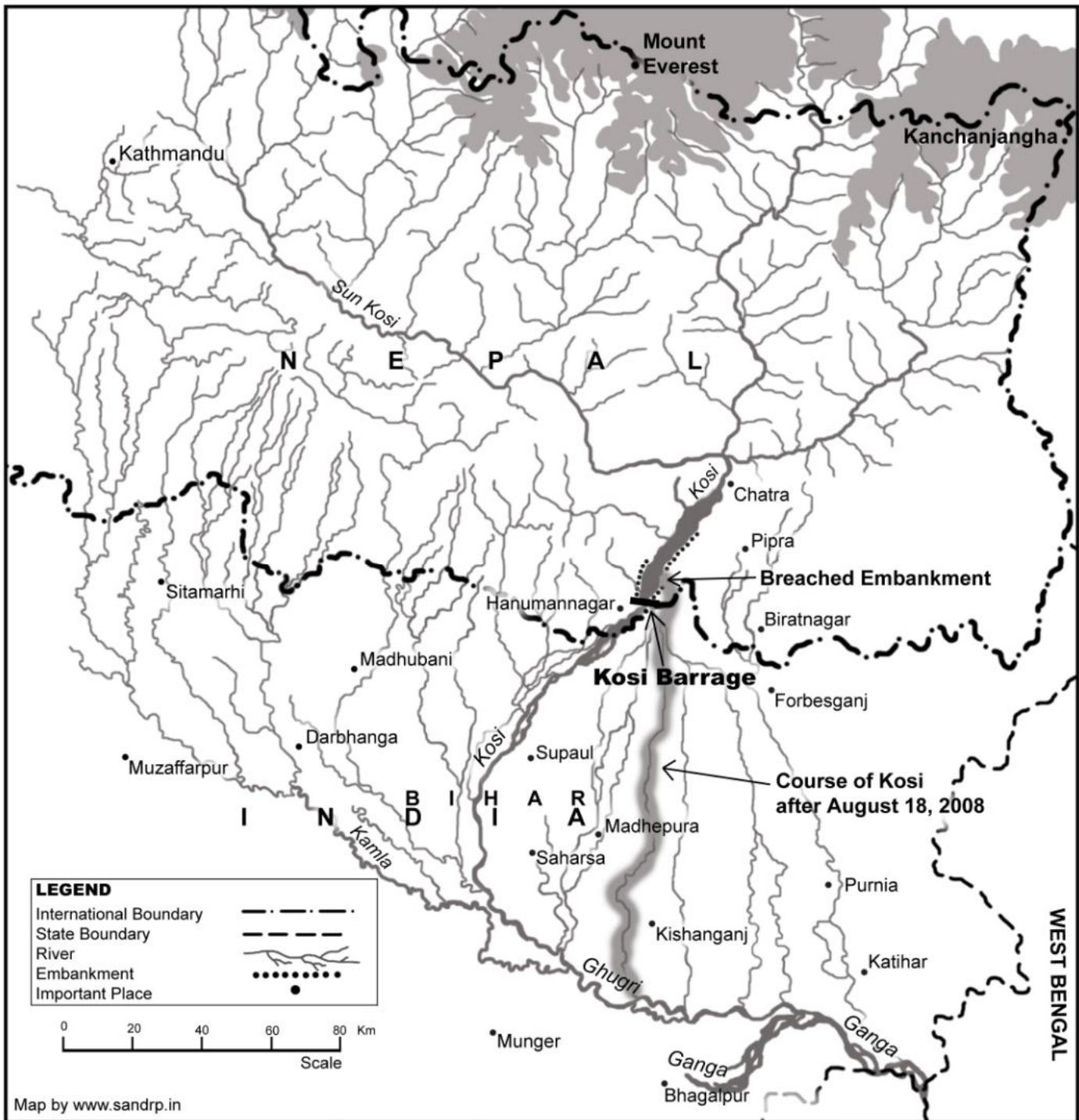


Kosi's Man made tragedy: Blunder after blunder



The Kosi river basin in Bihar is facing its biggest flood disaster ever in Independent India, and that disaster has come about completely due to the neglect of the Government of India and the government of Bihar. It is a manmade disaster which could have been avoided.

