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**A STUDY ABOUT POST-FLOOD IMPACTS ON FARMERS OF
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ABSTRACT

From second week of August 2018 onwards the torrential rain and flooding damaged most of the districts of Kerala and caused the death of 483 civilians and many animals. That was the worst natural disaster to strike the southern Indian state in decades. Government of India declared it as level 3 type means "Severe" type calamity. 13 Districts were severely affected with the consequences of flood among which Wayanad and Idukky had gone through several landslides along with flood and left isolated. This micro study focuses on the psycho social and economical aspects on farmers who faced the flood. The study also highlights to develop projects, strategies to mitigate losses now and in future. Both primary and secondary data were collected and analyzed the issue. This micro level study highlights the impacts of flood on society especially farmers. This study will help in framing the sustainable action plans in agriculture sector especially at rural villages to reduce the intensity of losses during calamities.

KEYWORDS: *Farmers, Flood, Stakeholders, Sustainable Action Plan, Micro Study*

BACKGROUND

State of Kerala, having a population around 3.3 Crore, is globally recognized for its impressive achievements in human development. Within India, Kerala ranks first among Indian states on the Human Development Index (HDI). In 2015-16, Kerala was among the top five Indian states in terms of per capita state domestic product and among the top four in terms of growth in per capita income. Many other human development indicators for Kerala are at par with those of developed countries. Kerala, however, is highly vulnerable to natural disasters and the changing climatic dynamics given its location along the sea coast and with a steep gradient along the slopes of the Western Ghats. Floods are the most common of natural hazard in the state. Nearly 14.5% of the state's land area is prone to floods, and the proportion is as high as 50% for certain districts. Landslides are a major hazard along the Western Ghats in Wayanad, Kozhikode, Idukki, and Kottayam districts.

From first week of August 2018 onwards, Kerala experienced the worst ever floods in its history since 1924. During this time, the state acknowledged cumulative rainfall that was 42% in surplus of the normal average. The heaviest spell of rain was during 7-20 August, when the state received 771mm of rain. The torrential rains triggered several landslides and forced the release of excess water from 37 dams across the state, aggravating the flood caused the death of 483 citizens and many animals. That was the worst natural disaster to strike the southern Indian state in decades. Government of India declared it as level 3 type means "Severe" type calamity. 13 Districts were severely affected with the consequences of flood among which Wayanad and Idukky had gone through several landslides along with floods and left isolated. More than 1 million people have been displaced and were recovered in relief camps after 80 dams were overrun due to rain. The Kerala State Disaster Management Authority has placed the state in a red alert as a result of the intense

flooding As per the primary analysis by the state agriculture department, around 56,844.44 ha of cropped area has been affected by the floods, causing a loss of Rs 1355.68 crore to 3.14 lakh farmers. Among the major crops, paddy and banana were the worst hit by the flood with 26,106 and 6,348 ha of crop damaged respectively. Apart from damaging paddy, the flood has upset or delayed the farming activities in Wayanad, which is expected to bring down the annual Heavy rainfall in the catchment areas of dams, were also accounted towards the reasons of flood. The predicted rains by Meteorological dept from August 9 to 15 were 98.5 mm but the state got 352.2 mm. As per socio political opinions, Inefficient dam management were also a reason towards this mishap.35 out of 39 dams were opened the shutters which resulted to increase in the gushing of water in townships and cultivation lands. Residents were forced to flee even at midnight and many of them lost their lives. According to the preliminary assessment; standing crops cultivated on 56439.19 hectares were destroyed which accounted for loss of Rs 1,345Crore. The worst affected cultivation was paddy resulted to loss of 25,934 hectares. After the fall in the prices of cash crops, majority of the farmers shifted to the dairy sector, considering it as a source of regular income however, loss of animals in the flood has taken away their livelihood away from them.

Farmers from Wayanad also had worst hit due to flood, Torrential rain, high humidity, cloudy atmosphere contributed to fungal diseases to most of the main crops such as pepper, coffee, areca nut, ginger etc. According to Regional agriculture research station, Wayanad, 1253 farmers lost most of their crops that covers about 610 hectors.

Major rivers such as Panamaram River, Kabani River and their sub streams flooded like never before and that led to displacement of more than twenty three thousands of families to the relief camps. The water gushed even to the farms of boarders of Kerala-Karnataka and lot of lease land ginger farmers and banana farmers lost their crops.

