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MULLAPERIYAR: WHEN LIFE-BEARING WATER TURNS MURKY

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Abstract:

Mullaperiyar dam was built on the path of the Periyar river between 1887 and 1895 by British and made an agreement for 999 years to divert the water to the Madras presidency area (Present Tamil Nadu) from Kerala. The outdated construction techniques and age of the structure are always a concern to the state of Kerala and around 3.5 million live below the project's geographic location. But for Tamil Nadu, Mullaperiyar is a life-bearing project that serves millions of people's needs, serving their ever-increasing water demand. The Mulla Periyar dispute between Kerala and Tamil Nadu has always been a legal, political and international topic of consideration. However, no permanent solutions have been made to decommission or strengthen the construction. This article discusses the history and legal movements behind the Mullaperiyar project, technological aspects, ecological concerns based on various reports available in the public domain.

Introduction:

Mullaperiyar dam conflict is unlike other interstate river disputes². Mullaperiyar dam dispute between Kerala and Tamil Nadu raises many legal, humanitarian, and public health concerns. Perse, Mullaperiyar dam is not a conflict to seek resolution for water distribution between two neighboring states. Mullaperiyar dam was built on the path of the Periyar river between 1887 and 1895 by British and made an agreement to divert the water to the Madras presidency area. The dam is situated in the western ghat of the Idukki district of Kerala, and the water is diverted to the sections of Tamil Nadu (Theni, Dindigul, Madurai, Ramanathapuram, and Sivagangai). The dam is made at the confluence of Mullayar and Periyar. However, the dam and river are almost entirely occupied in Kerala. The dam is built in a high-altitude area and is a gravity dam.

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² Ageing water storage infrastructure: An emerging global risk, United Nations University, 2021) [Ageing-Water-Storage-Infrastructure-An-Emerging-Global-Risk_web-version.pdf \(unu.edu\)](#)

Downstream to the dam's geographical location is the highly populated districts of Kerala, including Kottayam, Idukki, Alappuzha, and Ernakulam³.

In November 1886, a lease agreement was made by the Maharaja of Travancore (Present Kerala) and the British empire for the Madras State (Presently Tamil Nadu). The agreement was made for 999 years to give authority to Tamil Nadu, manage the dam, and divert the water to Madras (Tamil Nadu) and utilize³. The dam's construction was a humongous effort, especially in a dense forest at a high altitude with limited access, resource, and the threat of epidemics. The agreement between the two states was built 999 years before independence, in an era of primitive technological advances, knowledge, and studies. But furthermore, this agreement has made life carrying water a source of conflict and fear to the common public. The issue of Mullaperiyar is a political agenda for the neighboring Indian states of Kerala and Tamil Nadu. Tamil Nadu Government is offering the continuation of the present Mullaperiyar dam, thereby ensuring water supply. To Kerala, it is to decommission the outdated dangerous construction to build a new one.

The conflict of Mullaperiyar is regarding the safety of the dam, a 100-year-old structure built with outdated technologies situated in an eco-sensitive area with high seismic activity and recurrent cloud bursts and floods.⁴ The present age of the dam is around 126 years, and multiple studies and U N reports mentioned the dam as unsafe, with conflicting reports of statements assuring the safety of the dam. However, Mullaperiyar is a matter of safety and psychosocial well-being of around 3.5 million lives below the dam site and a matter of a significant geographical area of an Indian state. Muppaperiyar is not a new topic, but the conflicts, arguments, and studies have continued without any permanent resolution. In this article, the authors discuss the legal and historical movements of recent ecological and expert reports on safety and public health concerns raised by the dam.⁵

³ State Of Tamil Nadu vs State Of Kerala & Anr on 7 May, 2014, Author: L . R.M ([State Of Tamil Nadu vs State Of Kerala & Anr on 7 May, 2014 \(indiankanoon.org\)](#)).

⁴ Accurate location and focal mechanism of small earthquakes near Idukki Reservoir, Kerala: Implication for earthquake genesis, ((PDF) [Accurate location and focal mechanism of small earthquakes near Idukki Reservoir, Kerala: Implication for earthquake genesis \(researchgate.net\)](#)).

⁵ Cadastral map details of 119 ESA villages of Kerala Stateto HLWG ([report-first-part.pdf \(keralabiodiversity.org\)](#)).

Discussion:

A literature review is the primary source of data in this article. A Boolean search was done in Google to read and understand the dam site's history, milestones, and ecological impacts. Primary data sources are Government websites and related documents, scholarly articles, expert committee reports on the issue, media reports, previous academic studies (limited), etc. Each document was read and commented on in the orientation of making a narrative writing format. Later interrelated comments are combined to make common themes for discussion. The writing was done to describe and discuss the past and present factors related to the issue.⁶

1) History of the structure and legal conflicts

The agreement between Maharaja of Travancore and the British, for 999 years, is for an amount of Rs 5/ Acre/Year. After long years of arguments, the agreement was renewed in 1970 and signed by Chief Minister of Kerala Mr. C Achutha Menon with an increased amount of Rs 30/Acre/ Year with an extra Rs.12/ KW /Hr for the generating electricity.