Amidst the din of 'national calamity, catastrophe and river changing course', about two million people are

facing forced submergence and displacement. The governments of India and Bihar are going about the relief work as if it is a favour they are doing for the people. That favour is being doled out in a totally haphazard, unplanned, callous way.

For immediate relief it is important that those being brought out from the waterlogged areas be given cooked

food for at least two days. There should be planned settlements for such people, with arrangements for shelter, fuel, fodder, medicines, hygiene etc, as they are likely to have to stay at these places for up to two months. The affected people need not be considered as victims as is the case now, but should be involved in the whole exercise. Two million people cannot be resettled by outsiders. And in the comparatively lax law and order situation of Bihar, the responsibility of the state and the Centre increases considerably in ensuring dignified relief and resettlement.

Here it should be noted that as per the Bihar government's figures, over 40 lakh people have been affected, out of which about 10 lakh were evacuated and about 3 lakh are staying in the relief camps, which too were getting dismantled after mid October. As a petition in the Patna High Court by Parivartan and others asked, what about the people who were not evacuated and who are not in camps? Are they getting any relief? The High Court, on Oct 17, asked the state govt file urgent responses by Oct 21.

In the relief effort, another very important aspect seems to be totally ignored. Most (about 85 per cent) of the 1.5 lakh cusecs (cubic feet per second) of Kosi water is flowing through the breach in the embankment that started with a small, few metres-wide breach on the eastern side, 12.9 km upstream of the barrage in the afternoon of August 18. This water is flowing through three of the 15 old streams of the Kosi river, namely Sursar, Mirchaiya and Belhi, says Dinesh Kumar Mishra, possibly the most well-informed person in India on Bihar floods, from his camp at Khagaria. This water entered an area that does not have the capacity drain so much water. People had identified bottlenecks like the National High Way 31A, where it crosses Kosi River, where the culverts are silted up, but nothing is being done to remove such bottlenecks.

Vijay Kumar of Nagrik Pahal, Patna, says an urgent assessment is needed to identify the bottlenecks in the drainage of this water into the Kosi river at Kursela, and assess what viable steps are possible to remove those bottlenecks. For, the longer the water remains in this zone of flooding, more damaging would it be for the

The Kosi river basin in Bihar is facing its biggest flood disaster ever in Independent India, and that disaster has come about completely due to the neglect of the Government of India and the government of Bihar. It is a manmade disaster which could have been avoided.

The centre itself a guilty party in the breach, did not institute any inquiry to identify and punish the guilty and when Bihar instituted an inquiry, the centre said the state has no role. The Bihar government wrote back to the centre, saying that it can go to the Supreme Court if it wants to, but the inquiry commission would continue to function.

people and the state. Similarly, it is important to ensure that the Kosi is able to drain out its water into the Ganga. But the Ganga has been flowing above the danger mark

at Sahibganj (Jharkhand) and Farakka (West Bengal), as per the Central Water Commission's (Government of India) flood forecasting site for almost two months now and is further rising. Efforts would have to be made to see how this can be reduced.

Coming to how this all started, let us look at some facts. The barrage on the Kosi river, just before it enters India in Supaul district of Bihar from the upstream Sunsari district of Nepal, was built under the 1954 Indo-Nepal Treaty. The responsibility for the proper operation and maintenance of the barrage and the embankment on both sides of the river is the Government of India's. In the afternoon of August 18, when the embankment breached, the flow of water was about 1.44 lakh cusecs, when the embankment and the barrage are supposed to have a designed capacity of 9.5 lakh cusecs. The fact that the embankment breached at such a low flow compared to

the design capacity speaks volumes about the silt accumulation on the Kosi riverbed and about the abysmal state of maintenance of the embankment and about the accumulation of silt between the embankments. The statement from the Indian embassy in Kathmandu that Nepal did not cooperate in ensuring timely maintenance

is adding insult to the grave catastrophe. Indian government won't accept that they were sitting over procedures and not taking urgent steps to ensure that *all necessary* steps are taken to stall the breach of embankment. But that is the case in reality.

The monsoon in this part of Bihar starts in early June. And the repair and maintenance of the embankment is supposed to be completed before the onset of the monsoon. So it is clear that firstly, the maintenance be done by the required date and the Government of India could have ensured, at least for the sake of the two million people of Bihar and Nepal in the risk zone, that all measures were taken to ensure timely maintenance was done by June. That was not done.

