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AN EXAMINATION OF THE 2018 KERALA FLOODS: EXPLORING CAUSES, IMPACTS AND RESPONSES

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Abstract: During the months of June, July, and August of 2018, the State of Kerala had very strong rainfall. This period coincides with the Southwest Monsoon rains, which are a crucial source of rainfall for the state's agriculture-dependent economic. Thiruvananthapuram (14), Alappuzha (11), Kollam (13), Ernakulam (8), Idukki (9), Kottayam (10), and Thrissur (7) were areas impacted. The water levels start to drop by July 21st, at which point people start returning home. Flooding has been greatly impacted by the geographical arrangement of the land and water. Damage has been caused by high tides and marine erosion in coastline belts. Rivers that have overflowed—there are 44 major rivers in the state plus their tributaries—have flooded nearby areas. Idukki, Palakkad, and Malappuram's highlands are highly vulnerable to landslides, which happen suddenly and release water that is subterranean. The Vembanad Lake serves as one of the main backwaters in the upper Kuttanad region, which causes periodical flooding there. It is drained by the Periyar, Achankovil, Meenachil, and Pamba, four significant rivers. Additionally, the region lies under the level of the sea. The fact that dam mismanagement contributed to the floods is another topic heavily covered in news stories from the period. In July, the dams did serve as flood cushions, storing water to regulate the flow of water in rivers below. Yet, the state's rainfall saw a break into the monsoon during the period of July 22 August 2, and during that time, dam administrators failed to take advantage of the opportunity to manipulate the water levels in the dams to effectively serve as flood cushions. Instead, they concentrated on retaining the most water in order to produce the most electricity. In this case, the dam management organization responded by retaining water in the dams until their FRLs, after the point at which they discharged water onto downstream rivers, after the state's water bodies were subjected to the stress of an excess 169% rainfall during the period of August 1–21, 2018. Since the majority of the state's large dams are situated in the south, they are unable to be taken into account while examining the effects of flooding in Northern Kerala, particularly in Wayanad, Malappuram, and Palakkad. The Mullaperiyar dam, which is situated in Kerala but shares waters with Tamil Nadu, has its operating manual with Kerala, which the Tamil Nadu government has been slow to provide. The state government of Tn continued on holding onto water even after receiving an order from the Supreme Court to lower its water level below the 142-foot Flood Risk Level. Kerala is extremely concerned about the delay and the brittleness of the coordination and management of the Mullaperiyar waters, both now and in future periods.

Index Terms **-** Floods, human rights, civil society groups, common property resources, natural disasters

I. INTRODUCTION

Kerala, a coastal state with a diverse terrain of mountains, rivers, and backwaters, is heavily dependent on industries that are vulnerable to the climate, including farming, plantations, fishing, and forestry. These industries are vital to the impoverished and laborers on the margins. with 3.3 crore people living in 38,863 square kilometers, or roughly 860 people per square kilometer. The state's lack of productivity is exacerbated by sand mining, quarrying, reclamation of wetland areas winds, sea erosion, soil piping, and fast changes in land-use and land-cover, both legal and illegal (KSDMA, 2016). The state is quite small—its overall area makes up only 1% of the nation's total size—but it spans 580 km across the Malabar coast, with widths ranging from 30 to 120 km. The states of Tamil Nadu to the east, Karnataka to the north, and the Arabian Sea to the south and west all about it[1]. The high population density, growing housing demand, fast-paced infrastructure development, and numerous dams on rivers without thorough spatial planning procedures put the state at risk for natural disasters and the effects of climate change. With a high percentage of literacy, a high Human Development Index, and other welfare metrics, the state is among the most in terms of socioeconomic advanced in all of India. The 2018 July–August floods are regarded as the most severe in a century. Weeks of intense rains flooded Kerala's coastal areas, set off landslides in the mountains, and forced dams to open their shutters. More than 500 deaths and over one million individuals being evacuated have been reported by the news outlets.

[1] Hunt, Kieran MR, and Arathy Menon. *The 2018 Kerala floods: a climate change perspective*, 54(3) Climate Dynamics. 2432, 2433-2446 (2020).