Mullaperiyar has a total water storage capacity of 443230000 cubic meters with 176 feet. Tamil Nadu recently faced significant water scarcity, and a more than a century-old outdated construction has always been a concern to the state of Kerala. The Supreme court judgment on 27 February 2006 stated that Tamil Nadu could increase the water storage to 152 feet after ensuring the strength of the structure. However, based on various reports and experts' opinions, the state of Kerala in the same year declared the dam endangered under the Kerala Irrigation and Water Conservation (Amendment) Act, 2006. It moved to the Supreme Court (SC) to object to this verdict. Since then, the two states have been in a continuous legal dispute. In 2010 a committee appointed by SC headed by A.S. Anand reported that the structure is structurally hydrologically safe.⁷

In the same year, the Supreme Court has allowed maintaining the water level to a maximum of 142 feet. Later in 2014 May, the Supreme Court has also stated that the act passed by Kerala under Kerala Irrigation and Water Conservation (Amendment) Act is unconstitutional, and the

⁶ Cadastral map details of 119 ESA villages of Kerala Stateto HLWG ([report-first-part.pdf \(keralabiodiversity.org\)](#)).

⁷ Ageing water storage infrastructure: An emerging global risk, United Nations University, 2021) [Ageing-Water-Storage-Infrastructure-An-Emerging-Global-Risk_web-version.pdf \(unu.edu\)](#).

water level can maintain a maximum level of 142 feet, denying the 132 top-level in Kerala's act. However, the dispute has always considered various legal and expert reviews for more than two decades. Recently, following extreme weather conditions and floods, Kerala approached the Supreme Court to reduce the water storage; in November 2021, SC made an interim verdict to maintain the water storage to 142 feet.

Kerala demands to decommission the present structure and build a new one as a resolution. In contrast, Tamil Nadu continued to state in SC that the dam is hydrologically, structurally, and seismically safe, despite various disaster maps, reports, and public concern.⁸

2) Structural and technological concerns.

It is appreciable for the efforts of the people behind the construction of a futuristic project. However, present technologies are advanced, and experts opined that the Mullaperiyar dam was constructed with outdated techniques. They primarily used a mixture of surkhi (Burnt brick powder and limestone) instead of concrete. The disintegration of surkhi due to chemical degradation and water force has been a significant concern by experts for decades. However, the agreement is still in position; the age of the construction is a considerable matter, especially when the structure's integrity is skeptical.⁹

In this article, the most important and prior topic is the security of the construction. Controversial reports from various sources say the dam is unsafe and safe hydrologically and structurally. The information says the dam is outdated. There is an immediate need for deconstruction to build a new one to serve the needs, considering the safety, psychosocial suffering, and recent ecological events. The report produced by the UN gained significant attention with regard to this issue. The report listed Mullaperiyar as an aged and outdated construction that can cause a massive disaster to the state. The report further states that the construction method is concerning, leaks and leaching are noticed, and the seismic activities in the area created damages to the construction. The educational and socio-cultural nature of the Kerala public is well known, and their

⁸ Kerala seeks to decommission Mullaperiyar dam, says consequences of dam failure will be catastrophic, The New Indian Express, 28/10/2021([Kerala seeks to decommission Mullaperiyar dam, says consequences of dam failure will be catastrophic- The New Indian Express 'Wholly Impermissible' : Tamil Nadu Opposes Kerala's Demand To Decommission Mullaperiyar Dam \(livelaw.in\)](#)).

⁹

awareness is in various areas; Niti Ayog reports are the evidence. Various authorities and media provided narratives of the destructive nature of an unfortunate event.¹⁰

9.

Some experts mentioned, including the UN, around 3.5 million people could affect or lose lives, and the whole geographic heart of the state may change in the event of dam destruction. It has created fear and psychological distress in the people in Idukki, Kottayam, Ernakulam, Alappuzha, and Trissur districts due to various reports made available in the public domain. Public protests, evacuations, and distress messages in these districts are common during monsoon season.

The river's natural course was diverted to serve the agricultural and daily needs of the people of Tamil Nadu state. The southern districts of Tamil Nadu, including Theni, Dindigul, Madurai, Ramanathapuram, and Shivaganga, are the beneficiaries of the Mullaperiyar dam project. The water from the Mullaperiyar river is critically important for these districts to meet the ever-increasing water demand. However, no significant studies have been conducted to assess the impact of redirecting a river before construction. Environmentalists opined that it had made a significant ecological impact on the flora, fauna, and natural course of water flow during heavy monsoon in the region¹⁰. However, considering the benefits, the Mullaperiyar project has always been considered a life-saving mission.

