

# Dams for Disaster

**Bharat Dogra**

A disturbing aspect of many flood situations this year has been that these were caused by sudden and heavy discharge of water from dams. The highly destructive flood in Surat caused by such heavy release of water from Ukai dam is the most obvious example. According to the South Asia Network of Dams, Rivers and People, (SANDRP) "Mismanagement and negligent operations of the largest reservoirs on Tapi, Narmada, Krishna, Godavari, Mahi and Sabarmati rivers have caused man-made disasters in Gujarat, Maharashtra, Madhya Pradesh, Karnataka and Andhra Pradesh. The big dams that were expected to reduce the floods have actually been responsible for the flood disaster visiting these states now, the states that also happen to have the largest number of big dams."

Dams are supposed to be a flood-protection work, so it is a matter of serious concern that so many flood situations are being caused by excessive release of water from dams.

Surat city has been very badly affected by floods. Surat, located on the Delhi-Mumbai route and known as the diamond city, is famous for its diamond polishing/processing industry. At one time over three fourths of the city was submerged in water (over 90%, according to some newspapers) *Dainik Bhaskar* reported (on August 10) that hundreds may have perished/*The Times of India* was more cautious (August 11), "Fears that toll would be high were evident." Earlier Army personnel had rescued about 4000 trapped persons. 3 million affected people were denied basic needs for four days.

But what is much more clear is that this flood was caused by massive discharge of water from Ukai dam. As *The Indian Express* reported on Aug. 11, "It was not quite nature which swamped the city but excess release of water from the upstream Ukai dam by the Irrigation Dept. As the level of Tapti (river) started rising on Sunday (August 6) evening, the Irrigation Dept. started releasing 8-10 lakh cusecs of water from the Ukai dam."

Earlier in year 1998 also excessive release of water from this dam had caused massive floods in Surat.

According to SANDRP the Surat flood this year was a preventable disaster—the unprecedented floods of Surat city and district in South Gujarat in western India earlier this month and the damages of over Rs 21,000 crores (according to Gujarat govt. estimates, actual losses would be much higher if all the losses are properly accounted) were completely preventable. Had the authorities released even 3 lakh cusecs of water from the Ukai dam starting from Aug. 1, Surat may not have experienced such a disaster. There was sufficient specific information available to take such an action, as is evident from the rainfall figures in Tapti

basin talukas in Maharashtra. Due to lack of timely release of water by the Gujarat water resources department, the storage in the Ukai reservoir was allowed to go up beyond the levels it should have, leading to sudden release of unmanageable quantities of water from Aug. 7, for prolonged periods. Since this coincided with the days of high tide when the river's drainage capacity is further reduced, the floods brought catastrophic results.

*Dainik Bhaskar* reported on August 11 that serious floods in Maharashtra were caused by excessive release of water from dams, particularly Koyna and Bheema dams. *The Hindu* reported on August 11, "Maharashtra releases 3.15 lakh cusecs of water from its dams", resulting in serious flood-situation in areas bordering Maharashtra and Karnataka states.

Water released in one state also caused floods in other states. As *The Hindu* reported on Aug. 8, on flood situation in Andhra Pradesh, "Several parts of Adilabad remain inundated as the Penganga, facing its worst floods since 1962, severed key road links. The situation might worsen as huge quantities of water are being released from Maharashtra."

Earlier *The Hindu*, reported on Aug. 7, "People living along the banks of the Godavari were alerted after the Irrigation Dept. released 11610 cusecs (cubic feet per second) of water from the Gangapur dams".

But the situation became more serious later in Andhra Pradesh. The same newspaper (*The Hindu* reported on Aug. 10), "Nearly six lakh cusecs of water was being released from Srisailem and Nagarjunasagar reservoirs. As a result, there was flooding in habitations in Krishna and Guntur districts—below the Prakasam barrage in Vijaywada."

Dams are supposed to provide protection from floods. So why were they suddenly turning counter-productive by unleashing highly destructive floods on helpless people?

In Delhi the Central Water Commission Chairman said, (quoted in *Indian Express*, Aug. 11), "Ukai dam was meant as a flood control dam for the city of Surat. Over the years that role has become less important than power and water needs."

In other words, as dam is filled up to maximise power and irrigation benefits (and also to improve financial viability of the project), flood-protection requirements are under-evaluated. This proves costly later when sudden, panicky and heavy discharges have to be made to save the dam.

