

## DAM DISCLOSURES: ON THE KERALA FLOODS

Relevant for: World & Indian Geography | Topic: Distribution of key natural resources - Water Resources incl. Rivers & related issues in world & India

The [people of Kerala have braved](#) the [worst calamity since the great flood of 1924](#). The floodwaters have receded from most of the affected areas barring Kuttanad. Most people have gone back to their homes from relief camps, only to find them battered beyond redemption. As the State is coming back to a “new normal” after the devastation, it is time to ponder on the reasons for the floods.

Rubbishing the contention from the Opposition as well as studies from international experts that the mismanagement of dams was the primary reason for the floods, the [Kerala government has stood firm](#) that incessant rainfall in August is what caused the floods. This is in contrast to the affidavit filed in the Supreme Court by the Chief Secretary of Kerala, which cited the water released from a dam as the major cause of the floods. While there was considerable deviation in rainfall in August, it is unacceptable to put the onus only on that. In fact, according to a India Meteorological Department study, the rainfall in August was only the sixth highest in the past 143 years (1875-2017) in Kerala.

One of the major functions of dams is flood protection — to attenuate the flow of water and its impact downstream. The golden rule followed in dam management is to maintain a flood cushion (buffer) in case of unexpectedly high rainfall.

Kerala has 39 major dams. Their maintenance is shared between the Kerala State Electricity Board (KSEB) and the Water Resources Department. They had all reached their full reservoir level by July-end, and were thus incapable of containing the water flow from torrential rainfall in August. This forced the State government to open the gates of 34 major dams, thereby submerging all the major towns downstream.

The Periyar is the longest river in Kerala and has the highest discharge potential. The major dams across this river that are maintained by the KSEB are Idukki, Lower Periyar, and Madupetty. The water from Lower Periyar, Madupetty and Mullaperiyar drains into the Idukki reservoir consisting of the Idukki dam and the Cheruthoni dam. The water from the Idukki reservoir and Idamalayar drains directly into the Bhoothathankettu dam, which is the lowermost in the Periyar system, just 15 km from Kothamangalam town.

A closer look at the reservoir levels reveals that the major dams in the Periyar system were filled to the brim starting August. Idamalayar dam was kept full for most of the days in the pretext of electricity generation. This caused the Periyar to overflow all through its course, in Kothamangalam, Kalady, Perumbavoor, Aluva, and Eloor.

It is the same story with the Chalakudy river system, which consists of the Tamil Nadu Sholayar, Lower Sholayar draining into the Peringalkuthu dam. The Peringalkuthu, which is the lowermost dam in the Periyar river system, had reached its capacity by June 10. But the government officials failed to heed repeated pleas from different research organisations, including the Periyar Samrakshana Samithi, for a controlled release of water from this dam. The unexpected release of water from Tamil Nadu Sholayar and Parambikulam worsened the already vulnerable Chalakudy river system. The State government also failed miserably in coordinating with the Tamil Nadu government on the release of water from Upper Sholayar despite the State heading the joint water regulatory board. Finally, when close to 20 lakh litres of water per second was released from Lower Sholayar and Parambikulam, and 15 lakh litres per second from 526 sq km

of its catchment reached the Peringalkuthu dam on August 15, the dam overflowed for more than 3 metres, submerging Chalakudy town. The dam has been severely damaged with its structural stability is under serious threat.

The missing water level data of Kakki dam in the Pampa river system from the public domain is conspicuous as there has been a lot of hue and cry over its management. There is little doubt that it was the water which was flushed out of the Sabirigiri projects, Pampa dam and the Kakki-Anathode dam which caused the heavy flood in Pathanamthitta district and in Chengannoor. According to the data released by the State Disaster Management Authority, 85,300 litres of water was released every second from Kakki-Anathode dam, and 47,000 litres from Pampa dam at 4 p.m. on August 14. The shutters of both dams were raised at night. By 10 p.m., 4.68 lakh litres of water started gushing out of both dams. By 1 a.m. on August 15, it rose to 6.5 lakh litres per second and by 6 a.m., to 9.39 lakh litres per second. The public was caught unawares until the water reached the roof of their houses. An analysis of spill from these dams reaffirms the gross mismanagement in the operation of dams. Data posted by the KSEB reveals that the water released into the Periyar river basin from the Idukki and Idamalayar dams surged from 46.26 mcm/day on August 14 to 200 mcm/day the next day. This caused the towns downstream to be totally submerged.

Better management of water in Sholayar and Idamalayar would have considerably reduced the extent of the flood in the Periyar and Chalakuddy river system.

The operation and maintenance of dams is governed by the guidelines of the Central Water Commission and water management protocols. The safety, precautions and evacuation measures to be followed while declaring different alerts (blue, orange, red) are clearly mentioned in these guidelines. The guidelines state that the reservoir control schedule, release procedure and gate operation procedure have to be done only after assessing the potential impact of the procedures. The State government and the KSEB opened 34 of the 39 major dams simultaneously. Controlled release from these dams would have reduced the gravity of the calamity.

Admittedly, the change in topography due to human interventions and climate change have contributed to the sporadic and excess rainfall. The proliferation in illegal stone-quarrying activity has been a major reason for widespread landslides. The decision of the incumbent government to reduce the boundary of a quarry from residential buildings to 50 metres has facilitated the mushrooming of the stone quarrying mafia and needs to be repealed at the earliest. The recent decision to water down the Kerala Conservation of Paddy Field and Wetland Act will add to the problem. The disaster management system has failed to predict disasters and plan the process of evacuation. This system needs to be revamped by roping in experts from different areas. The State government must also order a judicial inquiry into the gross mismanagement of dams in the State. With environmental experts and scientists suggesting that floods of this nature would no longer be a once-in-a-lifetime phenomenon, it is imperative to understand the real cause of the calamity and plug the gaps at the earliest.

*Ramesh Chennithala is the Leader Of Opposition in the Kerala Legislative Assembly*

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