As per the instruction of the Cabinet Secretary, senior officers of Defense Services, NDRF, NDMA and secretaries of Civilian Ministries conducted meetings with Kerala Chief Secretary. They decided to launch massive rescue and relief operations. In one of the largest rescue operations, 40 helicopters, 31 aircraft, 182 teams for rescue, 18 medical teams of defense forces, 58 teams of NDRF and 7 companies of Central Armed Police Forces were pressed into service along with over 500 boats and necessary rescue equipments. Fishermen folks contributed to the rescue operations with their boats and they could help a huge number of people to escape from water logging houses. Relief assistance was provided to people in camps including immediate food supplies (rice, wheat, and pulses), drinking water, kerosene and other life-saving items. Food packets and assistance of INR 10,000 per family to clean inundated houses were also disbursed.

FOCUS OF THE STUDY

This study focus on the psycho social impacts on farmers who faced the losses and to develop projects to mitigate losses now and in future course of action.

OBJECTIVES OF THE STUDY

- To Identify the intensity of losses from ground levels
- To Promote support measures for farming communities especially psycho social support
- To provide data for concerned departments for further references and developing action plans

RESEARCH DESIGN

It is an exploratory micro study carried out in the flood affected 3 villages of Wayanad District. Samples were randomly selected and the sample size was 70 because of convenience. Both primary and secondary data were collected and analyzed the issue.

Inclusion

- Study focused only on flood affected farmers from Wayanad district of Kerala who have minimum cultivable land with area of 1 acre to 4acres.
- Included both male and female farmers who are ready to respond to interview.
- Included farmers who cultivate in lease land.

Exclusion

- Excluded the farmers who cultivate less than 1 acre and more than 4 acres.
- Excluded the farmers from Taluks where no floods reported.
- Excluded who are not willing to share the information.

SIGNIFICANCE OF THE STUDY

Wayanad, being the farming district of Kerala, having its merits and disadvantages. Any deprivations in agriculture sector could harm the backbone of this District whereas a series of farmers' suicides were reported from here since last decades. In this context, the impact of flood on the farming community should have prime concern and necessary projects should be identified, implemented to solve the crisis in war foot. The district lacks medical college or extensive health management systems and the connectivity from other parts of State is a real problem because of the altitude and national parks. This makes the slow access of help and support especially in terms of resource mobilization and rescue. So this micro study will bring about serious insights to the relevant issues to the official bodies, development workers, social workers, farmer societies, bankers etc to some extent .More over this will help to identify initiatives were farming communities could have opportunities to develop sustainable models to overcome such calamities in future.

RESULTS AND DISCUSSION

Table No.1: the showing about various aspects of impacts to farm

Sl. No.	Questions	Response			Total
		Yes	No	Don't Know	
1	Did your crops affected by flood or landslide in anyway?	70 100%	0 -	- -	70 100%
2	Did the flood affect your house and properties?	56 80%	14 20%	- -	70 100%
3	Did flood affect your cultivable dry land?	47 67.14%	23 32.86%	-	70 100%
4	Did you ever expect the flood in your homestead area?	26 37.14%	44 62.86%	-	70 100%
5	Did the flood badly affect the spice crops such as pepper, cardamom?	55 78.56%	15 21.43%	-	70 100%
6	Did the flood affect your short term crops such as paddy, ginger, vegetables	59 84.28%	11 15.72%	-	70 100%
7	Did you feel insecure as a farmer?	54 77.14%	9 12.86%	7 10%	70 100%
8	Are you in shock of your losses due to flood?	61 87.14%	9 12.86%	-	70 100%

The above table indicates that none of the respondent was free from the impacts of either flood or landslide. That means every individual and family had severe impact and they are in a struggling stage of their life. 56 families out of 70 had full or partial damage with their house and household items. Only 14 respondent's households were not affected with the flooding but they were isolated and were under threat of flood. So rehabilitation, resettlement of these families is important and the safety and strength of the affected houses should be checked before they occupy it. 47 respondents had encountered loss in dry land cultivation. Which means the water levels came beyond their expectations and destroyed their seasonal dry land crops. Obviously, crops in the dry land are expensive and more sophisticated types, subsequently crop insurance is an important matter here to reduce the risk. Majority of the respondent (44) shared that they never ever expected flooding in their village because they never witnessed flood in their life time however 26 respondents