Moreover, the pressure on the breached site on the embankment was apparent from August 5 onwards. Even at this stage, if the Government of India had used

all its powers to ensure proper maintenance, the disaster could have been averted. That too was not done.

When the news of the breach broke on August 18, the governments in Delhi and Kathmandu could have woken up to see that the water flowing out of the breached portion cannot re-enter the Kosi river since the river is embanked at least 135 km downstream from the site of the breach. That water was bound to take the path of least resistance, and the possibility of it going into the old Kosi streams was the strongest. However, neither government woke up even on August 18.

Thus, precious time was wasted. If the government had woken up on August 18, then a more planned evacuation was possible and most of the lakhs of people marooned today would not be there.

It is clear that there has been a series of grave and criminal blunders that have led to this disaster of huge proportions. The trouble is, even now we do not know who people are whose neglect caused this disaster, and going by our track record we may never know who they are.

the Kosi River has to drain its water into the Ganga

Among other things, the prime minister after visiting the area dedared that resources would be made available to repair the breach in the embankment. The government may even succeed in doing that and bringing the Kosi back to its pre-August 18 course. But we must remember that the bed level of Kosi all along the embanked portion of about 150 km has risen, and there is no way this embankment strategy can go on for long. The frequency of such disasters would only increase in the years to come.

Repair and Maintenance of the Kosi Embankment As per the Indo Nepal Treaty of 1954 (amended in 1966), the responsibility of repair, maintenance, operation of the Kosi Embankment in Nepal is that of the Government of India. Let us see how this was not done by the various due dates.

- **March 31, 2008** In the first place, since Kosi is a glacier fed river, the flow in the river increases with the onset of summer. Hence, ideally the work should be completed well before March 31, 2008. *This was deatly not done.*

The flow of the Ganga River remains obstructed due to Farakka Barrage, downstream from Kursela, where Kosi meets Ganga. So as long as the water level at Farakka remains high (which is the case most of the days during monsoon), Kosi would find it difficult to drain its water into Ganga River.

The Terms of Reference of the Judicial Commission clearly indicate that this is a political move. While the TOR included the period 1991-2005, when the Rashtriya Janata Dal, the political opponent of the current Bihar Government lead by Janata Dal (Secular) was in power, the TOR does not include the latter phase of 2005-2008 when the current govt has been in power.

- **June 2008** The repair and maintenance work should have been completed at least by the onset of monsoon, which is around mid June in this area. *This too was not done.*
- **Before August 5, 2008** The work could have been done even during the monsoon. *This too was not done.*
- **Between Aug 5-18 2008** The first signal about the pressure on the breach point came on Aug 5, 2008. The repair and maintenance, if taken up with due urgency, could have been taken up even during this period. *This too was not done.*
- **Between Aug 18-22 2008** Even when the news of the breach first came on Aug 18 afternoon, if the responsible agencies in Bihar or Union of India government has woken up about the implications of the breach, and alerted the communities that were to be threatened, a lot of the damage could have been

reduced. Here it should be remembered that once the embankment breached and water started flowing out from the breach, that water would not be able to get back to the river, since about 150 km stretch of the river downstream from the

breach is embanked. The water, as is its nature, found the path of least resistance, which was likely to be some of the old streams of Kosi River.

- **After Aug 22, 2008** The concerned authorities needed to do a lot of things on urgent basis after Aug 22, many of which were not done. For example, assessing the bottlenecks in draining the flood water and ensuring that this is drained out as soon as possible. Similarly taking a referendum among the people, if the breach should be plugged and so on.

Here it should also be remembered that the Kosi River has to drain its water into the Ganga River. Now the flow of the Ganga River remains obstructed due to Farakka Barrage, downstream from Kursela, where Kosi meets Ganga. So as long as the water level at Farakka remains

high (which is the case most of the days during monsoon), Kosi would find it difficult to drain its water into Ganga, and this back water effect of Farakka barrage increased the duration of flood disaster in Kosi basin in Bihar.

Who are responsible for the neglect? There is no doubt that the Kosi disaster is a man made disaster, which happened because of the neglect of the maintenance of the embankment. So who all were responsible for the maintenance of the embankment?

