachers selling river water The illegal water sale from Jawai river in Rajasthan is going without any restriction. The people related to the business have encroached the Jawai River near Samtipura-Maheshpura road in Jalore district. The encroachers dig out wells about 10 ft deep in the river and install big pumps and sell water to farmers at high rates. (*DANIK BHASKAR* 251106)

Namibia, Tanzania Water Policy ahead of India

The Namibia Water Act of 2004, Section 35 1(b) provides that "In deciding whether a license to abstract and use water should be issued, the Minister must consider the following criteria - (b) the impact of the proposed abstraction upon existing water users, water resources and the water reserved or allocated for environmental uses. India neither has a water act on those lines, nor any legal provision to protect environment flows. The Tanzania National water policy (2002) gives the environment a second priority in water allocation; The Environmental Management Act 2004 requires the Basin Water Board to allocate enough water for the environment. Initiatives on piloting the Environmental Flow Assessment process are going on. South Africa has a comprehensive water law enacted in 1998, which includes elaborate provisions for stream flow regulations. But India has no legal requirement for minimum flow in rivers. (Namibian Act, Environment Flow Network)

POLLUTED RIVERS

Hindon River Pollution

A seminar on "Pollution in river Hindon" was held in Delhi by the Earth Caare Foundation on March 14, 2007, 10th year celebration of the "International Day of Action for Rivers" organised. Dr. P. K. Sharma, an activist who is working on the issue, highlighted how sugar mills, distilleries, paper mills, other industries and slaughter house are polluting the five tributaries of Hindon river in Sahranpur (Uttar Pradesh), from where the river originates. Because of water scarcity all these big industries are exploiting groundwater for their requirements and effluents are discharged directly to the river without any treatment. Six sugar mills and 7 distilleries are now in operation and another 11 such plants are in the pipeline in the district. Most of the industries on the bank of the river have not installed affluent treatment plant and those who have installed are not functioning.

Prof. S. Prakash, formerly with Delhi University, has initiated a movement called Hindon Bachao Andolan through awareness campaign. Swami Yajmuniji who is working in the Muzaffarnagar district emphasised on the polluted river and its effect on health of the villagers and livestock residing along the bank of the river Hindon. He stated that along with other small and big factories 27 paper mills and 22 chemical factories are polluting the river in the district. Mr. Krishna Pal stated that he initiated social survey of 400 villages in five districts (Sahranpur, Muzaffarnagar, Bagpat, Meerut and Gaziabad of Uttar Pradesh). Prof. Brij Gopal from the Jawaharlal Nehru University argued that if the farmers stopped production of sugarcane which is grown on 31% of the total agricultural land in Sharanpur district then automatically sugar mills would stop their operation. Mr. Rajendra Singh of Rashtriya Jal Biradari, clarified that big factories and industries on the bank of the river have been initiated by the planners of the country. The Union Ministry of Environment & Forest and state and central Pollution Control Boards are reluctant to take any measure to control the pollution. Chief Guest of the seminar Mr. Ajay Shankar, Principle Advisor of Planning Commission claimed that he is enlightened by the picture presented and would take that message to the Planning Commission.

Mr Rajendra Singh announced that as a mark of protest against the continued pollution of River Hindon, 400 villages has decided not to take part in polio vaccination programme because villagers believe that the water of the polluted river is making more harm than the disease like Polio. On March 26, the next phase of Polio vaccination, four hundred villages along the course of the river will also observe fast.

SANDRP

Industries pollute river water in Ujjain The main source of drinking water of Badnagar at Ujjain district in Madhya Pradesh, the Chamla River, is under threat of water contamination due to chemical effluent discharge by industries in the nearby areas. The colour of Chamla River near Badnagar has turned red, which has created havoc for the locals. Villagers use this water for drinking purposes, among others. They have complained to the administration that some industries are releasing chemical waste in the river. The sub-district administration of Badanwar had given notice to a distillery for polluting the river, but the company has denied it is polluting the river. This water source also flows up to a reservoir, which supplies drinking water to Badnagar people. (*NAI DUNIYA* 081006)

