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Socio-Environmental Impacts of Flood Disaster on Agricultural and Common People Related Activities in Krishna River Basin

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Abstract: ***Last year (2019), the Maharashtra District of Sangli (Krishna River) faced the record level of rainfall. The Krishna river basin is certainly affected by natural disaster, resulted in devastating flooding, it is impact on human life and significant damage of infrastructure, agricultural system. In this study, survey method has implemented and data collected through intensive fieldworks during post flood period in and around Krishna river basin. Roughly 52% of the population in sangli district live in rural areas and they are dependent on farming. Due to Flooding Rice Paddy, Sugarcane, turmeric was most of the worst hit, with 9,400 hectares of farmland damaged. The flooding has been also reported to have social and environmental impact on health of animals, household peoples and economical impact on shops, industries in Krishna river basin areas..***
Keywords: Flood Disaster, socio-economic, agriculture, animal's health, environmental.

I. INTRODUCTION

The Nature, frequency, intensity and duration of a disaster determines it's consequences on different entities, with smallholder farmers and the poor both urban and rural areas are abundantly affected. These natural disasters have damaged the economy and injured a large portion of the population near rivers, a major concern in most states. Agriculture is also an important factor. In Sangli District many people make a living by farming on the land along the riverside and many small, medium and large-scale industries have dependent here for the production of various seasonal crops. All of these things are affected when a flood situation arises.

In the last year, Sangli district affected by flood situation. Due to flooding, Most of people were living on riverside village area. They had been migrated to another area. Most of the Krishna river basin is in the Western Ghats. The Approximate length of Krishna River 1400 km *(www.google.com).*so the Krishna River flows perennially due to the heavy rains that falls on the adjacent ghats. There are two dams on Krishna River as Koyna and Almatti. When there is heavy rainfall in the vicinity of the dam, floods occur in the riverside villages. In every year during rainy season, the rain water and some of the Krishna river conduct the flood in these village areas. The population on the riverside has increased every year even the flood they came back to their destination. Therefore, it is equally important to study the effect of climate on agriculture and living things.

II. STUDY REGION

The Sangli District is the most flood slanted zones in the Maharashtra state and Krishna River in this district was flooded. The Sangli is a one of the most severely flood affected city of these district. That is why this problem needs to be inspection. It is situated on 16^0 52' 3.4824" N latitude and 74^0 22' 02.40" E longitudes. It lies on the right side of Krishna River.

Fig 1: Location of Sangli District in Map

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III. CLIMATES OF LOCATION

In this Sangli district, the summer temperature is comparatively warmer, but there is too much humidity in the air, compared to near cities. Maximum temperature in summer season rarely exceeds 39°C and typically ranges between 35° C to 38° C. and lowers during the same season around 23° C to 27° C. In this cities, mansoon season from June to Octomber. The lower temperature in rainy seasons the ranges between 20° C to 28° C.
Rainy Season data of Sangli City is given below in table.

Table 1. Rainy Season data of Sangli District

Month	Air temperature (°C)	Relative Humidity (%)	Wind speed (m/s)
June	26.2	76.1	5.3
July	24.5	78.7	4.7
August	22.3	80.2	4.4
September	23.8	78.9	3.8
October	24.6	65.3	2.6

IV. OBJECTIVES

The present study has addressed the floods of the year 2019 faced by the Krishna river basin. The main objective of the present study is to analyse the socio-environmental impacts of flood disaster occurred in the year 2019.objectives following as-

A. The study the adverse effect of floods in sangli district in 2019.
B. To study and analyse impacts of the flood disasters on agriculture and common people life.
C. Evaluate socio-environmental profile of the study area.

V. METHODOLOGY

A. Data collect through intensive fieldworks.
B. The effect of floods in the Sangli area will analysed.
C. Gather all the information needed to determine area of research.
D. The survey carried out for find out the affected population in flood and river bank erosion of village.

