

OVERVIEW OF FLOOD PREDICTIONS AND MANAGEMENT TECHNIQUES

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ABSTRACT:

More than thousand people were died during the floods every year in last decade in India. In the countries like India floods are one of the severe environmental disasters. Many states have faced the flood conditions and have lost lives, money, loss to the government and individual properties. Many industries have also faced the huge economical loss due to the situations like floods in India. One the other hand few states in India are not having sufficient rainfall to fulfill the needed water even for drinking. The predictions of the rainfall and the management of water play a vital role to overcome the losses due to the floods by minimizing the impact. It needs to have absolutely effective and accurate prediction system to avoid the situations. Millions of people every year have been affected by the floods and due to the continuous global warming the monsoon is more unpredictable now days.

KEYWORDS: Flood, prediction, management, hydraulic structure, etc.

INTRODUCTION:

Cluster of the designs of the hydraulic structure modifications have been proposed and implemented successfully by the researchers in last decade to support the flood management. The ideology behind the design was to minimize the risk of flood situations in order to save the lost of resources and lives. Use of hydrographs was one of the ways to understand the situation in simple way.

Unit Hydrograph of specific duration has many applications in water resources development. It can serve as an indicator of the flood producing characteristics of a given catchment like flood peak and its time of occurrence. The physiographic characteristics of a catchment have a complex interaction and reflection in Unit Hydrograph. It is important to determine the drainage-basin characteristics which may be used to compare the performance of un-gauged watersheds. For gauged catchment Unit Hydrograph can be derived from measured rainfall and stream flow data either by single storm method or by complex storm method viz. Collin's Method, Least Square Method etc. For un-gauged catchment, Synthetic Unit Hydrographs are derived from empirical relations between the salient Hydrograph characteristics and basin characteristics. Some popular methods are Snyder method, Soil Conservation Services, Commons' method, Mitchell's equation method or from conceptual methods like Nash model.

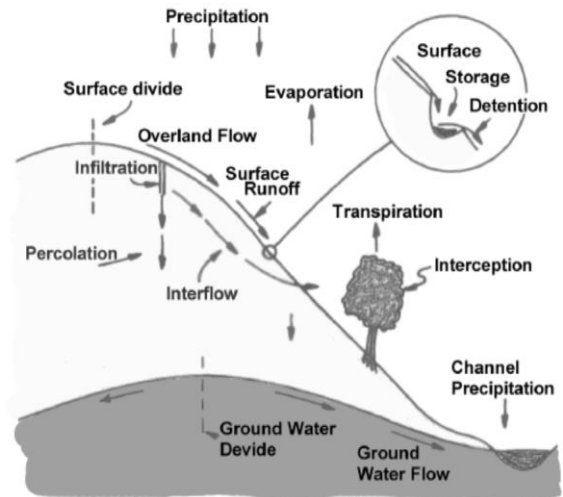


Fig.1: UH Theory

The method of understanding the per centimeter effective rain fall for a particular period over the complete area is nothing but the unit hydrograph. The figure below shows the rainfall of India.