SC concerns on Yamuna pollution The Supreme Court has asked the authorities related to Delhi Govt to take immediate and appropriate steps to check pollution level of Yamuna. The three judge bench headed by Chief Justice said that measures should be taken to stop untreated sewage from flowing in to the river. In the latest status report filed in SC, the Delhi Govt said that the capacity of Kondli, Okhla and Yamuna Vihar STPs would be increased by 45, 30 and 25 MGD respectively. This would take the total sewage treatment capacity of Delhi Jal Board's STPs to 612.4 MGD by 2009. However, the capacity utilisation of the existing sewage treatment plants is not known, available figures show this could be less than 60%. (THE HINDUSTAN TIMES 171106)

HP guidelines to check river pollution The Himachal Pradesh Environment Protection and Pollution Control Board has laid down guidelines to control pollution of Sirsa River in the state. The death rate of fish in the river has increased even after the installation of effluent treatment plants by industrial units. The Board has found that the main cause for the pollution is pesticide units in the area. According to the Board's guidelines, the pesticides units will be required to store chemicals in covered containers and transferred to the blending section through conduits with metered pumps. The rainwater storage has to be isolated from any other liquid discharge from the unit. All treated waste will have to be passed through a fish pond within the premises before releasing in to a nullah or river. (THE TRIBUNE 091106)

IOC pollutes Brahmaputra The Pollution Control Board of Assam has served a show-cause notice to the Indian Oil Corp for failing to meet a deadline to stop polluting the Brahmaputra. The PCBA chairman has said the IOC refinery had already caused serious harm to the Brahmaputra River, "the acceptable level of phenolic compounds is just 1 mg per liter, the refinery's effluents released to the Brahmaputra contain over 18 mg per liter. The PCB had last year written to the four refineries in the state to bring down their effluent discharge level to zero by Oct '06, which the IOC failed to meet. (THE INDIAN EXPRESS 061106)

Industries Pollute Buddha Nullah & Sutlej

Due to contamination of Sutlej waters with industrial pollutants from Ludhiana and sewerage from several cities, people in four southern districts of Punjab and the adjoining Rajasthan are facing not only serious health hazard but also stand to lose fertile soil to the accumulation of industrial chemicals in the soil. Untreated industrial waste and sewerage from Ludhiana are discharged into the Sutlej which is carried to Harike barrage where it muddles clean water from Beas. From here the Sirhind feeder canal carries the polluted water to Ferozepore, Faridkot and Muktsar districts and some minor canals supply this water to numerous households in Moga. The Rajasthan feeder canal carries the same water to the adjoining state.

The Municipal Corporation of Ludhiana has identified 52 industrial units that are directly throwing their pollutants in the Buddha Nullah. All of them are dying and electroplating units.

Only waste flows in Buddha Nullah A team of International Human Rights Commission and Baba Balbir Singh Seechewal traveled from Khasi Kalan to Kherabet - the confluence point of the Buddha Nullah on Nov 14. After the survey, the team came to the conclusion that the Nullah carries only industrial waste and sewage. The Nullah, which starts from way back Ropar is dry at Khasi Kalan - a village about 10 km away from Ludhiana. The Nullah bed is completely barren here and the villagers had said that it has been so for the last two years. The water starts flowing as the Nullah crosses the village and the city limit starts where a series of factories are located. Some of the industrial units keep the treatment plant off, while some units did not mention anything about hazardous waste management and other mandatory details which must be displayed outside any unit as per instructions of PPCB. However earlier Mr Malwinder Singh, Member Secretary, PPCB, had categorically claimed that barring a few, all industrial units are using treatment plants and are using them to the maximum.

Baba Seechewal said he would mobilise the masses downstream the Sutlej so that they keep hammering the govt to take steps to clean Buddha Nullah effectively. He said, "the people downstream the Sutlej drink water recharged by the river. They are exposed to diseases caused by polluted water."

The Microbiology Dept of Punjab Agriculture University was found that water in nearby areas of Buddha Nullah was totally unfit for human consumption. Last year when the matter was taken up in the Punjab Assembly, then Chief Minister had ordered that water treatment plants be made mandatory in all industrial units in Ludhiana in two months. However, till date majority of units continue to release the chemical waste directly into Sutlej. (THE HINDUSTAN TIMES 071106, THE TRIBUNE 151106, IE-Ludhiana 141106, The Tribune 180307)

INTER STATE DISPUTES

Punjab Haryana Dispute in SC A 5 judge constitution bench of the Supreme Court will hear the presidential reference on the Punjab Act of July 12, '04, scraping all the earlier inter state agreements. The SC had accepted the matter on Feb 28, '05. The Punjab Act was passed following the SC order on June 4, '03 that Punjab should expeditiously build the Sutlej Yamuna link canal. Following recent assembly elections in Punjab, the new govt headed had asserted that Punjab would scrap section 5 of the Punjab Termination of Agreement Act 2004, which ensured that Haryana and Rajasthan would continue to get the currently allocated water share.