3) Eco-sensitive nature and recent climatic changes

The project is situated in the eco-sensitive areas of Western ghats, and the recent changes in the climatic situation are alarming. Heavy rainfall and extreme events like cloud bursts and very frequent in the state for a few years¹¹. The devastating flood in 2018 and 2020 drove the public toward catastrophic situations. The Idukki dam shutter was opened after 26 years in 2018 during the flood and again in 2021. These are indications of a faster climatic change and alarming situations. The 2018 flood caused massive damage to the state in terms of loss of lives (more

¹⁰ Mullaperiyar dam found to be hydrologically, structurally & seismically safe: Tamil Nadu to SC, (13/11/2021)The Economic Times.

than 450) and financially (approximately 20000 Crores)¹¹. Various expert committees evaluated the eco-sensitive nature of the state and reported the sensitive nature of different regions of the Idukki district¹². The report mentioned the geographical region of Mullaperiyar as eco-sensitive. The reports urged to stop any construction or mining activities in sensitive areas. Kasturi Rangan's report and Madhav Gadgil's reports are important documents supporting this fact. These reports also mentioned these regions' bio-diversity and its protection through most minor human interaction and construction. The disaster management authority of the state mapped the area as flood-prone. Various other Government agencies mapped it as a high seismic activity zone and the risk. The agencies are located nearby regions of the project prone to an earthquake of 7 with a high impact. A study conducted by The Centre of Earth Science Studies (CESS) expressed concern regarding the safety of this structure and added that it is skeptical whether it can withstand an earthquake above six on Richter Scale, followed by many similar studies.

4) Public Health and Social Aspects

Once flourished water body has been directed as a lifeline to millions of people in Tamil Nadu. However, the impact on the ecosystem also needs consideration. Alterations in waterways result in ecosystem damage, environmental calamities, and climatic changes. But in the present situation, a prominent issue is the safety of the public living below the Mullaperiyar dam. An unfortunate event of dam destruction can cause unpredictable damage to the state of Kerala.

Nonetheless, experts predict that it may be one of the biggest disasters in Indian or global history. A recent similar event in Uttarakhand, the 2021 dam, burst and claimed more than 100 lives¹⁶. Mullaperiyar is a massive gravity dam construction with a height of around 176 feet and 1200 feet long. There is a total water capacity of 443230000 cubic meters with about 5398 KM square catchment area.¹³ The impact of a burst is unimaginable and enough to alter the

¹¹ A Study of Environmental Impact Due to Construction and Operation of Dam, National Conference on Eco-Friendly Manufacturing for Sustainable Development, November 2010.

¹² Hazard Maps-Kerala State Disaster Management Authority ([Hazard Maps – Kerala State Disaster Management Authority](#)).

¹³ The National Registry of Large Dams, 2009 (<http://www.cwc.nic.in/main/downloads/National Register of Large Dams 2009.pdf>).

geographical map of the state of Kerala. Such an event can move the state to a series of psychosocial issues, post-traumatic issues, epidemics, etc.¹⁴

Monsoon in Kerala is often heavy, and recently recurrent floods have been common. People below the dam mapped in the disaster zone are under threat and psychological distress as the water level rises. Evacuations and moving to rehabilitation camps are now regular activities for the people who live on Periyar banks. Year after year, the demand for the people to secure the dam of decommissioning to build another one is in discussion among politicians, court, national and international forums; however, no active measures have been conducted. It affects the well-being of people and causes psychological issues in children. The floods in 2018 and 2021 have caused severe damage to the state; many people suffer from post-traumatic stress, financial crisis, and other considerable issues. The state must ensure the safety of the people and their properties.

Conclusion:

Mullaperiyar is one of the unique interstate water-related humanitarian issues. The course of the river Periyar and dam is situated in Kerala, and Tamil Nadu undertakes the dam management and utilization of water. The conflict between these states is not regarding water exchange but the safety of a 126 years old structure built under primitive technologies and limited resources. Experts suggest two solutions; the prominent one is decommissioning the structure to make a new one. The second is building an additional tunnel to resolve any disasters by immediate water evacuation in need. However, recent aggressive climatic conditions, high seismic activity in the area, and various reports regarding dam safety concerns are imperative to decommission or strengthen it. Legal debates are always under consideration between the two states, but the public living under threat is the victims to suffer psychologically, financially, and due to natural calamities. Both Kerala and Tamil Nadu are equally concerned about this issue regarding safety and avoiding a colossal disaster, while the second one depends on this life-saving water source. Clinging to an agreement made in the pre-independence era and legal formalities' are distressing the public who live below a huge danger, and an unfortunate event is unpredictable. This issue

¹⁴ Uttarakhand's Tapovan Dam "Completely Washed Off", Shows Initial Survey, NDTV, Vishnu Soman, 02/08/2021 ([Uttarakhand Glacier Break: Tapovan Dam Completely Washed Off, Shows Indian Air Force Survey \(ndtv.com\)](https://www.ndtv.com/uttarakhand-glacier-break-tapovan-dam-completely-washed-off-shows-indian-air-force-survey-1.4711111)).

needs the attention of lawyers, policymakers, technology experts, and national and international authorities to make an amicable solution.