Mismanagement of Hirakud leads to avoidable flood disaster in Orissa AGAIN

Orissa has again experienced a flood disaster in Sept 2011. The sheer scale of the flood can be judged from the fact that 21 of the state's 30 districts are affected. Initial calculations by the state government reveal that almost 6 million people have been directly and significantly affected. Crops on 4.78 lakh ha of land have been destroyed. At least 83 deaths have been reported. More than 2,900 km of road have been damaged. Thousands of affected people were desperately looking for food. The most shocking aspect is that this is mostly man made flood disaster. Most of the damage could have been avoided had the operation of the Hirakud dam been done keeping in view the actual rainfall in the basin over the past few days and how it will enter the reservoir, forecast of the rains in next few days, the status of reservoirs in the basin and carrying capacity of the downstream rivers.

As early as Sept 4, there was weather forecast about heavy rainfall in Chhattisgarh, western and interior parts of Orissa consisting of Balangir, Sonepur, Sambalpur, Jharsuguda, Deogarh and Boudh districts. But between Sept 4 and 7, only 10 to 15 sluice gates of the reservoir were opened. During these days, water had been flowing at Hirakud reservoir at above 620 ft. If the dam operators had started releasing more water from Sept 4 or earlier, when the forecast was available, they may have had much larger cushion in the dam after Sept 8.

On Sept 7, the dam's level was at 625.6 feet when 10 gates were open. On Sept 9, Hirakud dam was just a few inches short of its maximum storage level—the reservoir level was 629.08 feet against the full reservoir level of 630 ft—and it opened its 59 flood gates. This resulted in one of the worst floods in Orissa since 1982 and 2008. The gates remained open for two consecutive days. Official said that unprecedented rainfall in Chhattisgarh, which accounts for 85 per cent of the river's 84000 sq km catchment area upstream of the dam, led to a huge inflow of water into the reservoir. Within four hours of the opening up of the gates on Sept 9, Sambalpur, which is immediately downstream of the Hirakud, got flooded. In places like Sonepur, a district headquarter town some 80 km from the dam, the river's level rose by a foot an hour during the night of Sept 9.

By Sept 13, large part of the Orissa state was again in the clutches of floods. The flood has impacted all the districts along the Mahanadi which are downstream of Hirakud multipurpose dam in Sambalpur district. This happened despite the fact that the dam, commissioned in 1958, was meant to control floods in the delta areas.

Experts and public in general are attributing this flood entirely to the mismanagement of the Hirakud dam. It is indeed true that for the past ***23 years the dam has not changed its flood control strategy while the rainfall pattern has undergone major changes in local areas***.

Since 1982, almost all severe floods in the state have been triggered by the abrupt opening of the dam's gates—2002, 2008 and 2011. There is a widespread demand that the dam authorities abandon the old rule curve and adopt a new one based on the present rainfall pattern both upstream and downstream of the dam, reassessed storage capacity of the reservoirs in the basin, capacity of the river downstream from the dam to take water, high tide times and prediction of rainfall. This would also involve an agreement and flood coordination with Chhattisgarh state for which there is no such mechanism currently.

Violations of the Rule Curve Rule Curve is a mechanism to regulate outflow and storage in a reservoir in such a fashion that there is no need for sudden release of water in case of heavy inflow. This also ensures maximum storage post-monsoon for power generation and irrigation. All major dams have rule curves and the dam operators are supposed to follow them. However, neither are the rule curve regulations in public domain, nor do they have any legal backing. No one knows what happens if and when dam operators violate rule curve. In fact there is no known instance where senior dam operators have been punished for violation of these regulations. The Central Water Commission, India's apex technical body on water resources management, which is involved in formulation and approval of regulating rules for each major dam and also is involved in monitoring and forecasting of regulation of reservoirs, has very poor track record itself.