- **Rajasthan opposes Hansi-Butana link Canal** The Rajasthan Govt has opposed the construction of the Hansi Butana Link Canal on the Bhakra Main Canal by the Haryana Govt. The state has sought a complete stoppage the construction work of the canal till the final decision is taken. The Chief Engineer of Rajasthan has stated that the action of the Haryana is in violation of the Bhakra Nangal Agreement of 1959, which was executed between the then states Punjab and Rajasthan. Under the agreement the two sates had agreed to share the costs and the benefits of water and power generated. After the reorganization of the states in 1966 when Haryana was carved out of Punjab the agreements entered into by the state of Punjab were binding on Haryana. It is stated that the construction of the link canal from the Bhakra main line canal will reduce the flow of water to Rajasthan by 2000 cusecs and jeopardize the interest of Rajasthan. It has also stated that during the Central Water Commission inter-state meeting, all the affected states and BBMB had opposed the construction of the link canal, including the states of Punjab and Rajasthan. (THE INDIAN EXPRESS 161106, The Times of India 110307)

Chhattisgarh claims power share from MP The Chhattisgarh State Electricity Board has demanded its electricity share from HEPs established outside Madhya Pradesh as well as from central pool. The CSEB chairman has written a letter to the Union Ministry of Power that Madhya Pradesh is receiving 1039 MW electricity from the HEPs established outside the state. The allocation was done for undivided Madhya Pradesh. So Chhattisgarh is also entitled to get its share of 298 MW from this allocation, based on population ratio. (*DANIK JAGRAN* 131106)

MP – Rajasthan dispute on Chambal The issue of sharing water from Chambal River remains unresolved even after a meeting of the officials from two states in Delhi in Nov. The tail end of the Chambal canal is not receiving water, even as the Gandhisagar has filled up completely this year. The condition of right bank main canal is very fragile and the water does not reach the tail end. The work on first phase of renovation of right bank canal will be started next year, at an estimated cost of Rs 1.04 B. (*DANIK BHASKAR* 151106, 241106)

WATER OPTIONS

Employment Guarantee works in Dungarpur Under the National Rural Employment Guarantee scheme, some remarkable work has been done in Dungarpur district in Rajasthan. A lot of the projects revolve around water harvesting, conservation, afforestation, flood control and drought proofing. Around 11 000 water conservation related structures have been built in the past 11 months. Only 7% of the structures have been found to be below acceptable quality levels. (The Times of India 030107)

Rainwater harvesting in Gujarat The 'khet talavadi' scheme of Gujarat Govt received international recognition form the Commonwealth Association for Public Administration and Management. The scheme involves farmers in harvesting rainwater for use during scarcity. During a 100 day campaign in 2004-05, around 1.3 lakh farm ponds were created. This campaign created an additional potential of 2 MCM of water and generated six million man-days of work for 1.5 lakh labourers. The scheme was introduced to mitigate drought conditions and make maximum possible area cultivable. (THE TIMES OF INDIA 311006)

Checkdams in E Gujarat NM Sadguru Water & Development Foundation has built 305 check dams which helped provide some irrigation to 96800 ha land, benefiting 1.8 lakh families over the last 35 years. Recently a check dam was inaugurated by the Rajasthan Chief Minister at Baneswardham, on the border of Banswara and Dungarpur districts. (Tehelka 100307)

Farm ponds in coastal Tamil Nadu Farm ponds in coastal TN can help in a number of ways, as experience of a farmer narrated in The Hindu 150207 shows. Mr A Ambalavanan dug about 4 pits in his 5 acre land, each of size 100X120 feet, connected with a pipe at the bottom. Freshwater fish were bred in this farm pond, which provided additional income, which sometimes can be greater than the main crop in the land, besides helping him overcome water scarcity. The area in Nagapattinam district that he hails from has only saline groundwater. The silt accumulated at the bottom of the ponds is a rich manure and he has planted trees at coconut trees along the bund with spacing less than in traditional farms. He says it is not true that these ponds occupy too much space. On the contrary, he says even if 30 decimal area is used for such ponds, the trees along the bund compensate for the land used for the ponds.