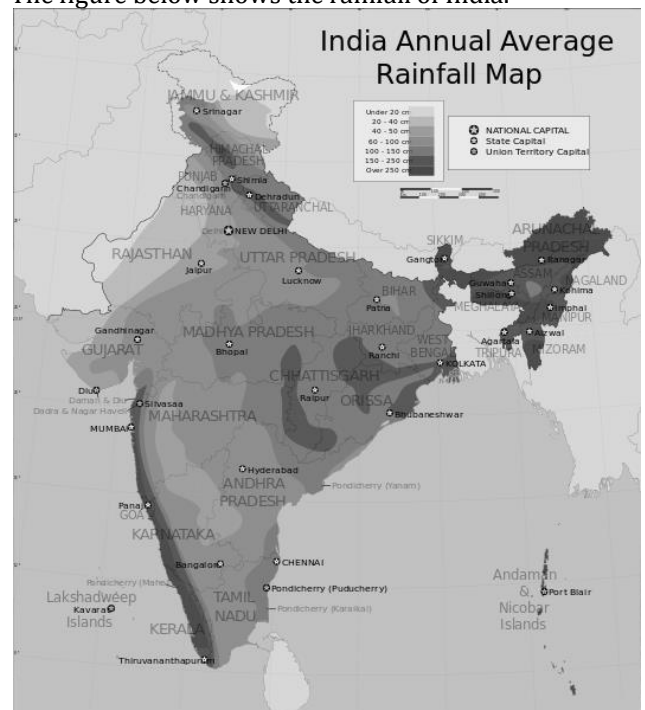


Fig.2: Rainfall of India

The following figure explains the forecasting method for the rainfall. Any method of the rainfall implements the following steps for prediction of the rainfall.

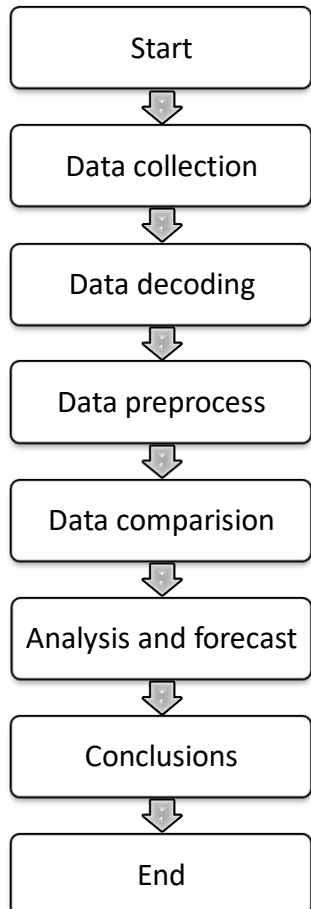


Fig.3: Rainfall forecasting

The forecasting of the rainfall is very important and needs to be accurate. The data over the years is compared with the present situations and environmental conditions. The accurate conclusions were drawn from the analysis and the predictions are made.

MOST AFFECTED FLOODS OF INDIA:

Table1: Severe floods of India and loss of human lives

Sr. No.	Place and Year	Details
1	Bihar-2004	800 people passed away
2	Maharashtra-2005	5000 people lost the lives
3	Bihar-2008	2 million people affected
	Ladakh-2010	300 people died
4	Uttarakhand-2013	10000 people lost the lives
5	Jammu & Kashmir	200 people died

FLOOD MANAGEMENT:

The structure development is the remedy behind the management of the floods. The Indian government is making arrangement of huge budget for the flood management and the infrastructure development. The basic structure needs to improve the drainage, reservoirs, river fronts and interconnections etc.

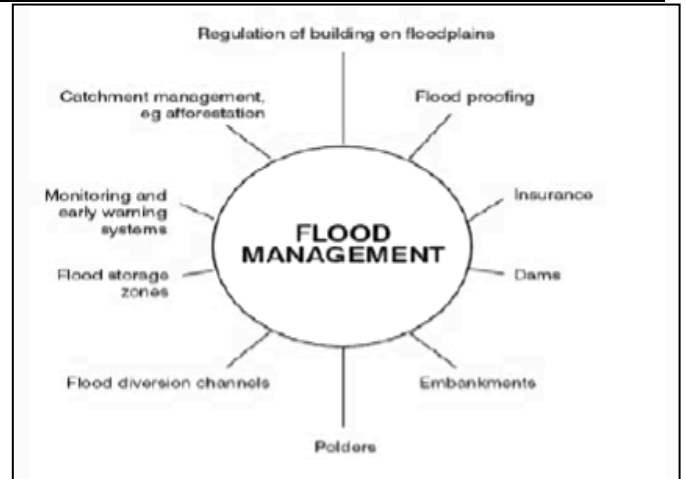


Fig.4: Flood Management

CONCLUSION:

The paper explains about the flood situations and management of the flood to minimize the loss of the property and human being by means of effective prediction of the rainfall. In the countries like India whose economy is based on the agricultural sector the rainfall plays a vital role for planning development and implementation of any government project and scheme. Authors have presented the overview of the rainfall in India and the management methods for the flood.

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