expected a flood because of the intense and continuous rain. It is important that there should be intensive study on climate change in these regions and should develop comprehensive study on impact and its mitigation. Disaster preparedness should be given more emphasis to address it in. Majority of the respondent shared that the flood badly affected their spices especially pepper, ginger and cardamom. Hence crop insurance is a real need of all time. 59 respondents shared that they lost their short term crops such as paddy, ginger and vegetables during the flood. Majority of the farmers feel insecure in the farming practices due to their heavy loss and uncertainty however, few of them shared their expectations come to the issue. They shared their opinion as the flood as a "break through" in every farmers life in particular and whole section of society as general. 61 farmers shared that they are under the shock of the flood and in their mental agony by worrying about future. Psycho social care, counseling etc should be provided through social workers and competent bodies to reduce the stress and depression at various levels.

Table No. 2: Showing the support/role from the different stakeholders'

Sl. No.	Questions	Response			Total
		Yes	No	Don't Know	
1	Do you have a bank loan or SHG loan?	62 88.57%	8 11.43%	-	70 100%
2	Did you able to repay the loan with in stipulated year?	12 17.14%	38 54.29%	20 28.57%	70 100%
3	Did any psychosocial/relief support provided to you?	58 82.86%	12 17.14%	-	70 100%
4	Will you be able to handle the crop loss by yourself?	21 30%	39 55.71%	10 14.29%	70 100%
5	Did you think that your crops will survive after the flood?	20 28.57%	32 45.71%	18 25.71	70 100%
6	Was there any crop insurance to cover up your losses?	9 12.86%	61 87.14%	-	70 100%
7	Do you have enough resources (seeds/manpower/money/fertilizers/machineries) to build up the farm by this year?	17 24.29%	53 75.71%	-	70 100%

The above table depicts that, the majority of (62)respondents out of 70 possess bank loan or SHG loan for agriculture and 8 are free from such loans. But they shared that they have loans for other purposes from different sources especially from private finance. In this case, Moratorium should be given to farmers loans and interest waiving and subsidizing should be done to reduce financial burden of calamity. Additional supports should also be given to foster the farmers and policy level changes should be enacted on this. 38 respondents shared that they are unable to pay back the loan in stipulated time because of the crop loss and 20 had no idea about the repayment and were in a confused state of mind and 12 respondents were confident enough to settle their credit. Support should be reached to farmers in crisis through a farmer friendly policy. Majority of the respondents have received psycho social support or counseling from different agencies from rehabilitation camps. They have received food, clothes, blankets and other essentials for day to day life; whereas few shared that they haven't received any support other than material help. That denotes the vulnerability of certain individuals to withstand with crisis and failure of support systems. Every village should have a team of emergency response with multitasking skills. It is

important to identify, set up such groups (Multidisciplinary) to mitigate the risks and it should be fostered by government. Majority of respondents shared that they are not capable to withstand in their loss and few of them had the opinion that they will handle the situation somehow and with positive outlook. So support from all levels should be enacted to ensure the resettlement. Majority of the farmers shared that their crops won't survive after flood because it sunk on water for long time whereas,20 of them had the opinion that the crop may survive even though the flood water affected them and 8 farmers have no idea about it. So it is important to identify and use different varieties of seeds with less climate impact and more productivity. Farmers should have awareness and access of these varieties in due course. It is a true fact that majority of the farmers doesn't covered their crops with competent insurance. Only 9 of them were insured their crops and they expect the coverage on losses. Government should promote competent and cost effective insurance policies to farmers to mitigate the losses. This sector should have more priority. Majority of the farmers had the opinion that they are unable to undertake any farm actions immediately due to financial crisis whereas 10 of them are capable to invest again and very few of them didn't have any idea about their works at farm by this year.