ISRO to develop flood forecast system The Indian Space Research Organisation is developing a disaster-forecasting system, which would start to work within one year. The system would collect information about previous disasters such as flood and analyse flood prone area. This system would carry out analysis of the rivers' flow and gauge. (*DANIK BHASKAR* 141106)

URBAN WATER SUPPLY

Urban renewal mission Rs 50,000 crore ambitious scheme of Jawaharlal Nehru National Urban Mission may change the lifestyle of 29 consultants. All those consultants including many multinational companies are vying for the projects. According to an estimate Rs 2,500 crore will go out in consultation fees alone. The Asian Development Bank and other big consultants have meanwhile moved into the Nirman Bhavan that houses the Urban Development Ministry which is running the scheme. (THE HINDUSTAN TIMES 210806)

Auranagabad privatises water supply The Aurangabad Municipal Corporation in Maharashtra has privatised all the civic service in the city including water supply. The only source of water is Jaikwadi dam, which is 45 km away with more than 160 m head difference. The AMC currently supply water on the alternate days to most parts of the city and covers only 75% of the population. The AMC has launched an ambitious project for water supply on BOOT basis. According to contract, the AMC would pay 90% of the total amount and the operator would have to execute it with only 10% of his money and maintain it for 30 years. (FRONTLINE 171106)

IRRIGATION

Farmers open dam gates for irrigation On Nov 27, over 200 farmers of Mahoba district in Uttar Pradesh had got to the Lachura and Devri dams and opened dam gates for their irrigation needs. The MLA of the Charkhari in the district Mrs Ambesh Kumari (Samajwadi Party) had also marched with villagers and supported their action. The irrigation department has made strong security arrangements for all ponds and reservoirs after the action. The officials say that water in the dams has been conserved for the drinking water needs in the district. The administration has extended security also on Urmil, Moudaha, Kabrai, Arjun and others dams. A similar incident had occurred at Urmil dam, when farmers from Madhya Pradesh had opened gates to get water for their irrigation needs. (*RASHTRIYA SAHARA* 291106)

Farmers of phase-II agitate In an effort to get their share of water from the Himalayan rivers, the residents of the Indira Gandhi Canal Project Phase-II areas in Rajasthan came out on the streets on Nov 13. The markets at three places of Bikaner district were shut down. The farmers falling in the districts of Jaisalmer, Barmer and parts of Bikaner have set up a joint committee to assert and fight for their share. The farmers' "padav" in the phase-I areas now were on in Sriganganagar towns of Gharsana and Kajuwala and Chaiya in Hanumangarh district. (THE HINDU 141106)

Rajasthan farmers' opposition Thousands of farmers violated prohibitory orders at Rawatsar in Hanumangarh district on Nov 14 to enter the town and start a siege to

press their demand for release of the stipulated quantum of irrigation water in the Phase-I area of the Indira Gandhi Canal Project. The farmers reached the town after marching 10 km from Chaiya village, where they were on a "padav". The leaders said that entry of farmers in to Rawatsar town was a big moral victory. (THE HINDU 151106)

Court stays water release Taking note a PIL for conservation of centuries old Rajsamand lake that had dried up in recent years, the Rajasthan High Court has stayed release of its waters and said the water body should not be disturbed. The Bench also issued show cause notices to the irrigation and Public Health Engineering Dept and Rajsamand Dist Collector to respond.

- **Farmers' defy court's order, open canal** The agitated farmers forcefully opened the gate of Rajsamand lake on Nov 4 for their irrigation needs. While the police had to be called to maintain Court's order. The anxious farmers gathered in the early morning at the lake site and released water. It agitated the local residents in town. The people from Rajsamand town have been opposing the providing water for irrigation and insisting it should be kept for drinking purpose. The lake, known as Asia's second largest artificial water lake in Rajasthan, has over 19 ft water after nine successive years of water shortage. (*DANIK BHASKAR*, THE INDIAN EXPRESS, DECCAN CHRONOCLE 051106)