VI. IMPACT OF FLOOD ON AGRICULTURE

The Most of the farmers in sangli district depend on the river Krishna for their livelihood. This field produces a large quantity of sugarcane, soyabean, vegetables, flowers, turmeric and other crops respectively etc. They have suffered heavy losses due to this flood situation. Destruction of facilities, machinery, tools and related infrastructure, agricultural production is particularly affected by extreme insecurity. Which will take a long time before it is able to rebuild damaged property and assets. The impact of floods on riverside and irrigated agriculture has been analysed. The crop wise damage analysis for more than 40% loss for various crops like sugarcane, rice, soyabean, groundnut, Turmeric, other crops according to the total sown area is given below.
The table 2 represents the impact of flood on crops land in Sangli District.

Table 2. Impact of flood on Crops in Sangli District.(Field analysis)

Sr. no.	Name of Taluka	Sown Areas (Hectar)	Impact of flood on Crops in Percentage (%)					
			Rice	Sugarcane	Soyabean	Turmeric	Groundnut	Other Crops
1.	Kadegoan	57600e	1.03	15.45	1.16	0.78	0.41	0.76
2.	Miraj	91800	0.65	2.47	-	1.16	0.65	0.26
3.	Palus	29700	3.11	29.38	2.46	-	5.13	2.87
4.	Shirala	62600	15.21	6.90	2.34	-	2.64	1.91
5.	Tasgaon	82000	0.68	14.05	2.01	0.76	1.65	7.02
6.	Walwa	77600	0.80	18.46	1.10	0.67	1.61	3.25
	Total	401300	21.48	86.71	9.07	3.37	12.09	16.07

From the crop land analysis of flood disaster in 6 talukas of Sangli district, the highest number of affected farmers are from Walwa; whereas lowest is in Kadegoan taluka respectively. The Sabbgli District suffered by the loss of crops like sugarcane, rice, Soyabean, groundnut and other crops etc. The sugarcane loss was86.71% of the total Sugercane land in the district. After Sugarcane, Rice was the severely affected crop by the flood disaster. The area under rice affected by the floodwater was 21.48% of total rice land. The other crops loss was 16.07% of the total other crop land in the district. The Groundnut loss was 12.09% of the total Groundnut land in the district. The Soyabean loss was 9.07% of the total Soyabean land in the district. Turmeric was the minor crop affected by the flood.

Fig 2: Water Clogging due to flood in other crops planted farms.

Fig 3: Water Clogging due to flood in Sugarcane planted farms.

VII. IMPACT ON LIVESTOCK

The floods have caused great damage to animals as well as humans. Nine people lost their lives in a boat accident. Immigrants struggled for clothing, grain and shelter. They were arranged by the government at a nearby school. Due to flood, directly impacted on availability of milk, food grains and electricity.

Fig 4: Water clogging due to flood in residential areas of Sangli district

VIII. IMPACT ON SHOPS AND OTHER ACTIVITIES

In the sangli district because of flood disaster, many shops affected and their loss in terms of money was more than Rs.50,00,000. The sangli district has the well-developed sugarcane, turmeric, food grains collection and to growl system. The transportation system collapsed for more than ten days. Approximately thousands of tons of chemical fertilizers had damaged by the flood.

Many small houses and bungalows have collapsed due to the floods. At the same time, valuable home equipments have been damaged. It includes TV, refrigerator, small electronics equipment, vehicles. The floods killed many animals. Their bodies float on the water and they invite many diseases. These diseases weaken the immune system in humans. Unexpected floods have damaged food granaries. At the same time, water supply to many villages was cut off. School, colleges, workplaces were closed as transportation was not running. This had a huge impact on the economic situation. Lack of contact with large cities has reduced health services.

Fig 5: Water clogging in public places of Sangli city.

IX. POSITIVE IMPACTS

A. Flooding has worked as a natural process to reduce the problem of salinity. These floods have helped to remove salts from the soil and improve soil quality.

B. Due to this flood, the natural flow of the river Krishna has been checked at the work site.

C. Flood enriched the soil tremendously and it boosted up the agricultural productivity.

X. CONCLUISON

Environmental changes plays an important role in causing massive flooding across Western Ghats. Which affects on economic conditions and other things of the society. The floods occurred in the Krishna river basin in the year 2019 was one of the worst flood in known history of the river basin. The majority population is depends on major source of income from agriculture on Krishna river basin. In the year 2019, farmers had directly affected by flood. They had loosed the large amount of different type of crops like Sugarcane, Soyabean, Turmeric etc.

