

Analysis of August 2018 Disaster in Kodagu: An Overview

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INTRODUCTON

Kodagu is one of the most beautiful hill stations of Karnataka. The picturesque coffee and spices plantations of Kodagu are the most noticeable hallmarks of the district. The district is blessed with rich flora and fauna. The tourist destinations, pleasant weather conditions and scenic beauty bring a large number of domestic as well as foreign tourists towards Kodagu. The adventure activities, eco-tourism spots, festivals, sports events, rich heritage, calm atmosphere, hospitality etc., of Kodagu makes the district a perfect place for tourism activity.

Kodagu also known as Coorg, is the smallest district in the state of Karnataka. It is one of the most beautiful hill stations in the state. It is situated in South-Western Karnataka, on the Western Ghats of India. It occupies an average of 4102 square kilometers in the Western Ghats and is bordered by Dakshina Kannada district to the North West, Hassan district to the North, Mysore district to the East, Kannuru district of Kerala to the South West and Wayanadu district of Kerala to the South. The main river in Kodagu district is the Cauveri, which originates at Talacauvery, located on the Eastern side of Western Ghats.

Even though Kodagu is the smallest district in Karnataka in terms of its population; it has the highest proportion of rural population in Karnataka. Kodagu produces one third of India's coffee and is called the 'Coffee Cup' of India. Kodagu is the land of coffee, pepper, cardamom, honey and orange.

The district enjoys typical tropical climate characterized by slight to medium humidity. Kodagu is known for its pleasant climate, heavy rainfall and cool summer. A major part the of year is accompanied with monsoon which starts in June and last till the end of September or October. The period from December to February is the cold season marked by a bright weather, foggy mornings and pleasant and cool night. The temperature during day begins to rise sharply during March. Generally June, July and August are the months of heavy rainfall and the precipitation in July is increscent and very heavy. The rainfall is found to be decreasing as one proceeds from the western part of the district to the eastern part.

Natural disasters are catastrophic events with atmospheric, geological and hydrological origins. They are sudden events caused by environmental factors that damage property and injure life. Declaration of disaster depends on gravity or magnitude of situation, number of victims involved, time factors i.e. suddenness of an event, non-availability of medical care in terms of space equipments, medical and paramedical staff, medicines and other basic human needs like food, shelter and clothing, weather conditions in the locality of incident etc, thus enhancing human sufferings and create human needs that the victims cannot alleviate without assistance.

DISASTER IN KODAGU DISTRICT

Kodagu was worst hit by the South West monsoon rains. The rainfall recorded in August broke all records in living memory; it was back in 1931, that Kodagu last received such heavy rainfall. During 2018-19 the district received highest rainfall which was recorded 118 years ago. On July 9th 2018, after a gap of five years a mild tremor shook part of southern Kodagu, with the epicenters being 10 Km below the ground between Madikeri to Sampaje. In the course of 15th, 16th and 17th of August Kodagu received 768mm of rainfall, which was almost half of the entire rainfall received in the month of August, which was 1675mm. The rain that fell over a period of 72 hours made things worse in Kodagu. As a result of heavy rainfall Madikeri and Somwarpet taluks witnessed increased number of landslides and flooding.

The landslides swallowed entire 48 villages of Madikeri and Somwarpet taluks. The rivers were shifted and lands were left unrecognized. New mountains and rivers were created due to landslides and flooding. Thousands of people including the aged and children walked for miles together fearing for the terrifying sounds

that were heard during the landslides. Thousands of people remained stranded on various hills of Kodagu .Kodagu district was put into total darkness for about a month.

Entire Kodagu district was in a fear of complete destruction .The only thought each family in Kodagu had, was only to save their lives. The people of Kodagu considered life to be very precious rather than safeguarding their property, vehicles, ornaments and other monetary benefits.

Heavy rainfall and landslides caused fearsome sounds that shattered the life of thousands. People climbed hills, crossed rivers and walked miles together through forests to reach the safe places. People ran for their lives even in the total darkness, lifting the little ones and carrying the aged.

A strong feeling of brotherhoodness was bound to people during the disaster to help the needy. The rich and the poor were all together under the same shelters. There are incidences were people have thrown their own life to risk inorder to render their maximum help to others.

People mourned for their pet animals, which were left in unsafe places. Dogs, cattles, hens, pigs and cats were released free to escape from danger. The people of Kodagu spent sleepless night in fear. The people witnessed the worst situation which was never heard or seen before.

OBJECTIVES OF THE STUDY:

1. To analyse various causes for disaster in Kodagu district.
2. To analyse consequences of disaster in Kodagu district.
3. To analyse the impact of disaster on various sectors of Economy of Kodagu.
4. To suggest precautionary measures to manage disaster.