ALTERNATIVE FARMING

Alternate method of farming may save farmers According to activists from Nagpur based organisation YUVA, alternate method of sustainable agriculture offers a way out of the agrarian crisis of Vidarbha where thousand of farmers have committed suicide. An activist associated with the organization Palash Goshal says, an Integrated Natural Sustainable Agricultural Process has helped them successfully combat farmer's suicide in over 500 villages of Vidarbha. About 0.4 M in five districts of Vidarbha – Amravati, Akola, Buldana, Washim and Wardha – are using eco-friendly methods. He said that no farmers in these villages have committed suicide. He said that the organisation started work in this area in 2002. That time few farmers were willing to switch over to the suggested agricultural methods requiring a range of different methods of soil, nutrition, pest and water management as well as alternative marketing. The organisation suggested to the farmers that they should initially use the alternate method in only a section of their land. But when they realized its benefits, specially a 50% reduction in input cost, they accepted the idea wholeheartedly. (THE TIMES OF INDIA 131106)

Field schools helping farmers in AP Adilabad district of Andhra Pradesh is adjacent to Yawatmal district of Vidarbha in Maharashtra. Both the districts have same agro-climatic condition and almost same cropping pattern. In Yawatmal, over 222 farmers have committed suicide this year, while the figure is only two in Adilabad. The farmers' suicide in the Adilabad has come down to 2 in 2005-06 from 17 in 2004-05 and 300 in 2003-04. It happened due to policy change and a scheme launched by the Andhra Pradesh Govt. Under this, "field schools' for farmers are conducted by trained officer. The officers emphasize to cut down use of pesticides in the area. The farmers adopted many idea suggested by officers and results are amazing. The state has improved extension services that ensure constant interaction between farmers and officers. The govt had a crackdown on moneylenders. Farmers have already been compensated for damage caused by heavy rains in August. The Govt initiated subsidy on micro-nutrients like magnesium and zinc. Farmers increased cropping of soyabean by 30% to break the mono-crop cycle of cotton. (THE INDIAN EXPRESS 231106)

REVEALING QUOTES

"Perhaps farmers are the only community which buy inputs at retail cost and sell its output in wholesale prices."

Anjani Sinha, MD, National Spot Exchange
The Economic Times 150207

(The ban on future trading of wheat and rice in the Union Budget for 2007-08) "should have been done long ago. Companies like Cargill and ITC have created an artificial shortage by buying wheat for futures."

Union Rural Development Minister Raghuvansh Prasad Singh (Mint 030307)

"It is a fact that traders have got the maximum benefit from the futures exchange in the beginning."

Gokul Patnaik, former Chairman, APEDA (Financial Express 030307)

"The Government should rethink about promoting bio-fuel as it would create water problems in the long run."

Suresh Prabhu, former Chairman of Task Force on Inter Linking of Rivers (Financial Express 030307)

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I, Himanshu Thakkar, hereby declare that the particulars given above are true to the best of my knowledge & belief.
February 28 2007 Himanshu Thakkar, Publisher

THE PAKISTAN PAGE

Myopic Water Vision Pakistan Govt has come out with a water vision 2025 that is basically an agenda for construction of large number of big dams. According to the Surface Water Hydrology Directorate of WAPDA "the water out-flowing to the sea, amounting to 41.02 MAF thus represents a potential source for the future development of the water resources."

Speakers at a seminar have rejected plans of building new water reservoirs on the River Indus. While addressing a seminar on "Mega Water Projects: Taking stock of move ahead" on the occasion of international day of action for rivers on March 14, that the river does not have the water claimed by the government. Sungi, Actionaid and Sindh Democratic Forum had organised the seminar. Former secretary irrigation Idrees Rajput said while talking on "alternate options for larger dams" that if electricity line losses were brought down to 15 per cent from 30-40 per cent there would be no need for new dams.

However, a few months ago the staffers of a Sindhi newspaper resigned en bloc to protest against an advertisement run by their newspaper in favour of Kalabagh Dam. It is pertinent to note that the newspaper was owned by a Lahore-based editor who has filed a petition in Lahore High Court seeking the instruction of building Kalabagh Dam on the basis of 'national interest'.

Looking deep we will find there are two different perspectives on water issues in Punjab as well. The Seraiki region, which is taken as southern Punjab, does not share much of the central Punjabi version on water issues like Kalabagh dam, Kacchi Canal, Greater Thal Canal and Chashma Canal. Since most of the Seraiki districts fall along the Indus River and a large number of communities bank upon the Indus water for their subsistence. The depletion of water resources and ecosystems along Indus would directly affect the fishing and farming communities of this region. Majority groups of Seraiki origin are not eager to support Kalabagh Dam contrary to the popular support for dam in the districts of central Punjab.

