

Kerala floods, impact and mitigation

Vivek S Kumar

Dolphin (PG) College of Science and Agriculture, Fatehgarh Sahib

Corresponding author- viveksk26@gmail.com

ARTICLE ID: 031

Abstract-

Kerala has been facing devastating floods consecutively for the past 2 years. Heavy rainfall, cause filling of the dams to its brims, resulting in the opening of barriers which intensifies the flood as it increases the water level in the already flooded regions. The impact of flood greatly affected the farmers and the agriculture industry of Kerala. Major reasons for the flood are excessive deforestation, mining, illegal encroachment and so on. Major reasons for the floods and the consequences of the new policies can be seen. Proper policies should be enacted by the Central Government, Ministry of Environment, Forest and Climate change, along with the Government -of Kerala, so to prevent such catastrophes in future.

Keywords: Ecological Hotspots, Flood, Gadgil Committee Report, , Soil piping, Western Ghats,

Introduction

Kerala is a state which is situated in the south western side of the Indian peninsula. It is the twelfth largest economy in India with 11.3% GDP contribution in agriculture (Centre for Development Studies.2017). The state is blessed with 44 rainfed rivers, 34 lake, innumerable small streams and innumerable water bodies. Coastal line runs about 580 kms in length and the state is geographically divided into 3 zones namely; Eastern highlands, Central midlands and Western lowlands. Kerala's climate is wet and maritime tropical influenced by heavy monsoon resulting in an average of 3107mm rainfall per year. The Western ghats are situated in the western region of Kerala sharing the topography with Tamil Nadu. The ghats form a wall of mountains penetrated near the district Palakkad, has a natural mountain pass which makes the entry into Tamil Nadu. The area is extremely susceptible to frequent torrential rainfall.

On the day **16th of August 2018**, the state was devastated by heavy floods, which was the after effect of unusual heavy downpour. It was indeed the worst flood which was faced by Kerala in the century. The people were extremely affected by this catastrophe. The heavy downpour resulted in about 80 landslides in the Eastern hilly areas of Kerala during a time span of 48 hours. Out of the 54 dams located at various locations in the state, 35 of them were opened as emergency measures. Around 483 people were dead, 153 went missing and the total damage caused by the flood in the year was approximately equal to ₹40 thousand crores (US\$ 5.8 billion).



Similarly on **8th of August 2019**, Kerala was affected by flood for the second time in the century, consecutively after the one in 2018. Flood was followed by frequent landslides. Many people were buried beneath the sand and clay. Large scale loss of houses and agriculture produce occurred. Livestock got drowned and drifted away. The total estimation of the losses have not been properly calculated yet. Loss of life was around 121 and many went missing. The subsequent floods which occurred in the state drastically affected the development of the state. Bridges, roads, waterways everything got destroyed beyond repairable condition. The main reasons for this kind of hazard is the overexploitation, overutilization and improper usage practices of the forest and the natural ecosystem. These issues resulted in large scale depletion of forest land, which eventually made the land more flood prone.

Causes for the catastrophe

The catastrophic flood was caused by the reduced capacity the state to deal with such extreme floods, mainly due to the processes which include illegal quarrying, large scale - destruction of forests, grassland and excessive manipulation of the river beds by the process of sand mining. Installation of quarries in large scale is the root cause behind the landslides

and landslips, as commented by Madhav Gadgil, founder of Centre for Ecological Sciences, IISc Bengaluru.

Ecologically sensitive areas were extensively used for the commercial purposes. When the **Gadgil Committee- Report** came in 2011, the Central Government and the Western Ghat states, including Kerala refused to accept the committee report.

The **Western Ghats** region have thick intense vegetation, spreading over 6 states; Kerala, Tamil Nadu, Karnataka, Maharashtra, Goa and western coastal area along Gujarat, covering about 160 thousand sq kms.

It is one among the world's 10 biological hotspots, habitat for around 7,402 flowering plants, 1814 non flowering plants, 139 mammal species, 508 species of birds, 279 species of amphibians, around 6000 species of insects and 290 species of fresh water fishes.

