

Two states in a dam row

While the states of Tamil Nadu and Kerala have opposing stands on the Mullaperiyar dam, civil society actors have provided alternatives to the old dam whose decommissioning is bound to happen sooner or later as well as pointed to the inappropriateness of building a new dam on Mullaperiyar. [Latha Anantha](#) of River Research Centre, Thrissur speaks to India Water Portal on the issue.

Tell us more about this dam which divides the two states of Tamil Nadu and Kerala?

Perhaps history would tell us that the Mullaperiyar dam is the oldest, most discussed and debated and prolonged dispute between two States over water sharing and safety issues in India! The irony is that while most of the debates and legal interventions are over dam safety issues, the inherent problems with the outdated Mullaperiyar Agreement and the associated environmental issues are yet to be taken up seriously in these changed times.

The Mullaperiyar Dam or the Periyar Dam as it is also called is probably one of the earliest attempts at inter basin diversion of water in India in the name of transferring water from a 'surplus' to 'deficit' river basin. Believed to be an engineering marvel of those times, the masonry dam, also the first of its kind in India was built between 1887 - 95 by the erstwhile Madras Presidency (under British rule those days) on the land of erstwhile Travancore Maharajah (presently in Kerala). The dam was built as per the historic Periyar Lease Deed or Periyar Agreement entered between the former Madras Presidency (now Government of Tamil Nadu) and the Princely State of Travancore (now Government of Kerala) signed in 1886 by which west flowing waters of Periyar were diverted towards the east into the drought hit Madurai district mainly within Vaigai basin. The land on which the dam stands was leased out by Travancore (now Kerala) to Madras Presidency (now Tamil Nadu) for 999 years at a nominal lease rent and the dam is completely controlled and operated by Tamil Nadu since then.

The Lease Deed operational since 01.01.1886 for 999 years stipulated the release of about 8000 acres of land under Kerala to Tamil Nadu on lease. Not only the land but also all the water (flowing into, through it, over it, and from the said tract) in this area, the right to passage and fishing rights were totally granted to the lessee (Tamil Nadu). The annual lease rent was fixed at Rs. 5 / acre which were later raised to Rs. 30 as part of a Supplementary Agreement on 29th May 1970. As per the Amendment, fishing rights were also restored to Kerala. By another Agreement between the two Governments signed on the same day, Kerala ratified the Hydro Electric project works of the Periyar Project and fixed a nominal rent for the electricity generated by Tamil Nadu. Tamil Nadu had started generating power utilizing the waters of Mullaperiyar from 1959 onwards (35 x 4 MW) in spite of the judgment against allowing the same by an Umpire constituted over the legal dispute between Travancore and Madras Presidency over Tamil Nadu's proposal to generate power from Periyar Project.

The Mullaperiyar Dam is located in the upper reaches of Periyar river catchment after its confluence with Mullayar tributary at an elevation of about 850 m MSL in the famous Periyar Tiger Reserve. The length of the main dam is 366 m and the Baby Dam is 73 m. The 47.24 m high dam (155 ft.) with its own catchment of 624 sq.km has a water spread area of around 37 sq.km at Full Reservoir Level (FRL) of + 152 ft. The reservoir with a gross storage capacity of 15.662 Thousand Million cu.ft (443.23 million cubic metres) presently feeds an ayacut of 2, 30,000 acres in Tamil Nadu. As per the original deed, the irrigation planned was only for 1.5 lakh acres.