In another recent example the breach in Taunsa Barrage has put in question the ability of the water engineering in relation to taming Indus River for the Taunsa Barrage Modernization and Emergency Rehabilitation Project. The TBMERP is a US$ 150 million loan project funded by the World Bank and it was aimed at preemption of break-down in water distribution system in Seariki region of Punjab. Apart from the damage to land and livelihood caused by the breach, the cost of repair is said to be three billion rupees.

Most recently the fundamental failings of the WB and ADB funded Left Bank Outfall Drain project were exposed by massive floods in Badin, Thatta, Mirpurkhas and Sanghar districts of Sindh. Some reports suggest that the almost US$1 billion National Drainage Project of which the LBOD was one component has been nothing short of a social and ecological disaster. Then there have been innumerable problems with the ADB-funded Chashma Right Bank Irrigation Project, the ADB-funded Chotiari reservoir and Manchar Lake, to name a few. (The News 040307, The Dawn 150307)

Pakhtoons opposes Indus water for Islamabad The leaders of North-West Frontier Province of Pakistan have expressed their strong opposition to an Indus water supply project for Islamabad. People expressed their views at a seminar and warned the Govt that the attempt to deprive the Pakhtoons of their precious water would not be tolerated. The president of Pakhtoonkhwa Milli Awami Party, Mr Mukhtar Yosufzai describe the project as an issue of life and death for the Pakhtoon nation, saying that the rulers have diverted a huge quantity of water to Punjab in the shape of Ghazi Barotha Hydel project, which is against international laws, and now the remaining water of the Indus is being taken. (THE TRIBUNE 111106)

Harbour pollution costs navy $1bn a year Severe pollution in Karachi harbour, caused by untreated industrial affluent and municipal waste, is not only taking its toll on marine life and civilian population but also causing $1 billion worth of losses to Pakistan Navy every year. All the navy platforms including surface ships, fleet tankers, mine hunters and missile boats berthed at Karachi's upper harbour and PN Dockyard had been severely damaged by the seawater, the composition of which has changed for the worst due to unbridled pollution in recent years, Commander Rear Admiral told the Senate Standing Committee on Defence. "This is indicative of losses. If we count on other variables, the losses can be in billions and billions of dollars," Secretary Defence said. Air Vice Marshall said the failure of the Ministry of Environment as well as provincial and city governments to implement the Pakistan Environmental Protection Act, 1997 in letter and in spirit had converted Karachi into one of the most polluted cities of the region. The committee formed a taskforce that would make recommendations for checking environmental degradation in Karachi and its harbour within two months. Cases against the industries and authorities responsible for pollution in Karachi would also be filed in environmental tribunals. (Dawn 160307)

Fast against the World Bank The children of the communities affected by Taunsa Barrage remodeling project will hold a rather prolonged hunger strike if the World Bank and Punjab Irrigation Department fail to settle all the unresolved within one month, said a representatives of Sindhu Bachao Tarla (Save Indus Struggle) while announcing end of their 5 day long hunger strike on March 2, '07. (SBT PR 020307)

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YOUR RESPONSES

Thanks for sending an Introductory copy of the *Dams, Rivers & People*. This publication is quite informative and I have found it to be useful for this institute.

Prof S C Patra, Director, North Eastern Regional Institute of Water and Land Management, Tezpur, Assam

I just received the new issue of *Dams, Rivers & People*. Your article on Interlinking of Rivers is splendid and makes good reading. I am especially glad about you making use of my Oxford Paper. This is just to let you know. Many thanks and keep up the good work.

Rainer Hoerig, Journalist, Pune

I liked the piece on rivers in the Oct-Nov '06 issue of *Dams, Rivers & People*. Also the letter from Prof JN Sarma from Dibrugarh University, Assam about how he won a prize for translating the article on System of Rice Intensification. You are really putting out first class stuff. Wish you all the best with *DRP*.

Rahul Bannerjee, Indore

Thanks for the latest issue of *Dams, Rivers & People*. It seems that countries across S Asia copy the wrong things from each other. Karachi is bent upon destroying its wetlands, no less than Kolkata. The greed for urban land is incredible.

Ali Ercelawn, Pakistan

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