- Union Govt: Under the Indo Nepal Treaty, it is the responsibility of the Govt of India to maintain the barrage and the embankment on Kosi in Nepal.
 - ✓ Union Ministry of Water Resources
 - ✓ Central Water Commission
 - ✓ Ganga Flood Control Commission, a subordinate office of the Union Ministry of Water Resources
 - ✓ Kosi High Level Committee, chairman of the GFCC is ex officio chairman of the KHLC. It is the responsibility of the KHLC to assess each year what maintenance work is required, and ensure its timely and proper implementation. The GFCC and KHLC have clearly failed in its duty, as has their reporting authorities in Union Ministry of Water Resources and Central Water Commission. The current (Oct 2008) chairman of the CWC was the chair of the GFCC and KHLC during Feb 2007 to June 2008, and it is during this period (and upto Aug 18) that the neglect of maintenance has happened.
- Bihar State Govt: The Union of India has given the actual implementation task to Bihar Water Resources Department, which does not reduce the responsibility of the Union of India, but make Bihar govt also responsible for the neglect of maintenance.
 - ✓ The Chief Minister and other concerned ministers
 - ✓ Water Resources Dept
 - ✓ Engineer in Chief, Chief Engineer and downwards who were in charge of the maintenance.
- Nepal Govt: Under the treaty, the Nepal govt is responsible for providing logistics, labour and other such support and to the extent this was not provided, those responsible should be identified.

Bihar's Judicial Commission The Bihar government, on Sept 11, 2008 has instituted a one man judicial commission to enquire into the causes of the breach (see the box for terms of reference of the commission). Rajesh Balia, a former chief justice of the Patna High Court, formally began the probe Sunday, Sept 21, 2008. However, a controversy was created when the Union Water Resources Secretary wrote to the Bihar Chief Secretary, that Bihar has no *locus standi* in this matter; the matter is only between the governments of India and Nepal. This was indeed a strange move by the centre. The centre itself a guilty party in the breach, did not institute any inquiry to identify and punish the guilty and when Bihar instituted an inquiry, the centre said the state has no role. The Bihar govt wrote back to the centre, saying that it can go to the Supreme Court if it wants to, but the inquiry commission would continue to function.

TERMS OF REFERENCE:

BIHAR JUDICIAL COMMISSION ON KOSI

The State Govt is of the opinion that the causes of breach in 'Kosi Afflux Bund' in Aug '08, resulting in disaster in Kosi region because of change in the course of the river is a matter of definite public importance, which is required to be inquired by a Commission of Inquiry. Now, therefore, the Govt of Bihar has decided to appoint a Commission of Inquiry for making inquiry and performing the functions enumerated hereafter:

I. Whether there was any negligence by any individual, institution, Govt officials in preventing the breach in 'Eastern Afflux Bund' (EAB) in Aug 2008, causing change of course of river Kosi? The Commission shall also consider remedial measures to prevent occurrence of such disaster in the future.

II. Whether anti-erosion work on embankment of Kosi particularly Eastern Bund was completed by the concerned officials of the Govt of Bihar, before on-set of monsoon season, 2008 and whether the recommendation made by the field Engineers of the State Govt of Bihar for undertaking major restoration work, on being accepted by Kosi High Level Committee, could have prevented breach in EAB?

III. Whether any follow-up action was taken by the Govt of Bihar during 1990-2005 for strengthening spur, Bund, dams & reservoirs commissioned in the year 1963, particularly after breach in Kosi bund, in July 1991, which led to public protest.

IV. Whether due to change in morphology of river Kosi, in the year 1979, due to occurrence of massive land slide inducing eastward slide of the course, was adequately taken care of for prevention of damages in future and whether the agency responsible for preparing flood proofing schemes took precautionary measures after satellite imagery showed that the river Kosi was flowing very close to the EAB?

V. Whether the High Level Kosi Committee constituted in the year 1978 made recommendations for restoration of spurs, construction of studs, edge cutting works etc. and whether the recommendation made by the Kosi High Level Committee was cleared by the Government of India and implemented by the Government of Bihar and whether the recommendation made by the KHLC was adequate to prevent breach of EAB?