The dispute between Kerala and Tamil Nadu over the age and leakages related safety has been raging for several years now. Large scale seepage from the dam started in the late seventies. The GoK apprised the Central Water Commission of the situation and consequently the CWC ordered lowering of the water level from 142.40 ft to 136 ft. along with leak proofing as a precautionary measure. Meanwhile the power, drinking water and irrigation demands on Tamil Nadu side were growing by the mid 1990s. The political pressure over Tamil Nadu Government seeking raising the water level to 152 ft was also escalating. While Tamil Nadu maintained that all measures short term, medium term and long term for strengthening the dam were undertaken by them as per CWC directions, Kerala argued otherwise. This eventually led to the filing of number of writ petitions in the Kerala High Court as well as in the Madras High Court sometime in 1998 on the issue for and against raising of water level in the Mullaperiyar reservoir and the safety of the dam. Due to the nature of the conflict and the possibility of conflicting judgments from the two courts, all the cases were later transferred to the Supreme Court. On 28.04.2000, in the transfer petitions, the Ministry of Water Resources was directed to convene a meeting of the Chief Ministers of Kerala and Tamil Nadu to amicably resolve the issue. The meeting was convened on 19.05.2000 but no consensus could be reached in the meeting as well. An expert committee was constituted consequent to the meeting to examine the safety of the dam and advise MoWR on raising of water level in the reservoir. The seven member Expert Committee headed by CWC member (D&R) and dominated by technical persons gave the green signal to Tamil Nadu for raising the height to 142 ft. Meanwhile the 'Mullaperiyar Environmental Protection Forum' also filed a writ petition against raising the dam height in Supreme Court.

The issue hit the headlines once again on 27th February 2006 when the Supreme Court directed Kerala to raise the height of the dam from 136 ft (maintained as per CWC direction) to 142 ft after hearing all the parties. Though a study on the impact of raising the water level on the Periyar Tiger Reserve carried out by a group of eminent institutions in Kerala had reported that additional submergence from 136 to 142 ft would impact wild life like wild boar, elephants, gaur, sambar, otters and birds that nest in the reservoir, it was not given serious consideration by the SC. It was also observed by the SC that after the strengthening work was complete to the satisfaction of CWC, independent experts would examine the safety angle before the water level is permitted to be raised up to 152 ft.

Consequent to the Supreme Court Judgment allowing the raising of the dam height in 2006, Kerala Legislature amended its Irrigation and Water Conservation Act 2003 to set up a Kerala Dam Safety Authority (KDSA) to advise the Government on evaluation of safety and security of dams in Kerala, protection, monitoring and repair of dams in Kerala. The details of dams in danger on account of their age, degeneration, structural impediments were also published as part of the Amendment in 2006. As per the Amendment, 22 dams were listed in danger category with Mullaperiyar topping the list. In the Second Schedule, appended to the 2006 (Amendment) Act, the Mullaperiyar dam was included as Item No. 1 where the height of the Full Reservoir Level was fixed at 136 ft. However, Tamil Nadu challenged this move of Kerala in the Supreme Court seeking relief on two grounds; 1) declare the 2006 Amendment as unconstitutional as far as it relates to the Mullaperiyar dam and 2) pass a judgment of permanent injunction restraining Kerala from applying and enforcing the Amendment interfering with or obstructing Tamil Nadu from increasing the water level to 142 ft. and from carrying out the repair works as per the SC judgment of 2006. Kerala raised the 'Precautionary Principle' and 'Public Trust Doctrine' to argue that Kerala Legislature had the power to override the 2006 SC Judgment and ensure the safety of its people since the Periyar River flows through Kerala. The CWC report tenability was also questioned by Kerala.

In 2010 the SC appointed an Empowered Committee (EC) led by Dr. A.S. Anand, retired CJI and consisting of two members nominated from Kerala and Tamil Nadu and two renowned technical experts to look into the hydrological, structural and seismological safety of the old dam. The EC also gave a clean chit to the 120 year old dam under the guidance of C.D.Thatte, former Secretary MoWR, member of the EC on all the three aspects. The EC claimed that Kerala has not submitted to it the inundation maps for downstream areas in eventuality of floods between Idukki and Lower Periyar dams or further downstream for later phases. Such inundation maps are necessary for an Emergency Action Plan in case of dam failure which has been cited as a drawback from Kerala side weakening its arguments.