The flood disaster highly affected on agriculture, transportation facilities, shops, milk production, manufacturing industries, basic facilities of the villages and cities, livestock of the villages and cities, houses and households etc. The loss in terms of money was more than rupees fifty million. In the study region also observed the health problems during flood disasters period in villages and cities. Like negative effects, positive effects are also observed in the study region. They are improve quality and productivity of soil.

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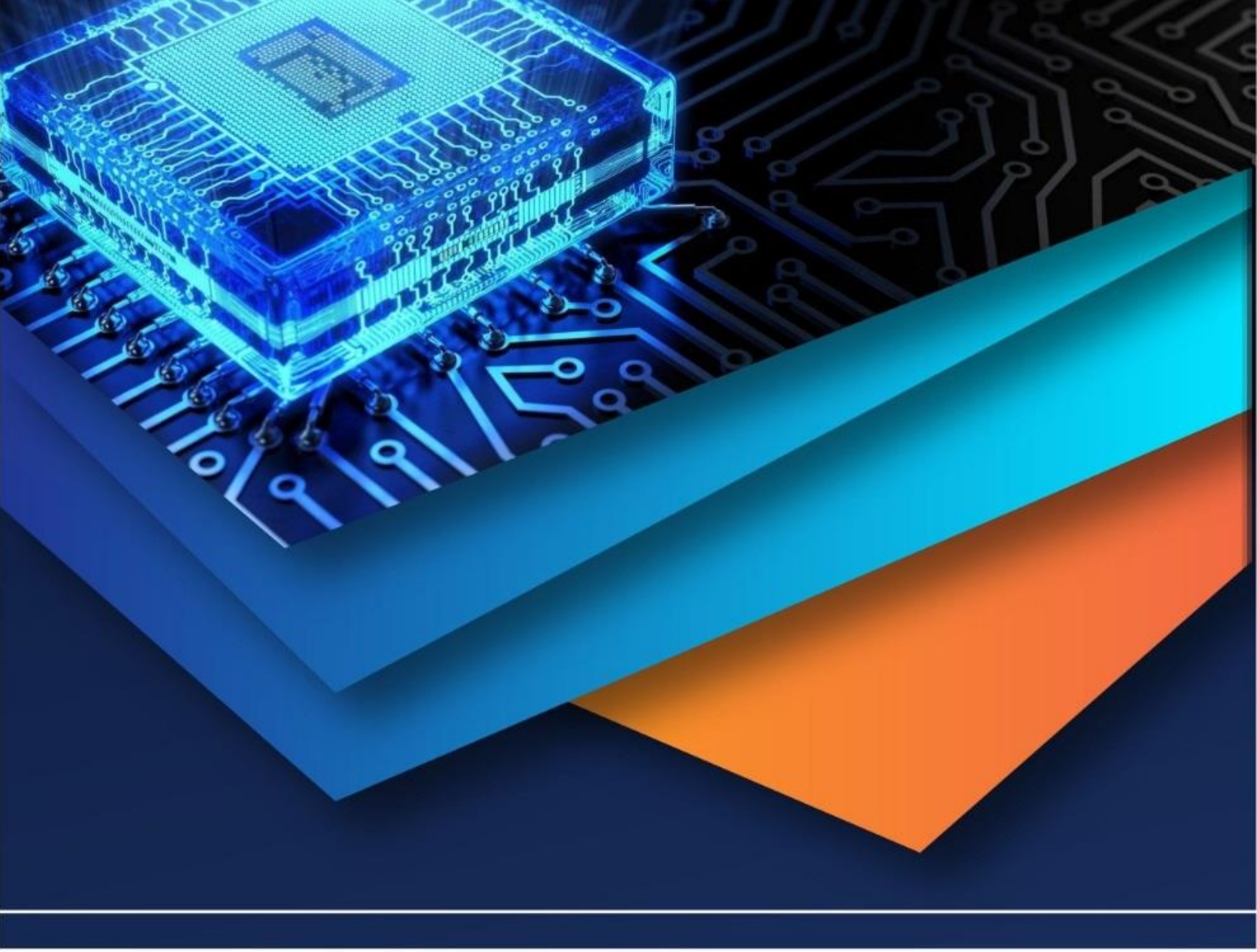

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