VI. Whether at the time of clearance of Kosi Project in 1953, by the Central Water and Power Commission comprising of Sri Kanwar Sain, Chairman, CWPC & Dr KL Rao, Director, Dams, in CWPC, the Project was envisaged to provide temporary relief only for a period of 25 years & whether the Kosi Project was implemented in accordance with recommendation by the CWPC and its life was limited to a period of 25 years, with the benefit extending beyond 25 years, by developing technique of silt control and whether the Project envisaged in 1953, inter alia, provided for construction of dam across Kosi, as well as some check dams across tributaries, to be followed in consequence of construction of Kosi Project, 1953.

VII. Whether the 1st & 2nd State Irrigation Commissions constituted by the Govt of Bihar have made any recommendations for strengthening of embankment, bund, spur etc. & if so, was any follow-up action taken by the concerned dept of the Govt of Bihar.

The Commission of Inquiry, headed by a retired high court judge shall inquire into the above and submit its report within 6 months from the date of notification.

However, it should be added that the Terms of Reference of the Judicial Commission, clearly indicate that this is a political move. While the TOR included the period 1991-2005, when the Rashtriya Janata Dal, the political opponent of the current Bihar Government lead by Janata Dal (Secular) was in power, the TOR does not include the latter phase of 2005-2008 when the current govt has been in power. The political nature of the terms, thus reduces the credibility of the commission.

No role for people? It is important, though not surprising to note that in the entire planning, decision making, construction,

operation, maintenance and monitoring, there is no role for people in whose name the embankments have been created.

- Before the decision about the embankment is taken
- Before considering flood as a disaster
- During the phase of operation of the embankments
- Now when decisions are taken about the "repair" of the embankment is being taken....

WHY THERE IS NO ROLE FOR PEOPLE – IN WHOSE NAME ALL THIS IS BEING DONE - AT ANY STAGE?

What about the people trapped between the embankments?

Over a million people are trapped between the Kosi embankments, they face the wrath of Kosi floods when the embankments do not breach, which is the case for 37 of last 45 years since 1963 when the embankment and the barrage work were

completed. There has been no just and proper rehabilitation for them till date. They were marching in October 2008, demanding that the breach not be repaired till justice is provided to them.

- Nearly 10,000 people trapped within the two embankment of the Kosi demonstrated on 20th October before the Collector of Supaul for the step motherly treatment meted out to them for nearly 50 years. They are seeking justice and one of the demands that they are putting is not to plug the breach at Kusaha.
- As Dinesh Kumar Mishra says, "If there is any disaster management in the country, the space

between the Kosi embankments is the best place to try it out in case the breach is plugged at Kusaha."

High Dam on Kosi would invite greater disasters

At the proposed multi purpose Kosi High Dam, for maximization of hydropower and water supply functions, the water level in the dam has to be kept at the highest possible level. But for the most effective flood control, the water level in the dam should be as low as possible. Thus these purposes work against each other and flood control function always loses out. On every count, the Kosi High Dam Proposal would invite greater disaster.

The option of the proposed big reservoirs is also a false hope. According to the documents prepared right in 1937, when the big storage reservoir on the Kosi was proposed, that dam would silt up in 40-60 years, keeping in mind the silt carried by the river. By now the catchment is further degraded and the proposed dam would silt up in even less time. No economically viable strategy for desilting the river or the reservoir is available. So this is

completely false hope.

- It will be an invitation to Greater disaster, considering the issues like: Silt, geology, seismic issues and other issues.
- It is interesting to note that those who were saying that the proposed High Dam on Kosi is the permanent solution, on being confronted, now agree that "it is the only long term solution" without specifying the length of the long term. This was indeed the situation at a meeting called by Barh Mukti Abhiyan and Asian Development Research Institute in Patna on October 17, 2008.

Over a million people are trapped between the Kosi embankments, they face the wrath of Kosi floods when the embankments do not breach, which is the case for 37 of last 45 years since 1963 when the embankment and the barrage work were completed. There has been no just and proper rehabilitation for them till date.

- The proposed dam is a flood transfer programme: It proposed to transfer the floods From Bihar to the submergence area in Nepal: People in Nepal asking, why should Nepal accept this?
- It should also be noted that the proposed dam is to be a Multi purpose project: Hydropower and

water storage maximisation (Nepal would have much greater interest in these since these functions bring cash revenues for the upstream country, flood control won't) would work in contradiction with the flood control function (largely supposed to be for Bihar's interest, but the flood ravaged people are not going to have *any* say in the operation of the dam.) For maximization of hydropower and water supply functions, the water level in the dam has to be kept at the highest possible level. But for the most effective flood control, the water level in the dam should be as low as possible.