Scope of the Study:

This paper analysis the disaster occurred in Kodagu district, various causes and consequences of disaster and also makes some recommendations. The study area comprises of two taluks of Kodagu district namely Madikeri and Somwarpet.

Consequences of the Disaster in Kodagu District:

Disaster in Kodagu has created worst effects on mankind, property, flora, fauna and so on. Due to disaster different sectors of Economy of Kodagu has failed. The following table reveals the consequences of disaster in Kodagu district.

1	Mankind	20	
2	Cattles	144	Rs.25.00 Lakh
3	Public property		Rs.1,40,294.41 Lakh
4	Crops	130633.88 hectors	Rs.50,672.20 Lakh
5	Damages of residential houses	3916 houses	
6	Complete destructions of houses	840 families	

Source: District Commissioner office, Kodagu district.

The above table shows the consequences of disaster occurred in Kodagu district in the month of August, 2018. The table reveals that twenty deaths were reported. Nearly 144 cattles worth value of Rs.25.00 Lakh were swallowed in the disaster. Approximately Rs.1,40,294.41 Lakh worth value of Public properties were completely destroyed by the disaster. Nearly 1,30,633.88 hectors of agriculture crops, coffee and other plantations as well as horticulture crops ,worth value of Rs 50,672.20Lakh collapsed. About 3916 residential houses were damaged and 840 houses were completely swallowed by the disaster.

Relief Center:

Kodagu District Administration started relief centers in various parts of Kodagu to provide temporary accommodations to disaster victims. Following table shows number of relief centers and disaster victims.

As on 15 th August 2018		At present	
No of centers	No of victims	No of centers	No of victims
51	6696	01	24

Source: District Commissioner office, Kodagu District.

The above table shows that on August 15th 2018, Kodagu district administration started 51 relief centers in various parts of Kodagu district and provided temporary accommodations to 6696 disaster victims. At present only one relief center exists at Kallugundi and is providing accommodation for 24 disaster victims.

Crops Loss:

Disaster in Kodagu district completely swallowed agriculture crops, coffee, horticulture crops, cardamom and so on. Thousands of hectares of agriculture and horticulture land is completely covered by mud. The following table shows loss of crops due to disaster, estimated by joint survey conducted by Revenue Department, Coffee Board, Spices Board, Horticulture and Agriculture Department.

Sl.No	Crops details	Crops loss (in hectores)	Value of loss(Rs in lakh)
1	Agriculture	9230.69	797.17
2	Agriculture covered by mud	695.31	84.83
3	Coffee	102080.00	38600.00
4	Coffee field covered by mud	551.43	--
5	Horticulture	18013.45	11190.20
6	Horticulture land covered by mud	63.00	---
	Total	130633.88	50672.20

Source: Source: District Commissioner office, Kodagu District.

The above table reveals loss of crops due to disaster in Kodagu district. According to joint survey report nearly 130633.88 hectares of agriculture crops, worth value of Rs 50672.20 lack was completely destroyed by the disaster.

REASONS FOR DISASTER IN KODAGU DISTRICT:

1. Deforestation for Tourism Growth and infrastructure development:

The slopes of Kodagu were covered with thick green cover. But from past few years, trees on the hill slopes and forest regions are cut for the construction of homestays, resorts and jungle lodges. With the increase of deforestation the barrier for soil erosion also disappears leading to more flooding and landslides in rainy season. The growth of layouts has resulted in massive destruction of forest. The soil from landslides landed in the river streams and turns to be the main reason for flooding in Madikeri. The course of water has been blocked by the mud and water from streams and tributaries have gradually flown to lower lying areas. Loss in forest cover can be attributed to infrastructure development and commercial building.

2. Massive deforestation in Kodagu due to timber mafia:

The activities have managed to vanish hill tops and fracture rocks. Deforestation has loosened the soil and the heavy rainfall has acted as catalyst for erosion. The Forest Survey of India's state of Forest Report shows that, since 2007 Kodagu has lost 88Sq km of forest, while very dense forest remain well protected and have risen dramatically, moderately dense and open forest; many of which fall in private property have come down by 654Sq km since 2015. Many researchers have pointed out that the replacement of native trees, with silver oak has let to greater soil erosion. Many studies have shown that Kodagu lost 30% of its dense tree cover in three decades. According to Global Forest Watch, Kodagu district suffered a loss of approximately 2908 hectares of tree cover between 2000 and 2017.

3. Illegal sand mining activities:

Landslides occurred in areas where sand mining had weakened the ridges which kept rain water at bay. The ridges along the buffer zone of river Cauvery witness illegal sand mining. As a result the embankments have become weak and have failed to withstand heavy water flow when the river swelled up.

