

CHAPTER VI
CONCLUSION

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The North eastern part of the Kolhapur District of Maharashtra state its included mainly two talukas of Kolhapur District these are Shirol and Hatkanagale these two talukas situated between $16^{\circ}30'$ and $16^{\circ}55'$ North latitudes and $74^{\circ}10'$ and $74^{\circ}45'$ east longitudes. It has located entirely in the lower Panchaganga and Warna basin. The year 2005 was the worst ever flood year in the history of the Shirol and Hatkanagale taluka. The whole life of 48 villages and two towns of the study region during flood period came out stand still.

In between 26th July to 13th August 2005 there was an unprecedented a flood in Shirol and Hatkanagale and its environs. North eastern part of the study region was affected by flood of Warna river. North and eastern parts of the study region were affected by flood of the Krishna river. West central part was affected by flood of Panchaganga river. Central part was severely affected by flood on confluence of Krishna and Panchaganga rivers while extreme southern part was affected by floods of Dudhganga and Krishna river. Study region has experienced most severe flood of its history for 19days. About 70 percent of the total geographical

area of the study region was badly affected and was under 5 to 6 feet of water while there were some localities where flood water level was recorded more than 10 feet. The devastation associated with flood were directly related with the level of flood and its duration. Two towns and 48 villages were the worst flood affected in the study region.

Although Excess and prolonged high intensity of rainfall were the main causes of flood occurred in July-August 2005 in the study region but deforestation, human settlements in low lying areas (Red zone) along the banks of the rivers and sudden release of water from the Koyana, the Kanher, the Chandoli, the Radhanagari and the Tulsi dam, back water of Almatti dam of Karnataka state due to excess storage of water and the meandering courses of the Krishna, the Panchaganga and the Dudhganga rivers were the other reasons of the flood occurred during 26th July and 13th August 2005 in the study region. During this period actual rainfall was higher than that of previous year. During this period actual cumulative rainfall was also higher than the average rainfall of the study region.

Usually the monsoon reaches, in the study region at around 7th of June. In the year 2005 the monsoon reached in the last week of June. On an average the study region receives 370mm rainfall

mostly from SW monsoon. But in the year 2005 the rainfall received in the study region was 665mm ie.77.73 percent more than the average rainfall. In the months of July and August the study region received 210 and 99.3mm. more than the average rainfall in the respective months.

On 26th July 2005 the amount of rainfall received during 24hours was 77mm. on 27th July 25mm rainfall was received within 24hours and 28th July 22mm. rainfall was received, on 1st, 2nd, 3rd and 4th August 2005, 18mm, 28mm,20mm and 19mm rainfall was received its 63.1 percent rainfall up to July and 90.5 percent rainfall up to August 2005.

The last week of July and first two weeks of August 2005 were the weeks of excessive rainfall in the study region. In the last week of July 2005 the actual rainfall was excess by more than 100 percent than the average rainfall. In the first week of August 2005 excess rainfall was more than 58.1 percent as compared to the average rainfall while in the second week of August 2005 rainfall was excess by more than 87.4 percent is compared to the average rainfall. Hence it is concluded that SW monsoon rainfall was concentrated between the last week of July and first and second weeks of August 2005 in the study region. In briefly stated that flood situation was created in the study region in the last week of

July and in the first fortnight of August 2005 due to excessive rainfall.

Because of prolonged heavy rainfall during 22nd July and 13th August 2005 in the up streams of the river levels of Dhom Kanher, Koyana, Chandoli, Tulsi, Radhanagari and Dudhaganga dams crossed the danger mark in the first week of August 2005. Therefore the gates of above noted dams were opened to allow the excess of water out. Deforestation in the catchment areas of Krishna river and its tributaries brought flood after heavy rain in the downstream areas while the low lying areas of the study region were plunged under flood water. Apart from these, water level in the Almatti dam on the Krishna river was increased at the 520 meters above mean sea level which cause rise in backwater up to the low lying areas of the study region. Due to which 48 villages and 2 town in the study region were facing the flood problem during the 26th July and 13th August.

Twenty one villages were the worst suffered. About 20,082 families and 1,01,498 persons were migrated from 48 villages during flood situation occurred in the study region. Heavy downpour had also added in people miseries. Six villages were completely flooded. Before, at and after flood lot of psychological tension created in the mind of residents. The electricity supply had

been cut off in the flood affected areas with the view of saving people from possible electrocution. Prices of commodities had gone up. About 11 persons have lost their lives in the floods 5949 persons suffered by diseases out of which 4503 persons suffered from fever and 1146 persons suffered from dysentery. Person affected during flood, from fever and dysentery in Shirol village were 67 and 69 respectively. Total persons suffered from all diseases during flood period in the study region were 24,451.

A total number of houses damaged by the excessive rain and flood in the study region was 15132 out of which 2845 houses were fully damaged and 12287 houses were partially damaged. The maximum number of dwelling house were damaged in the Kurundwad town (1233) followed by Danoli (629), Danwad (463), Shirdhon (397) and Herwad (318) villages. Damaged costing of houses was reported about the Rs. 192.75 crore.

Several roads were affected by 2005 flood and heavy rainfall in the study region. It is reported that 40.6 percent of the total roads of the study region was affected by flood while 64.9 percent of the total road length of the study region was damaged by the excessive rainfall and flood. 57 roads mainly one major district road, 10 other district roads and 46 village roads were declined for about minimum 7 days to maximum 19 days.