Table No. 3: showing the approaches from various agencies on support measures

Sl. No.	Questions	Response			Total
		Yes	No	Don't Know	
1	Do you think that Government will help you to cultivate again?	32 45.71%	28 40%	10 14.29%	70 100%
2	Do you think that the climate will helpful to repeat crops by this year?	12 17.14%	32 45.71%	2 2.86%	70 100%
3	Do you trust the weather forecast of the government departments?	70 100%	-	-	70 100%
4	Did any agriculture offices or Govt. bodies alert you the flood?	12 17.14%	58 82.86%	-	70 100%
5	Do you know exactly the flood alert systems?	6 8.57%	64 91.43%	-	70 100%
6	Do you know the precautions to be carried out during red alert?	6 8.57%	64 91.43%	-	70 100%
7	Did any of your cattle stock or pets washed away in flood?	49 70%	21 30%	-	70 100%
8	Did you have stock of feeds for the cattle's?	8 11.43%	62 88.57%	-	70 100%
9	Do you have confidence to cultivate during next season?	42 60%	28 40%	-	70 100%
10	Do you think that climate change is a real threat to the farming communities?	66 94.29	4 5.71%	-	70 100%
11	Do you think that you will shift from agriculture other income generations in short run?	62 88.57%	8 11.43%	-	70 100%
12	Do you think that flood helped to increase the ground water levels and quality of soil?	70 100%	-	-	70 100%
13	Will you able to manage the flood that may happen in future more carefully and efficiently?	70 100%	-	-	70 100%

Majority of the respondents had the opinion that Government especially agriculture department will help them to restart the cultivation whereas 28 of them thinks that there won't be any support from government for the same and 10 shared that they have no idea about this. Government support is inevitable to continue the agriculture tasks and it should be planned accordingly. Majority of them shared that the climate won't be suitable to repeat the crop whereas few shared that

they will replant and will try their best. Only 2 of them were in a confused state of mind on this matter. Technical support and promotions should be done in this context to recover the losses. All farmers had the opinion that they don't trust and relay the weather forecast. They complained that weather forecasting lacks accuracy and proper communication at different levels. Unfortunately the weather forecasting system and its communication to lower levels were not effective and

efficient here and it should be improved to higher standards. Majority of the farmers were didn't received any flood alerts from any sources whereas, few of them claimed that they had received information through radio and through relatives and friends abroad. Proper forecast and its communication should be done with accuracy and consistency is a real need. Especially while opening the dams, there should be prior information. It is also important to share the expected flow of rain in a particular day or night so that villagers will have enough time to prepare themselves to face it. Unfortunately, majority of the respondents did not know exactly the flood alert procedures. They don't know the color code on alert and most of them were never had previous experiences of emergencies. So it is important to teach the civil society on handling emergency situation and natural calamities to reduce the risk and casualties. Majority of the respondents doesn't have any idea about red alert and its preventive measures. This is an important task before competent authority to teach the civil society. 49 respondents shared that they lost their animals, most of them shared that they lost their goats, pigs, chicken, dog, cats, cows and calves etc. Animal husbandry department should have an eye on these issues and that will help the villagers in future. Majority of them doesn't have any cattle feeds or food for their survived pets. All of them washed away or became wet and infected. Adequate stock of animal/vet food and medicines should be kept in times of emergencies. Majority of the farmers lost their confidence to cultivate for next season but 23 of them had the opinion that they will continue their work without looking results. It is important to support farmers to be active and should provide with motivation from all levels. Majority of the farmers had the opinion that climate change is a real threat to be solved. They often worried on the timely rain, growth, fertilization, harvest, marketing etc. If they fail with climate issues, that denotes heavy loss and despair. Majority of the farmers are afraid of continuing in agriculture because of the flexibility and risk. They shared that this is not a promising life for their next generation. Most of them want their children to study well and to find other sources of income than being a farmer with uncertainty. These matters should be addressed so that more people will come forward to the agriculture rather than seeking white collar jobs. All respondents agreed that ground water levels were recharged by flood. Majority shared that they have learned a lesson and they are fit enough to face another flood without much damage however there are few respondents had the opinion that they are vulnerable to face anything further. The latter category people are the worst hit group where they have to start everything from beginning and without much resource.

CONCLUSION

Once the floods and fury recede, there are evidently many lessons for authorities to take away from this disaster. This micro level study highlights the impacts of flood on society especially farmers. Development cannot be sustainable unless mitigation is built into the development process mitigation must be multi-disciplinary, spanning across all sectors of development. This study will help in framing the sustainable level action plans in agriculture sector to reduce the intensity of losses. Disaster preparedness among farmers was also inadequate and they should be coordinated. Heavy loss in farming will have multidimensional effect in the socio economic conditions of district since the district is considered as agriculture dependence and zero industrial.

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