4. Increase in water level:

Due to heavy rainfall the ground water level increased and the water table fluctuated. Investigations have found that the sound heard in places like Karike was a result of groundwater movement.

5. Construction of Massive ponds:

Coffee estate owners in Kodagu have constructed massive ponds to store rain water for various irrigation purposes. The massive ponds are unable to withstand the pressure of heavy rainfall and massive water flow. Thus resulting in massive landslides downstream.

6. Decreasing vegetation on slopes:

During heavy rainfall, the water percolates the slopes; it results in erosion of soluble mineral salts in the rock mass, thereby creating fracture. This disturbs the strength of the slopes resulting in landslides.

7. Illegal activities:

The quarrying, destruction of reserve forests and encroachment of forests added to the damage. The anthropogenic activities, vehicular movement and natural activities are related to the disaster.

8. Minor earthquake:

Indian Meteorological Department says that a minor earthquake had hit Kodagu region without providing any substantial evidence. The Karnataka State Natural Disaster Management Centre (KSNDMC) noted that, the quake to have registered 3.4 on the Richter Scale on August 9th at Southern Part of Kodagu, with the epicenter being 10km below the ground between Madikeri and Sampaje.

9. Unscientific Road construction:

The topography of Kodagu district is sensitive and any changes in the land use causes landslides or slope failures. Development of unscientific road connectivity causes instability in the hilly terrain. Constant use of earth movers and drillers is the main cause for landslides in Kodagu district.

10. Drop in elevation of river Cauvery:

The sudden drop in elevation of river Cauvery from Talacauvery to Bhagamandala is the root cause for flooding in Bhagamandala area. The eastern parts of Kodagu including Madapura, Kalur, Mutlu, Hattihole, Hammiyala, Soorlabbi and surrounding areas around Harangi reservoir are characterized by low and gentle slope. During heavy rainfall floods tend to occur in such place.

Rescue:

The Multi agency rescue mission in flood ravaged Kodagu district scouted for individuals who were left behind. The volunteers, NGOs, localities and government servants worked day and night to help the needy.

The rescue team drawn from the Dogra Regiment of Indian Army, NDRF, SDRF, Home Guards, Quick Response Team from the Civilian Defence, Fire and Emergency Service Personnel, NCC cadets, NSS Volunteers, Other service groups and other Volunteers screened houses in alerted regions.

The Air Force had alone continuing efforts to airlift the stranded or drop food packets. M17 Helicopter were used in rescue operations to airlift the marooned. Chlorine tablets were distributed in relief centers. Health camps were conducted to take preventive measures.

Findings of the study:

1. Misuse of relief materials: Numerous organizations and volunteers were sending vehicles loaded with basic requirements. But most of the loaded vehicles were directed to the personnel use of individuals. Materials were dumped into go downs and most of the disaster victims were denied from materials. The people who were not affected by disaster also enjoyed the materials. There were incidents where people of unaffected villages also landed in the relief centers to grab the materials. No proper accountability was maintained in relief centers regarding collection and distribution of relief materials.

2. Caste or Community based distribution: People belonging to different communities were under the same shelter in the relief centers. But a shadow of inequality was witnessed in all relief centers regarding distribution of materials. Few relief centers turned to be caste based centers were victims of only particular castes benefited.