The ghat have intense vegetation cover which basically performs the function of a super sponge, soaking up all the excess precipitation. The **Gadgil Committee Report** suggested a classification of the Ghats into 3 zones namely **EZ1**; highest ecologically sensitive zone, followed by **EZ2**; moderately sensitive, where small scale development can be carried out and **EZ3**; where energy related projects and infrastructures can be allowed under strict regulations for the environment . But the report was not accepted by the Government due to various reasons. The large scale stone quarrying and riverbed sand mining continued with full might.

As time went on, the capacity of the land to withhold the soil and resist floods drastically got deteriorated. Loss in vegetation caused increased soil erosion and thus causing the rainwater to flow and flood without any restrictions. A particular phenomenon which is rare in the area, called **Soil piping** emerged. It is commonly known as **soil contact erosion**, as water seeps along the interface in the junction of coarse soil and fine soil, eroding the particles from the finer layer into coarser counterparts. Torrential rain and strong current in of the water sources beneath the soil contribute to this phenomenon. It begins as erosion caused by underground water, later on creating an underground tunnel known as the soil pipe. As the time passes, the continuous flow of water along the soil pipes deteriorate or erode the surface earth causing the collapse of the land above. This study was conducted upon in response to

the investigation of the flood by scientists from National Centre for Earth Sciences Studies (NCESS)

Also drastic change in climate also plays a key role in causing such intense level of precipitation. Extreme rains were triggered by a depression or low pressure are in the Bay of Bengal near the Odisha coast . This depression strengthened the monsoon currents across the Arabian sea causing an intense convention over the state of Kerala. Heavy siltation of the rivers also promote overflowing causing rapid floods. The failure of the Government to restrict rampant quarrying resulted in overexploitation of the wetlands. Also the lack of flood warning from **Central Water Commission**, the only Central Government agency aggravated the issue.

The Way Forward

The time has come for everyone to make appropriate decisions in order to prevent these things in the future. Recently **MoEF & CC** under the Central Government, drafted **Environment Assessment Impact 2020**, which solely monitors the impacts and the effects caused by development and commercial processes which is about to be carried out in these ecological zones. EIA consists of 4 steps which are Screening, Scoping, Public hearing and Appraisal. It has decentralized the environment clearance projects.

Even though it is said that EIA is drafted keeping the environmental conservation in mind, it has been found that it may cause more harm than good, causing problems like floods even more. Major criticism include lack of experts in the commission, using same protocol to study about different types of regions, lack of transparency in the policy and the data collectors did not respect the knowledge of the indigenous people inhabited in these areas.

Also the State Government should also give much more importance to protect these sensitive zones, rather than permitting the companies to mine in these areas.

Awareness should be created widely among the public so that they would force the government to open up their blind eyes to these illegal operators. Quarrying should be banned in ecologically sensitive areas. The wetlands and mangroves should be protected with at most care and locals should be made aware about the importance of mangroves in resisting flood and soil erosion. The reservoir regulations should be properly planned and amended regularly to avoid mishaps in future. The most important action is that the government should

reconsider about the **Gadgil Committee Report** and make appropriate changes in the policy with respect to the report.

It is the need of the hour for the public to put more emphasis on climate related matters as our forests are under constant threat. Environmentalists and Scientists should be given due respect as they work for the conservation of nature. Their works should be appreciated and given emphasis in the most respectable manner. Political parties must strive for bringing excellence in conservation programmes rather than merely striving for political power. Everyone should give emphasis to conservation and protection of the nature as it's a matter on survival.

“For the true nature of things, if we rightly consider, every green tree is far more glorious than if it were made of gold and silver” as quoted by **Martin Luther King Jr**, every tree is more worth than itself made in gold or silver. Trees have to be treated with full respect and we humans should rather limit ourselves from exploiting these treasures, as if we are entitled to do so. Only through change in mentality and collective approach such natural calamities can be prevented as humans play a major role in the creation of such hazards by various selfish activities. Let us all dream for a future without any natural disasters and development backed by the most sustainable methods.