

**'SOCIO-ECONOMIC IMPACTS OF FLOOD DISASTER IN UPPER  
KRISHNA BASIN: A CASE STUDY OF VILLAGE PUNDI  
(TAL. PALUS, DIST. SANGLI, MAHARASHTRA)'**

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**ABSTRACT**

*Natural hazards, which damage national economy and produce hardships for large sections of population, are one of the single largest concerns for most nations. Socio-Economic environment is always influenced by natural hazards in general and by Floods in particular. The low-lying villages and villages lying on the banks of the Krishna River in the Sangli district get inundated at the times of floods. The village Pundi is one of the most severely flood affected villages and it lies on the left Bank of River Krishna. The major objective of the present research paper is to analyze the socio-economic impacts of flood disaster took place in the year 2005 and 2006.*

*The present research paper is based on both primary as well as secondary data. The related primary data is collected through intensive fieldwork, during post flood period. The collected data tabulated and presented by appropriate cartographic techniques. The study reveals that the flash floods occurred during 2005 and 2006 worst affected on the social and economic condition of the village. In the year 2005, a number of crops contained in 138 hectares agricultural land were damaged by the flood. While in the year 2006, 122 hectares of cropped area were damaged by the flood disaster. In spite of this, livestock, shops and households were also affected by the flood disaster during both years.*

**Key Words:** *Natural Hazards, Flood Disaster, Socio-Economic, Floodwater, SOI topographical maps, Devastating, Chemical Fertilizers, Natural Flushing and saltation.*

**1.0 INTRODUCTION:**

Natural hazards, which damage national economy and produce hardships for large sections of population, are one of the single largest concerns for most nations. Human settlements have frequently affected by natural hazards such as Floods, Earthquakes, Hurricanes, Cyclones, Landslides, Volcanic eruptions, which takes a heavy toll on human lives, destroy buildings and infrastructure and have for reaching economic and social consequences for communities (*Randhir Singh Sangwan, 1999*). Socio-Economic environment is always influenced by natural hazards in general and by Floods in particular. India faces flood problems every year in one or other parts, and about 12.5 per cent of its geographical area comes under floodwater (*Gautam, Alka, 2007*). Maharashtra in general and the Sangli District in particular are affected by the floods in the recent years (Patil, Sardar A. and Gatade, D. G., 2007). The low-lying villages and villages situated on the banks of the River Krishna in the Sangli district inundated at the times of floods (*Government of Maharashtra, 1972*).

## 2.0 STUDY REGION:

The village Pundi is one of the most severely flood affected villages of the Palus tehsil. It is situated on  $17^{\circ} 04' 01.44''$  North latitude and  $74^{\circ} 22' 02.40''$  East longitude. The altitude of the Pundi from MSL is 546 meters to 559 meters. It lies on the left Bank of River Krishna (<http://www.earth.google.com>) (Fig. 1).