- 3. Failure of the government in channelizing facilities:** The district received vast amount of helping hands. Several NGOs and individuals announced huge amount to help the disaster victims. But the victims have not received monetary benefits according to the loss occurred. The Government has failed to pay compensation and allot houses or land to the victims who have left homeless. Several families have migrated to faraway places as the affected areas have not received any help from the government. Heavy rainfall in the district has completely decreased crop yield. The government has failed to provide monetary benefits to farmers too.
- 4. Effects on human health:** The disasters in Kodagu district have replayed in the minds of disaster victims causing panic and anxiety. Several victims have being suffering from mental illness and shock due to disaster. The death and decaying of various animals and polluted water flowing adversely affect on human health. There is fear of increasing contagious disease in affected areas. The lack portable drinking water has raised high chances of disease.
- 5. Publicity in the name of relief work:** Most of the people have joined in relief work only for the purpose of publicity. The huge banners that were stuck to vehicles were of high quality and cost of money. The money used in such banners could have been distributed to the victims. The relief works were also made news in social medias
- 6. Decrease in Tourism sector:** Kodagu tourism has hit hard after the disaster. Tourism has taken a severe beating since August. The severe floods and landslides have discouraged tourists to visit the hill station. The tourists spots have lost their demand and the disaster tourism has taken over and visitors are being taken to have a curious visit to the tragic spots.
- 7. Loss of Income:** Due to disaster in Kodagu, People have lost their agricultural, horticultural and plantation crops. With decrease in tourism activity the home stays have started to run in loss. People who are operating homestays and lodges after investing lakhs of rupees have been badly affected. Spices shops, street vendors, hotels and various shops are very badly affected without business in recent days.
- 8. Decrease in employment opportunities:** Migrants in search of work from various places have stopped stepping to Kodagu. Loss in business of homestays, hotels, lodges, and various shops have made many people jobless. Decrease in agricultural crops has decreased the employment for people who work in estates and fields on daily wage basis. As government also made restriction on construction works, hundreds of people have migrated in search of job to faraway places.
- 9. No clarity is given regarding the disaster:** No clarity is given to the society regarding the accurate reason behind the disaster .People are still in the confusion state as tragedy was due to natural causes or man-made causes. Researchers show various reasons like earthquake, deforestation, heavy rainfall and so on. But government is not ready to publish actual cause for disaster in Kodagu.
- 10. Severe water problem:** After the disaster many places in Kodagu district is facing the phenomenon of drying up of wells, rivers and other water sources, excessive heat and lack of drinking water. Several coffee growers have experienced the drying of coffee beans due to excess heat .In most of the rivers, red soil has surfaced along with washed away trees and rocks. Flood victims have experienced difficulty in fetching potable water as muddy water still remains in rivers and ponds. Bore wells are not helping in getting drinking water as the ground water has depleted in short span of time. Most of the mountains ranges have collapsed and waterfalls have gone dry. Experts say that groundwater could have been redistributed. When the water in river declines, the ground water table goes down.
- 11. Plantation face heavy loss:** Heavy rain and landslides had eroded the top soil and excess moisture damaged the coffee estate. Due to the natural calamity the output of berries in the district will be around 45,000 tonnes less. Due to heavy rainfall and excess moisture many plantations have seen block rot incident and bean droppings. Many estate owners have experienced sudden destruction of pepper due to heavy rain.
- 12. Migration and death of wild animals:** Kodagu experienced huge forest loss in the disaster. Several wild animals from the affected areas have migrated to safe places. Many wild animals were found death in affected areas during the rescue operation.
- 13. Decrease of land value in affected areas:** Real estate has fallen to ground after the disaster in Kodagu. Sudden decrease is found in the land values in affected areas. The demand for land is also decreased in the affected places.

Suggestions:

1. Afforestation should be encouraged and strict action against massive deforestation.
2. Various awareness programmes should be organized in educational institution and public places to create awareness regarding protecting the environment and maintain ecological balance.
3. Tourism activities in Kodagu indirectly reflect on the illegal activities caused to damage Mother Nature.
4. Government should take necessary measure to control the flow of tourists arrival to Kodagu.
5. Modernization and development should not cross the limits of nature. Hence the government and society should join hands together to fewer burdens the environment.
6. Necessary measures should be taken against unnecessary utilization of earth movers and drilling machines.
7. Restrictions should be brought in growing silver oak trees in vast areas, as the root of silver trees do not penetrate deep into the soil, which cannot control the soil erosion.
8. The old concept of planting a tree per house should be encouraged.
9. It is the duty of the government to cultivate scientific method in construction of roads.
10. Controlling measures can go in vain due to political pressers. Hence political pressers strictly need to be neglected.
11. Stepped farming should be followed in hilly areas, with contour bounding which hold the soil intact during heavy rains.
12. Policies by Government to prevent construction of building by flattening hilly surface and on paddy fields.
13. Rules of homestays and resorts should be tightened to prevent unchecked growth.
14. Natural forests should not be replaced by plantations.
15. Strict action should be taken against timber mafia.
16. The main reason behind landslides is because of the rampant terracing of hill slopes by cutting trees. Hence deforestation should be avoided and afforestation should be encouraged.
17. Strict action should be taken against illegal sand mining, quarrying, and destruction of reserve forests and encroachment of forest lands.
18. Government should restrict construction activities and use of land.

CONCLUSION:

The unforgettable disaster that took place in Kodagu after 118 year caused incredible damage to life and property. Entire villages were consumed by landslides. In the name of development mother earth was given all pressure that could not be tolerated. The natural calamity that occurred in Kodagu is due to both natural and man-made factors.

Kodagu was completely ruined in the name of tourism development. Hence the disaster that hit Kodagu is actually a road to recovery. The key factor to rebuild Kodagu lies in respecting Mother Nature.

Nature has given a lesson to the society that if mankind challenges mother earth, then definitely nature will challenge the mankind in a negative manner. It is the duty of each individual to allow nature the way it is and grow more and more number of trees that help in building healthy environment. We should strongly believe that disaster occurs only because of ignorance and it is a learning process.

The people of Koagu should not loose hope as disasters are usually good time to re-examine what we have so far, what mistakes we have made and what improvement should come next.

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