

## **CONCLUSION**

## CHAPTER VI

### CONCLUSION

Throughout the history, the human beings choose the riverine locations for the settlements. The riverine locations contain the rich alluvium deposits. This kind of fertile soil is the fascinating factor for human beings to settle on such flood plains. It is found that more than half a billion people on planet earth reside on river side and coastal flood plains only. They produce about 1/3<sup>rd</sup> of the world's food production. At the same time; it is found that such areas suffer from floods and put life and property of the people on stake.

In this way the human habitation on flood plain near the river channel increases and along with the proportion of damage also increases. The processes of urbanization have increased due to the industrialization and modernization especially within flood plain areas where the risk of floods is generally high. This kind of development is unplanned that puts others also into trouble. The flood that occurred in Kolhapur and particularly in the area under study in 2006 was due to heavy rainfall and this was not managed by the given river channel capacity, that caused the flood and put the life and economy of the people in the flood plain of the Panchaganga River at stake.

The inexorable impact of that flood was not only found in Karveer taluka but also in other parts of the state of Maharashtra during 15<sup>th</sup> July to 12<sup>th</sup> August 2006. Shingnapur, Hanamantwadi, Padali Bk, Warange, Prayag Chikhali, Nigave Dumala and the Shiye villages were grimly affected villages in Karveer taluka. So these 7 villages were surveyed for the present investigation. The floods have caused the massive losses in all these villages. Both social and economic activities of the people were rigorously affected.

As per the occupational structure of the study area 21.69 per cent males and 1.03 per cent female population worked as farmers. Besides that the 7.33 per cent population has engaged in agricultural activities as a labour force. So in totality 30.05 per cent populations engaged in agricultural activities. This clearly shows that the study area has agrarian economy. The most of the agricultural practices in the study area were carried on the flood plain of the Panchganga River. As a result the overflow of the Panchganga River damages the standing crops in the field and creates

waterlogged soil. So the economy of the study area was adversely affected by such fierce floods.

1) It is found that out of 121.52 ha of cultivated land, 69.29 ha (51.69 %) of agricultural land was severely affected by flood. The total agricultural loss was to the tune of Rs 62,79,000 as per our fieldwork conducted in 2006. The approximate land recreation cost for the study area was Rs13, 04, 9000/. In this way the assistance from government was very meagre (9.89 %) as compared to land recreation cost. As a result the poor farmers are unable to reclaim their land. Simultaneously, the agricultural productivity decreases and this creates onerous impact on agrarian economy. Therefore, it is more important that, the assistance from the government for the agricultural land is at least equal to the land recreation cost in order to reclaim the soil and maintain the productivity of the flood affected land.

2) In Kolhapur district 71 houses were totally collapsed and 4013 houses were partly collapsed. Particularly in the Karveer taluka 17 houses were partly and 639 houses were totally collapsed. The study area is having both kutcha and pucca houses. The kutcha houses made up of local material like bricks, bamboo, mud, etc. which are easily damaged during flood. As per the survey of 190 households in the study area about 16.32 per cent partly and 13.68 per cent houses were totally collapsed. The loss incurred for the partly and totally collapsed houses was Rs 1, 93,000 and Rs 3, 24,000 respectively. The renovation of 13.68 per cent houses was just impossible in the study area.

The people who were economically and socially backward are having kutcha houses and their houses are located on peripheral areas of low rent on the riverside of the villages, which is risky during monsoon season. As a result they were worst affected by flood that occurred in 2006. So in order to minimize the damage and loss of the people, government has allotted the land at the safer location to the affected families. But in reality people are not ready to shift to the allotted safer places, as they have very intrinsic affinity to their original settlement. Therefore, their mind is not ready to shift permanently to the allotted places.

3) The flood has caused the loss of furniture, utensils, food, clothes, electronic goods, vehicles, etc. This loss is categorized into direct and indirect loss.

In the study area the direct loss of the household assets was of Rs 1,38,950 and indirect one was Rs 38,450. It is investigated that direct loss was much more as compared to the indirect loss. The asset wise loss shows that, the loss of electronic goods was of Rs 49,300, which constituted 27.79 per cent of the total loss. The furniture loss was 17.62 per cent and loss of food, clothes and utensils was of 15.53 per cent, 13.73 per cent and 13.11 per cent respectively.

The above mentioned statistics made very explicitly that the electronic goods were crippled easily by floods. To some extent the furniture and food grains were subjected to flood. But the loss of the clothes depended on the duration of the flood. Finally the total direct and indirect loss depends upon the nature of house that is the kutchra or pucca and their location.

4) During the flood period of 2006, there was heavy casualty of large animals like cows, buffalos, bullocks, etc. and small animals like sheep, goat, calves, pigs, etc. were also killed. Large number of milching animals (i.e. cows, buffalos) and the birds like hen were mercilessly affected by the flood. The total amount of the animal loss in the study area was Rs 35,700 and for this loss, the assistance from the government was only Rs 5000 or 14 per cent of the total animal loss. Such a type of loss also crippled the villagers. The loss was much higher in the Prayag Chikhali village (Rs 20,850).

The veterinary doctors were deployed in affected villages in order to carry out the primary treatment and vaccination of animals.

5) Some time the after-effects of the floods are very onerous than floods; when we consider the loss of human beings. The improper disposal of waste material like animals' carcass and garbage, contamination of drinking water, lack of sanitation, and spoiled food stuffs are the conditions in which infectious diseases get flourished.