### The Sangli District Location Map

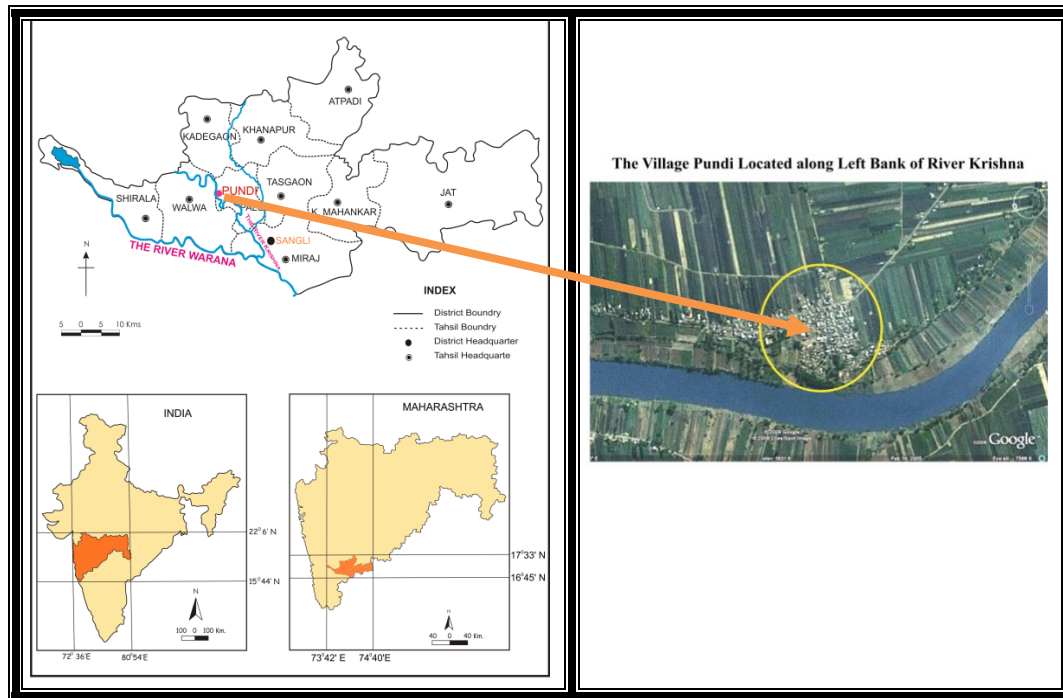


Fig. 1

## 3.0 OBJECTIVES:

The present study has addressed the floods of the year 2005 and 2006 faced by the Sangli district, especially experienced by the Village Pundi of Palus tehsil. The main objective of the present study is to analyze the socio-economic impacts of flood disaster occurred in the year 2005 and 2006. However, specific objectives are-

1. To assess social impacts of floods occurred during 2005 and 2006 in the study region.
2. To study impacts of the flood disasters on agriculture, transportation facilities, shops and kiosks as well as agricultural labors.

#### **4.0 RESEARCH METHODOLOGY:**

The present research paper is based on both primary as well as secondary data. However, primary data is the main source to meet the objectives of the study. Therefore, the correlated data has collected by conducting intensive fieldwork, during post flood period. . The stratified sampling method has used for the selection of households to collect the data related to impacts of the flood disaster of the year 2005 and 2006. The schedule has used for this purpose. During the field investigation, observation method as well as informal personal communications with some persons has made for the purpose of verification of data provided by other persons. The Google Earth Satellite Imageries have used for the understanding topography, collection of data and analysis of the data. Other related secondary data has collected through SOI topographical maps, books, journals, newspapers and several websites etc. that has specified under the heading of the references.

After the collection of primary and secondary data, it has processed. The processed data tabulated and presented in the form of charts and diagrams.

#### **5.0 CONSEQUENCES OF THE FLOOD DISASTER:**

Flooding is the most common environmental hazard; due to the wide spread geographical distribution of river valleys and coastal areas and attraction of human settlements to these areas (*Kewalramani, Gita, 2006*). Flooding has occurred in certain parts of country and thus flood is an oldest phenomenon in India (*Singh, Mahendra, 2008*). The flooding always occurs in the deltaic part of the river Krishna. However, this was not a usual phenomenon in the upper Krishna basin, particularly Sangli District. Recently, especially during 2005 and 2006 the flood disaster occurred in the region was unexpected and prolonged.

Upper Krishna basin in general and Sangli district (<http://www.maharashtraonline/asp/url/Sangli/himl/>) in particular experienced devastating flood situation during July 26 to August 8, 2005 and during July 28 to August 13, 2006. In the Palus tahsil the village Pundi had worst affected by the Flood. The highest floodwater level at Pundi recorded during 2005, it was 553.690 metres from M. S. L. whereas the danger level of floodwater is 552.400 metres, and warning level of floodwater is 550.490 metres from Mean Sea Level.

#### **5.1 IMPACT OF FLOOD ON AGRICULTURE:**

In the village Pundi, 491 farmers affected by the flood in the year 2005 and 456 farmers had affected by the flood in the year 2006, directly. They had loosed crops of an area 138.44 hectares and 125.63 hectares of cropland in the year 2005 and 2006

respectively. In the village, sugarcane is the major cash crop this was the basis of higher amount of economic loss because of flood disaster in the village during both years (Table- I) (Photo Plate).

**Table- I**  
**The Village Pundi**  
**Flood Affected Cropland (2005 and 2006)**

Sr. No.	Crops	Flood Affected Crops (area in hectares)			
		2005		2006	
		Loss Below 50%	Loss Above 50%	Loss Below 50%	Loss Above 50%
1.	Sugarcane	25.49	51.22	30.03	26.33
2.	Soyabean	8.4	15.96	4.3	13.75
3.	Groundnut	-	5.89	--	4.99
4.	Rice	0.26	1.00	--	1.89
5.	Other Crops	9.34	20.88	19.46	22.30
6.	Total	43.49	94.95	53.79	69.26

*Source: Final Flood Report (2005-2006): Pundi Tarf Walva, Talahti Office.*

The village Pundi suffered by the loss of crops like sugarcane, rice, Soyabean, groundnut and other crops which includes cotton, turmeric, vegetables, maize etc. The loss of sugarcane is marked one and it was 76.71 hectares during 2005 and 66.36 hectares during 2006. After sugarcane, Soyabean was the severely affected crop by the flood disaster. The area under Soyabean affected by the floodwater was 24.36 hectares and 18.05 hectares in 2005 and 2006 respectively. The area of groundnut affected by the floodwater was 5.89 hectares in the year 2005 and 4.99 hectares in the year 2006. Rice was the minor crop affected by the flood. The Table- I demonstrates the loss of various crops occurred due to the flood in both years.