In the final judgment passed on 7th May 2014, the SC declared the Kerala Irrigation and Water Conservation Act 2006 Amendment as unconstitutional in its application on the Mullaperiyar dam. By an order of permanent injunction, Kerala was restrained from using the Amendment to the Act in preventing Tamil Nadu from raising the water level to 142 ft and carrying out repair works as per the earlier judgment of 2006 (WP(C)No 386 /2001) and later to 152 ft after completion of maintenance works . A three member Supervisory Committee was also constituted headed by a CWC member and one member each from the contending states with suitable powers to inspect the dam periodically, to supervise the restoration of water level to 142 ft. Meanwhile Kerala's suggestion to construct a new dam at its own expense just downstream of the present one was out rightly rejected by Tamil Nadu and the SC supported them on their stand.

The old structure is very risky given that a report by the Centre for Earth Science Studies (CESS) says that it cannot withstand an earthquake above magnitude 6 on the Richter scale. Please tell us more about the safety aspects related to the dam.

The 120 year old dam has clearly outlived its viable age and indeed poses a threat to the downstream populace and dams in case of a dam break. The collapse of the dam would trigger the cascading failure or collapse of the immediate downstream Idukki, Cheruthoni and Kulamavu dams of the Idukki HEP. The resulting catastrophe would be unimaginable devastation of the downstream thickly populated districts of Idukki, Ernakulam and parts of Kottayam, Thrissur, Alappuzha and Pathanamthitta districts. Studies have revealed that the Idukki dam may not be able to hold the waters of Mullaperiyar. Centre for Earth Science Studies study have revealed that the dam cannot withstand an earthquake of magnitude of 6 on the Richter scale. The unique construction material and the seismological location of the dam have been cited as the reasons for the vulnerability. Meanwhile the GoK had entrusted IIT Delhi with evaluating the Hydrological safety and IIT Roorkee with assessing the Structural safety to probable earthquake. Both the assessments have revealed that the old dam is structurally and hydrologically unsafe to withstand the impact of Probable Maximum Flood and Probable Earthquake. Kerala had raised this aspect in the Supreme Court challenging the estimation of Probable Maximum Flood (PMF) arrived at by the CWC (2.12 lakh cusecs as per 1986 estimates) while the actual observed flood at Mullaperiyar in 1943 floods was 2.98 lakh cusecs. Kerala argued that if the observed flood is so high the PMF could be much higher.

The Mullaperiyar issue should have become the forerunner to put in place a comprehensive Dam Safety Act given the large number of dams that have crossed the 50 years lifespan which is the viable age of a dam as per international standards. A Comptroller and Auditor General (CAG) report has found the structural strength of 348 large dams suspect as they have not been inspected for over a decade. This is despite the fact that the government spent Rs 70,000 crore more than the estimates, the report added. The working of Dam Safety Organisations has also been questioned in the report.

<http://epaperbeta.timesofindia.com/Article.aspx?eid=31804&articlexml=Strength-of-348-dams-suspect-as-no-checks-30072014006017>).

The dam is over 100 years old and its decommissioning is bound to happen sooner or later. In a recent move, the Supreme Court has allowed the Kerala State to carry out Environmental Impact Assessment for the new Mullaperiyar dam in place of the old one. Has the Supreme Court given a go ahead to decommissioning of the old dam? In an earlier judgment the Supreme Court had in 2006 allowed Tamil Nadu to raise the level of the dam to 152 ft after strengthening it.