It further found that out of 1065 family members nearly 137 (12.86 %) were suffered from the water borne diseases like cold fever, diarrhea, vomiting, dysentery, etc. The Prayag Chikhali village was highly affected by such diseases. In this village the 8.64 per cent people were affected by the water borne diseases. In the remaining, each of six nearly 1 per cent people were affected.

The homeless people during the flood period were highly suffered from the water borne diseases. The government provided the free check up medical facilities for the infectious people. But 3.10 per cent people could not avail free medical check up and medicines.

6) The average milk collection by the Gokul, Warna, Mayur and Mahalaxmi co-operative milk unions in the Kolhapur district is 12 lakh litre per day. They export 3 to 4 lakh litre milk to Mumbai per day. The 97 roads in the Kolhapur district were covered by the flood. Milk of Rs 2.50 crore was just put into flood water by the local producers, because the dairy unions were failed to collect the milk from study area. The per day milk production in the study area was 1304 litre from that 1040 litre milk released into flood water. So there was the loss of Rs 8120 per day. The any kind of adjustment to protect the milk was not provided by the government. The local dairies provided assistance in the form of "Kadaba" for only the 6 houses. So the milk loss also created adverse impact on the economy of the study area.

7) In the study area gober gas is the main household fuel, because the gober is easily available in the study area. But during the flood period water entered into the gober gas production plants, which stopped its functioning. In this critical hour people used kerosene oil and other fuels that were very costly as compared to gober gas. In this way there was a loss of Rs 44,950 due to the nonfunctioning of gober gas plants. Beside that the loss due to flowing away of gober and other household fuels was Rs 81,200.

8) In between the 6<sup>th</sup> July and 20<sup>th</sup> August, 2006, the transportation system in the study area was grimly affected by floods. On 6<sup>th</sup> and 7<sup>th</sup> July 2006, the Prayag Chikhali- Panhala (SH-204), Prayag Chikhali-Ambewadi, Koge-Bahireswar, kasaba-Mahe, Sawarwadi-Are and Kuditre-Koge roads were under the flood water. Therefore, 129 villages lost their contact with the main city. On 9<sup>th</sup> and 10<sup>th</sup> August 2006, Ratnagiri (SH-204) and Kolhapur-Gaganbawada highways were covered by the flood.

The many basic services and lifelines in the study area were crippled by the floods. The loss incurred to the Electricity Board of Kolhapur Section was of Rs 1.25 crore. Besides that the functioning of telephones and mobile phones was also stopped.

9) The non-governmental agencies like the Red Cross Society, Red Crescent Societies and many Social and Political personalities provided the heartfelt help to the affected people. It includes both food and non-food items. In the study area near about 508 kg food item and the 7 kg vegetable oil was disseminated by these agencies. Besides that the non-food items including 9 blanket, 2 bed clothes, 5 utensils and 70 litre Kerosene oil were also disseminated by them. Some of the local politicians extended their timely help to the needy people affected by flood. The NGO'S were failed to provide any kind of help to Padali Bk village and Nigave Dumala village.

10) The massive rescue and evacuation operations were mounted by the state government. The government deployed army, navy and air force for the rescue and relief operations. The 72 boats and 11 helicopters were deployed by the state government. The taluka having more than 65 mm rainfall was also considered as a flood affected as per the government rule. The people who become homeless during the flood period and whose houses were fiercely affected due to the flood water, for such familie government provided per head Rs 1000 as an aid. The per family maximum limit of aid was Rs 5000. The government also allotted the 20 kg food (10 kg rice and 10 kg jawar) and 10 litre kerosene oil to the drastically affected families. Besides that Rs 1 lakh was provided by the central government to the family of the died person. By taking into consideration the water borne diseases after the flood, the government allotted Rs 5.30 crore to public health section of affected areas.

The government requisitioned a large number of buses and trucks for the evacuation of the people from marooned villages. The large number of chlorine tablets and ORS packets were also provided by government to affected people. In this way government took intense effort to mend the common life.

11) There is a need of planning to control the floods. The national commission on the floods government of India was set up in 1976 for assessing the effectiveness of past measures and evolving future approach. Both structural and non-structural measures were adopted by this commission. The flood control planning for the study area involves both structural and non-structural approaches; the flood prevention, flood protection, flood preparedness, flood fighting and flood insurance were the essential elements for the safeguard of the people. The flood prevention and protection

incorporates the construction of dry channel at the brutal turn of the river to manage the excess water during the heavy rainfall period. The construction of the flood wall around river channel where the flood plain is very fertile and having a minimum height than surrounding areas. Besides that at the upper side of the Kumbhi River and the Kasari River small check dams are constructed to manage the excess water. The channel clearing and raised platforms are other important measures to control the floods. The non-structural measures like the flood plain zoning is also the very effective to control the floods in study area. The flood control plans also involves the pre-disaster and post-disaster preparedness, it informs the population about flood risks and what to do in the event of the flood. Some emergency response plans are also given in that plan. And at least to ensure against the losses caused by the floods there should be a provision of flood insurance.

In this way flood control plans are given for the study, if the government starts to implement such a flood control plan, then the damages in the study area can be mitigated to some extent. The structural and non-structural approaches taken by the national commission is the first step for the management of the flood disaster.