The National Flood Commission, India (NFC) had discussed in detail the limitation of storage reservoirs in controlling floods. Noting that few reservoirs are ever constructed for flood protection alone and the general tendency is to have double and multipurpose projects (including hydro power and irrigation objectives), the NFC stated, "In a multipurpose reservoir the interests of the

various components like irrigation, hydro power generation and flood control are usually at variance with one another even when the reservoir is owned by a single state. This conflict is much more pronounced when more than one state/country is involved. Irrigation and hydro, for example, would like the reservoir to be filled up as soon as it could be done and retained at as high a level as possible whereas flood control would require the reservoir to be kept as low as possible and also to be depleted in a flood event.”

“Multiple use of reservoirs, therefore, implies a compromise which inevitably results in less than the maximum benefit for the project as a whole subject to availability of accurate flow forecasts in good time. As such forecasts are inadequate, effectiveness of multipurpose operation is severely limited and flood moderation is the worst sufferer.”

A related point is that the larger releases should be so timed as to arrive after the inflow peak of the intermediate catchment has passed. The NFC warns, “even a small mistiming can lead to aggravation rather than an amelioration of flood conditions.”

In recent decades water releases from dams of the Damodar river system, dams of Bhakra-Beas system, Hirakund dam and some dams in the terai area have caused very destructive flash floods. Such floods are different from the gradual rise in river water seen in normal floods. This is like releasing a high wall of water suddenly. Clearly the destructive capacity of such floods is much higher than normal floods.

But officials point out that at times such discharge of water becomes unavoidable as the alternative will be over topping and collapse of dam which will be many times more destructive. However critics do not always accept this explanation. They ask why such a situation arises in the first place.

This debate was perhaps most intensely seen at the time of the 1988 floods in Punjab when a very vast area of this state was submerged in the flood water released from Bhakra Dam. The dam management claimed that they had made a significant achievement by preventing the collapse of the giant Bhakra dam, but critics argued that earlier flood-control aspects had been ignored to maximise hydro power.

Such situations are more likely to arise at the fag end of the monsoon session when the expectation of more rain being quite low, the flood-control aspect is ignored and there is pressure to concentrate fully on maximising hydro power to earn more money and meet power needs as well. But when late rains come then the destruction is so great that all earlier calculations are entirely upset. In this case most of the cost is borne by innocent farmers and other villagers.

Bhagwat Prasad, Director of ABSSS, a leading voluntary organisation of Bundelkhand region (Uttar Pradesh state) says, “Some of the most destructive

floods in Banda and Chitrakut districts were caused by sudden discharge of water by dams”.

Perhaps none can be a better judge of this than the ‘Kevats’—the community of boatmen who generally live nearer to rivers than other communities in the villages of Bundelkhand region. While visiting riverside villages in Banda district this reporter put this question to the most elderly people among the Kevats, “Babaji, in your entire life have you ever seen floods like this? And all the elderly Kevats gave almost similar replies, “No, never in our life have we seen such destructive floods.” “These floods,” some of them said, “were three times more destructive than the Worst that they had seen so far.”

The maximum havoc in this district of Bundelkhand region was caused by Ken river, which is a tributary of the Yamuna river. Chak Chatkhan village is located very close to the Ken river (about 10 km from the town of Banda). Mohan Kevat of Chak Chatkhan village said, “of course we’ve experienced floods for a long time and we’ve also learnt to live with them. So when we saw the river rising following continuous rains we were not unduly alarmed. We started sending the cattle to the upper areas and making other preparations. But when we saw the actual flood we knew that all such preparations are futile and that we’re doomed. It was as though the river had turned into a monster above 15 feet high.”

This is precisely the tragedy of floods caused by huge and sudden release of water from dams. These floods frequently catch people off guard and are generally much more destructive than the normal floods caused by a relatively gradual, predictable rise in the level of river.

Some time back thousands of pilgrims bathing at a religious fair at Dharaji (near the town of Dewas in the state of Madhya Pradesh) were overwhelmed by a sudden surge of water. Almost 150 of them were carried away by the unexpected water waves. About 65 dead bodies were, later recovered. This water was released from the Indira Sagar dam project on Narmada river? Why was this additional water released when thousands of pilgrims had collected at a short distance for a sacred dip in the river?

It was particularly disturbing to hear some officials say that the Dharaji tragedy was caused by routine release of water to meet the daily peak hydro power demand. Earlier also there had been some reports of pilgrims or picnic groups on several river-banks being overwhelmed by to such a rise in river level for which they were not prepared.

It is important to ensure that in the management of dams, flood-control aspects get adequate attention and the routine discharge of water is also done in a cautious and careful way with a good warning system. ❄❄❄