Excessive rain and flood occurred in July-August 2005 badly disrupted the road transport in the study region. The daily bus frequency from Jaysingpur and Kurundwad, Kurundwad-Ichalkaranji, which were reduced to zero on 26th to 28th July and 1st to 4th August 2005. Consequently daily booking of Rs. 1.95 lakh was reduced only to Rs. few thousand During flood period in the study region private transport cost had doubled and had created the problem in problems.

The flood hit villages of the study region were suffered major crop loss. The kharif crops of 48040 Farmers on 19545.31 hectares worth 86.64 crops were damaged by the excessive rainfall and flood occurred in 2005 in the study region. It is reported that about 55.66 percent of the total cropland area was badly damaged. About 56.9 percent of the total affected farmers have lost their sugarcane crop 22.99 percent farmers their Soyabean and 8.5 percent farmers their fruits, Nearly 16 crops were damaged by flood and excessive rainfall.

There was tremendous loss of cattle lives during flood of 2005 in the study region. About 399 numbers of livestock were reported dead in the flood and the scarcity of fodder became the associated problem. Maximum number of (101) livestock dead was reported from Danoli followed by Akiwat (83) Kurundwad (47)

and Kavathesar (27). Among the livestock dead 160 she buffaloes, 158 goats and sheep, 98 cows, 1 horse, 16 bulls and 6 he buffaloes were dead.

1140 shops and 61 small business establishment were damaged by the flood occurred during July and August 2005 in the study region. It is reported that the highest percentage of shops damaged by flood was reported in Kurundwad town followed by Narsabawadi (24.90) and Khidrapur (24.17). The highest percentage of damaged small business establishment was reported in Aurwad (60.66) followed by Alas (32.79) and Kutwad. Damage of shops and small businesses was severe in the above noted six places due to their locations in the vicinity of the confluence of the Krishna and the Panchaganga rivers where the altitude of the study region is the lowest and flood water affected severely.

All the educational institutions were closed during the flood period in the study region. The flood of 2005 was severely affected all the educational institutions in general and Z.Ps. primary and secondary schools in particularly 208 classrooms, 1533 furniture's, 3359 educational materials, 15731 library books of the Z.P. schools were damaged by the flood of 2005. Damaged costing of Z.P's educational institution was reported about Rs. 78.66 lakhs.

The flood victims were provided relief and rescue on war footing. Financial assistance of Rs. 194, 634,000 was given by state Government of 104, 741 flood victims of 48 villages and two towns of the study region. Relief fund of Rs. 12.72 million and Rs 5.6 million was given to 6348 relief camps for 104,741 flood victims of 50 villages and 2 towns of the study region. Relief fund of 12.72 million and Rs. 5.6 million was given to 6348 persons for who were trapped in the four villages.

The severity of the flood, in the study region, can be minimized by taking preventive measures before the arrival of monsoon. Weather forecasting and cautions will effectively reduce the losses. Excess water from upstream dams should be released after giving proper warning to the residents along the downstream river coasts. Civic bodies and administration should check the development of slums, houses and building in the low lying areas of the study region and provide relief and rescue as early as possible where and whenever needed.

The flood problem in the study region should be taken up with more intensive measures in future, in order to avoid environmental problems. Round the clock patrolling should be carried on along the banks of the Krishna, Panchaganga, Warna and Dudhganga rivers especially during the rainy season.

Although the flood affected people in the study region can be satisfied by relief and rescue works. They are worried about their future because the intensity and duration of flood in the year 2005 was severe. They have high hopes on the Government to mitigate their suffering and fears thereof. They are looking towards having some permanent solution of the flood in the study region, so that they should not get scared of the mere sight of clouds.

Persons for repairing and re-construction of their partly damaged and fully damaged houses respectively. Relief fund of Rs. 1 million was given to the kins of those who have lost their lives in the flood, Rs. 0.6 million through talathi as compensation to those who have lost their livestock of Rs.0.46 million and Rs. 1.88 million to those whose shops and shelters were damaged respectively, and Rs. 86 crore was distributed among cultivations as compensation for damage of their crops. Apart from these, jowar, wheat, rice, Kerosene, gas cylinders, chadders, sarees, woollen cloths shirts, pants, notebooks, tea, breakfast, meal medicine, temporary shelters, hard cash and basic needed goods were distributed among 20437 families and 1,01,498 flood affected persons by the state Government, cooperative sugar factories (viz, Datta, Sharad and Jawahar,) educational institutions (noted Shri Swami Vivekanand Shikshan Sanstha Rayat Shikshan Sanstha). Rotary club of Shirol and

individual persons (viz. Honourable Raju Shetty MLA Honourable Yadravkar and his social workers) and District co-operative Bank Ltd of Kolhapur etc.

Teams consisted of 1 doctor, 1 compounder and 1 Female nurse were constituted in 6 primary health centers to provide medical care in flood affected areas round the clock during and after the flood period. 30 teams of consisting 33 doctors 15 compounders and 32 femal nurses were constituted to care in 67 relief camps located at 19 places. Autibiotics, salines, ointements, tablets, bleaching powder and injections were distributed among flood victims of the study region in the year 2005.

About 20,082 families and 101498 persons of 48 villages and 2 towns were entirely rehabilitated during the severe flood period of 2005. The talukas administration provided 67 relief camps for 1,04,741 flood victims during and after flood period. About 1,817 families and 8,476 persons were sent to safe places with the help of home guards and soldiers, the Jawans of Indian Army rescued 1546 persons who were trapped in the four villages.

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