It is just a matter of time. The Mullaperiyar dam cannot be expected to remain forever. Recently the Kerala Government has approached the Ministry of Environment and Forests with proposal for a new dam downstream of the present one. The present move is based on the Standing Committee of National Board for Wild Life's (NBWL SC) go ahead signal to Kerala for conducting an EIA for the new dam. The proposal came up for consideration of Terms of Reference before the Environmental Appraisal Committee on River Valley projects on 3rd and 4th June 2015. While the River Valley Committee gave a green signal for an EIA on 4th June, a PIB release from the Government of India on the same day later in the night stated that NO approval has been given for carrying out a new EIA for the construction of a new dam (for obvious reasons)! The new dam is proposed in the Periyar Tiger Reserve presently an Ecologically Sensitive Zone (ESZ) as well. Pragathi Labs based in Secunderabad has been approached for carrying out the EIA. The new dam site is 366 m downstream of the present dam with a catchment area of 624.5 sq.km, length 377 m and a height of 53.22 m from deepest foundation. The new dam would involve submergence of 50 ha of forest land within the Tiger Reserve and an additional storage of 63 million cuft.

While there is no dispute that the present dam needs to be decommissioned if not fully atleast partially, the proposal for a new dam by Kerala cannot be accepted as the only alternative to resolve the issue.

What are the cost effective and environmentally less destructive alternatives to this? Can there be an alternative that is agreeable to both the states?

Over the last 30 odd years, the Mullaperiyar dam issue has grown into a never ending dispute between Kerala and Tamil Nadu with political overtones. Both the states have been unrelenting in their respective stances. The demand for a new dam has been growing stronger from the Kerala side especially from the downstream panchayaths given the fear of dam failure. A section of activists and civil society groups in Kerala and across India have been trying to put forward alternate options in place of a new dam which have not been accepted by both the Governments so far.

The Forum for Policy Dialogue on Water Conflicts in India with endorsement from renown personalities working in water sector has put forward the following options;

Given the intense fear and insecurity amongst the downstream people, and the divided expert opinion on dam safety at higher water levels, it would be best to use the precautionary principle and keep water levels low, to around 120 ft.

Water can be delivered to Tamil Nadu at 120 ft level and the province should be encouraged to divert as much water as it can and store it inside the state in a series of balancing reservoirs or other storages.

Long-term action is needed on the following lines:

1. Reconfirm Kerala's commitment to provide the present quantum of water. The Kerala government in any case has publicly confirmed this commitment;

2. Come to a common understanding of the role of the Mullaperiyar dam as *a diversion weir* rather than *a storage dam* and that the storage capacity needed for Tamil Nadu should be created inside the state with adequate assistance from the centre;
3. Immediately undertake studies on (a) the requisite capacity needed inside Tamil Nadu, (b) the redesign of the diversion and conveyance system, (c) on the basis of (b), minimising storage behind the dam as close as possible to the minimum regulatory storage required, (d) measures to strengthen the dam at the new level, (e) hydrological study of flow at the dam site and a schedule for the regulatory storage, and (f) working out arrangements in the transition phase;
4. Though the dam would continue to be in the control of Tamil Nadu, the Forum suggested that there should be a tripartite board consisting of representatives of the Government of Kerala, Government of Tamil Nadu and the union government (on the lines of the Tungabhadra Board) that oversees the preparation of a reservoir operation plan and monitors and modifies it throughout the year.

A strategy of local water harvesting and increase of on-field and irrigation efficiency so as to gradually reduce the requirement from the Mullaperiyar allowing eventual decommissioning was also suggested. In fact, the Forum believes that ultimately one should move to ecosystem-based river basin planning. Such an option while fulfilling Tamil Nadu's rights over water and land would also reduce the burden of storing the water for Kerala. The Forum had convened a meeting of the MPs of both the states in New Delhi in August 2009 to discuss the options. However, the MPs from Kerala kept away from the meeting.

An important aspect which has seldom been discussed in the case of Mullaperiyar is the issue of environmental flows below the dam into Kerala. Since 120 years the river below Mullaperiyar dam has been deprived of its legitimate share of water except in the monsoon season. In the over emphasis on technical aspects of dam safety and water level, the need for the river to flow has been cleanly overlooked even by the Court and the Government of Kerala.