- In this regard, Experience with the operation of some of the other dams with flood control function would be educative: Ukai (2006), Chandil (June 2008), Hirakud (1982, 2002, Sept 2008). In all these (and many other) instances, the wrong operation of the dam was actually responsible for the floods. See the detailed story on Mahanadi floods this year in this issue.

The trouble is, no engineer has ever been punished in India for such wrong operations. It would be no different in case of Kosi, to expect the dam to help control floods would be an invitation to greater disasters.

Real Solutions So the perennial questions that the nay-sayers face: What is the alternative?

- INVOLVE people right from planning, decision making stages, under the principle of free, prior and informed consent of the people.
- Institute mechanisms (with participation of people) to fix accountability
- Adopt catchment or basin approach
- Protect local water systems, wetlands, forests, use groundwater during non monsoon months recharge aquifers during monsoon; create more systems where feasible.
- Flood forecasting, adaptation, preparedness, again with INVOLVEMENT of people
- There could be some role of local selective protection works, not large scale, basin level works.

Firstly, the government's notion that floods equals disaster would have to be given up.

Secondly, the water that flows through the Kosi does not fall on that river. It is the accumulation effect of rainfall and glacier melt along the whole of its huge catchment. That catchment would have to be treated at micro and macro levels. Wetlands, forests, local water systems, aquifers would have to be protected, their destruction stopped, and additional capacities created where possible.

Else, we might remember what Nepal Prime Minister Prachanda said after a visit to this area, one of his first tasks as PM, that the Indo-Nepal Treaty of 1954 was a historical blunder. That phrase actually applies to the whole embankment strategy.

Lastly, those calling the Kosi as the sorrow of Bihar need to know that the people living along the Kosi do not consider it their sorrow, but as their mother and worship the river like their mother. This rather stupid phrase was possibly coined by a British tax-collector who found it difficult to collect his quota of revenue from this area. Is it not high time we stopped using the colonial phrase for a river?

(An edited version appeared in Rediff.com in Sept '08)
SANDRP

The Kosi Project

Pathetic Balance Sheet

IRRIGATION

Eastern Kosi Main Canal

Promised Irrigation:	712 000 ha
Slashed Down Target (1975)	374 000 ha
Actual Irrigation: 2003-04	141 970 ha (19.94%)
2004-05	91 560 ha (12.86%)
2005-06	149 170 ha (20.95%)
2006-07	124 130 ha (17.4%)
2007-08	136 180 ha (19.13%)
Max ever: 1983-84	213 133 ha (29.93%)

Western Kosi Canal

Promised Irrigation:	325 000 ha
Actual Irrigation: 2003-04	13 750 ha (4.23%)
2004-05	17 390 ha (5.35%)
2005-06	21 620 ha (6.65%)
2006-07	25 310 ha (7.79 %)
2007-08	23 770 ha (7.31 %)

It is clear that neither of the canals have provided even a third of the promised irrigation. The western canal has provided less than 30% of the promised irrigation at the maximum. The eastern canal is performing at worse level of below 8% of the promised irrigation at the maximum over the last eight years.

Cost The Canal that was estimated to cost Rs 13.49 Crores in 1963 has consumed Rs. 1009 Crores till March 2008 and the construction still continues.

Flood Protection

Promised Protected Area	214 000 ha
(a) Land Waterlogged on the east of the Eastern Embankment	182 000 ha
(b) Land waterlogged on the west of the Western Embankment	123 000 ha
(c) Land permanently exposed to flooding / erosion/sand casting between the embankments	110 000 ha
Sum of (a), (b) and (c):	415 000 ha

So on flood protection front, the conclusion is clear: in attempt to protect 214 000 ha, about double that land has been put at new and enhanced risks and damages. Moreover, the promised protection has not been achieved; the Kosi embankment breached at least eight times in last 45 years. It should also be noted here that a substantial part of the claimed protected area is included in the land water-logged on both sides of the embanked river. It is clear embankment has a flood protection measure has proved to be a disaster.

This year's flood has hit 5 districts, 35 blocks, 412 Gram Panchayats, 1026 villages, a population of 33.56 lakhs killing 162 persons and 767 cattle (Official Report 25th September 2008).

Dinesh Kumar Mishra