In 1988, Hirakud got a new rule of curve that still holds. By this rule curve, the reservoir should attain full reservoir level by end of September. Going by the current phase, the dam had a storage level of 595 feet in the first week of July. It increased to 596.85 ft on July 20. ***On Aug 1 it reached 607.27 ft***. The next week the level rose to 620 ft, against recommended level of 606 ft. ***The reservoir was, in fact, nearing full reservoir level in the first week of Sept, instead of the end of Sept. For a week before Sept 9, there have been regular warnings from the India Meteorological Dept about heavy rainfall in both Chhattisgarh and Odisha. Only in the last week of Aug, the dam opened 10 gates while retaining near full reservoir level. That left the dam operators to pass all the inflows from Sept 9, opening all the possible gates. Rest is part of the state's disaster filled history.***

In 2008 too, a similar situation led to major flood disaster in Mahanadi basin in Orissa. It was the worst flood after the one in 1982. All through August, the authorities filled the dam reservoir. On Sept 18, it was almost full. Rains

in the catchment created a situation wherein the dam's gates had to be opened in a hurry when the downstream areas were experiencing heavy rainfall, which was predicted a week earlier. Floods inundated 19 districts. There were debates and protests because the flood of 1982 was also caused in a similar manner. (SANDRP had worked on a detailed critique of Hirakud mismanagement in 2008: www.sandrp.in/floods/Hirakud_Dam_brings_floods_in_Orissa_Sept08.pdf)

The rule curve says that if there are warnings from the Indian Meteorological Department, the reservoir should be emptied partially so as to accommodate floods and regulate the flow of the river. This, however, was not done. The rule curve is premised on higher rainfall and inflow in July and August, and lesser rainfall in Sept. However, of late there seems to be more such deviations and more regular deviations. There is a clear shift towards more rainfall and runoff in the month of Sept.

Similarly, the issue of coordination and proper operation of upstream dams in Chhattisgarh should also be part of the enquiry. For example, the Has Deo Bango Dam in the basin in upstream Chhattisgarh suddenly released 1.5 lakh cusecs in River Hasdeo on Sept 8 without allegedly informing Hirakud authorities.

Out of the 19 major floods experienced in the state in the recent past, 14 were downstream of the Hirakud and nine were caused by sudden release of water from the dam. In the past one decade, the frequency of floods has increased: there have been five major floods, and all of them have been attributed to the dam storing water in violation of the rule curve.

Notwithstanding the Orissa government's clarification that there has been no violation of the water management in the Hirakud reservoir, Governor M C Bhandare has favoured for an independent inquiry into the controversy over the water management in the dam which led to unprecedented floods in Orissa. Mr Bhandare had asked the Orissa government to conduct an inquiry by a high level committee comprising experts from Central Water Commission. Unfortunately, Central Water Commission itself is an involved party, as mentioned above and an enquiry by it is not likely to be credible. The Central Water Commission itself has had pathetic track record in forecasting floods, including in Mahanadi basin. Moreover, the CWC is supposed to recommend & approve any amendment in the rule curve.

A Public Interest Case filed in Orissa High Court has sought direction to the state government to constitute an expert committee to monitor maintenance of water level in Hirakud reservoir during the rainy season. Suryanarayan Biswal and two other members of the Orissa High Court Bar have said in the PIL that the recent floods in Orissa cannot be attributed only to "nature's fury" and have also sought compensation to the affected due to the man made flood.

"Each time when a flood happens, the officials talk about more dams to contain floods," said Professor Rajkishor Meher of the government-run Nabakrushna Choudhury Centre for Development Studies in Orissa. "Hirakud has already made Mahanadi a river of sorrows and more dams will make this woe permanent."

In a State Level Consultation on Floods on 23rd October at Bhubaneswar, participants re-emphasized on the need for learning to live with rivers rather than trying to tame them to control a few days of flood. Presenting a study on the mismanagement of Hirakud and Rengali dams during the recent floods, Ranjan Panda, Convenor of Water Initiatives Odisha (WIO), showed how Hirakud dam is causing more floods than controlling. WIO organized this consultation along with Orissa Development Action Forum, Forum for Collective Forms of Cooperation and Odisha Khadya Adhikar Abhiyan. The consultation resolved that "No more Big Dams should be allowed in the state." (Water Initiative Orissa, various dates, Down to Earth 140911, Asian Correspondent 270911, Telegraph 08x11, Reuters 12x11, UNI 14x11)