II. COMMON PROPERTY RESOURCES

Kerala's common land assets are mostly found in the coastal region and forests; the former is important for tiny fishing communities because of their reliance on lagoon and coastal waterways for their source of income. The concerted action of the community members in protecting these common property resources they access is partly responsible for the fishing villages' sustained existence against large-scale industrial entities. The latter is especially important because forests cover almost one-third of the state's land area. A tiny but sizable and neglected tribal community exists in Kerala, particularly in the Western Ghats highlands adjacent to the state[2]. These indigenous people' reliance on rivers, ponds, woods, and other natural resources for their livelihoods is a contentious issue that goes against the state economic system's and the country's overall development objectives. Thankfully, tribal populations have become better prepared to secure their rights through legislation like the "Panchayats (Extension to Scheduled Areas) Act", 1996, and Forest Rights Act, 2006, thanks to civil society actions and members of the community's efforts to promote conversation on these topics of contention. The welfare of groups that keep depending on their ancestral methods of subsistence, such as the tribal communities living in forested areas and small-scale fishermen living along the coast, depends on the recognition of the right to common property resources and their management in Kerala and throughout the nation. Civil society intervention and sustainable solutions that can allow these naturally poor and marginalised groups to prosper, protect the natural world, and avert a "tragedy of the commons" are required due to the divergent goals among the state's growth goals and the desires of the private participants in the marketplace for the same assets.

III. HUMAN RIGHTS BASED APPROACH TO DISASTER RISK REDUCTION

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IV. CONCLUSION

Kerala's reaction to the accident and subsequent rehabilitation were excellent. The army, navy, and air force all conducted prompt and efficient rescue operations in addition to the state officials' collaborative efforts. The group of physicians and other experts worked nonstop to assist and care for the afflicted. Aside from this, Kerala provided evidence of the important influence that volunteerism and civic engagement can have in responding to disasters. During the floods, the fisher-folk aggressively used their traditional abilities and expertise to rescue lives. It is true that their perseverance and willingness to help others were inspiring. The capacity of the government to use its decentralized model of growth planning for a sustained recovery while ensuring responsibility for those impacted is a strategy that was accepted and just mentioned[4]. It promises to be a unique management creativity. Going beyond the rapid pace that the government replied to the emergency and how it mobilized its own roles. With input and cooperation from those impacted by the flooding, the administration is working to rebuild Kerala as a more resilient state through the "Accountability to Affected Populations" project. Using a complete set of standard instruments and standards to represent the demands sectorally, this project has built a system to gather information on the post-disaster needs and input of those affected while accounting for gender and community diversity. Through the assistance of "Kudumbashree, the Local Self Government Department's (LSGDs) Self-Help Group network", the method was implemented throughout the districts affected by the floods. "The State Disaster Management Authority" and a few additional agencies of the Keralan government receive immediate data from the system. Kudumbashree established this ground breaking project in India, allowing for a link among continuing development planning procedures, humanitarian relief, and long-term recovery. Additionally, it is anticipated to support resilience-building and readiness for future disasters, should they occur[5].

[2] Mishra, Vimal, et al, T*he Kerala flood of 2018: combined impact of extreme rainfall and reservoir storage*, Hydrology and Earth System Sciences Discussions. 1, 1-13 (2018).

[3] Mishra, Vimal, et al, T*he Kerala flood of 2018: combined impact of extreme rainfall and reservoir storage*, Hydrology and Earth System Sciences Discussions. 1, 1-13 (2018).

[4] Mehrishi, P., Kundu, A. and Thakur, I.S, *An Appraisal of Kerala Flood-2019*, 50(8) Journal of the Indian Society of Remote Sensing. 1562,1563-1567 (2022).

[5] Parthasarathy, K. S. S., Paresh Chandra Deka, Subbarayan Saravanan, Devanantham Abijith, and Jesudasan Jacinth Jennifer. *Assessing the impact of 2018 tropical rainfall and the consecutive flood-related damages for the state of Kerala, India*, In Disaster resilience and sustainability Elsevier. 378, 379-395 (2021).

V. SUGGESTIONS

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