## 5.2 IMPACT ON LIVESTOCK:

No direct loss of the livestock had found in the village but the livestock had suffered by the scarcity of the fodder for more than three to four months. The some selected farmers responded that unavailability of the fodder affected on milk production indirectly.

### **5.3 IMPACT OF FLOOD ON HOUSES AND HOUSEHOLDS:**

In the village Pundi, 448 households had affected by the devastating flood in the year 2005. Out of total affected households, 34 households with 195 persons had absolutely affected by the flood. They had loosed cloths, pots, food-grains and other material Viz., T. V. and Radio. By the flood, 175 households along with 1050 persons partially affected and they had loosed their valuable material in partial manner. Despite, 239 houses were inundated by the floodwater. In the year 2006, 28 households had utterly affected by the flood disaster and near about 169 households had partly affected (Photo Plate 1).

In the village Pundi, houses had only partially affected by the flood disaster. There were 20 houses partially affected by the flood disaster. Out of that, some houses got crack to the wall and some houses experienced totally collapse of walls.

### **5.4 IMPACT ON SHOPS AND OTHER ECONOMIC ACTIVITIES:**

In the village because of flood disaster, four shops affected and their loss in terms of money was more than Rs. 2, 50,000. However, they had compensation grant of Rs. 22,000 only. The village Pundi has the well-developed milk collection system and the daily collection of milk was on an average 1600 liters during flood period. The transportation system collapsed for more than seven to eight days in both years. Thus, the loss through milk production was of Rs. 4, 80,000/- collectively. Near about thousands of tons of chemical fertilizers had damaged by the flood of the year 2005 (Photo 2)

The flash floods of both years' most awful affected on the agricultural workers that they did not get employment for more than two months after the flood recede in both years.

### **5.5 IMPACT OF FLOOD ON HEALTH:**

Strength of human body had affected by the flood disaster. In the village Pundi, 715 persons suffered by various diseases because of explosive flood in the year 2005. Out of the total affected population, 300 persons suffered by fever, 7 persons suffered by Diarrhea, 25 persons suffered by dysentery and remaining 383 persons suffered by sundry diseases.

In the year 2006, total persons suffered by the various diseases was very less because the attention was given to precautionary measures. The persons suffered by the fever, Diarrhea, and sundry diseases were 73, 3 and 215 respectively.

### **5.6 IMPACT ON BASIC FACILITIES:**

In the study region the flood of the year, 2005 and 2006 affected on the basic facilities and basic needs of human's like food and water. Due to unexpected nature of flood, storage of food had totally damaged by the floodwater. The scarcity of drinking

water is also foremost. In the study region, the drinking water facility of 71 villages had collapsed by the floodwater. This is the reason that many water born diseases were took place during flood in both years.



**Photo Plate-1**

### **5.7 POSITIVE IMPACTS:**

The beneficial effects of floods have established beyond doubt. It fertilizes the flood plain by siltation causes flushing of the drainage arteries. Soil moisture initiates a renewed healthy ecosystem of the area. The fertilization of the land by floods has stressed by Mukharjee who considered the flood prone areas as the tract of civilization in case of Bengal delta. It is based on the fieldwork carried out by the researcher and response from the farmers, the Village Pundi has beneficial effects, which overcome on negative effects. The following are the major positive consequences appeared in the study region.

1. This has investigated at the time of fieldwork that the floods of the year 2005 and 2006 acted as the natural flushing process of the River Krishna.
2. Floods are the most vital fertilizing agent of flood plains. In the study region, about 100 farmers given response that there is siltation in the field, between four cm. to thirty cm. They further noted that the siltation of the field by the flood enriched the soil tremendously and it boosted up the agricultural productivity in the subsequent years.
3. Floods are acting as a natural process of mitigating the problem of saltation. Farmers gave response that these two floods helped to remove salts from the land and helped to improve quality of soil.
4. The nourishment of water table is also an important positive impact of flooding in the study region.

### **6.0 CONCLUSION:**

The flood-disaster is one of the natural disasters, which affects on socio-economic conditions of the society. The floods occurred in the upper Krishna basin in the year 2005 and 2006 was one of the worst floods in the known history of the river basin. The socio-economic condition of village Pundi had horribly affected by the flood disaster in the year 2005 and 2006. In the year 2005 and 2006, 491 farmers and 456 farmers had directly affected by the flood, respectively. They had loosed the crops of worth Rs. 75 lakhs in the

year 2005 and Rs. 58 lakhs in the year 2006. The flood disaster terribly affected on transportation facilities, shops and kiosks, milk production, basic facilities of the village, livestock of the village, houses and households etc. The loss in terms of money was more than rupees ten million. The village had also noticed health problems during the flood period. Like negative socio-economic consequences, positive consequences are also observed in the study region. They are- increase in the fertility of the land, increase in the ground water level and mitigation of the problem of saltation.

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