

Department : Civil

Year : 2016-2017

Group No: 4

Guided By

**PROF. UTKARSH
NIGAM**

SMT. S. R. PATEL ENGINEERING COLLEGE, UNJHA

Project Title

FLOOD REDUCTION AND CONTROL IN UKAI DAM'S DOWNSTREAM AT SURAT CITY USING DEVELOPMENT OF FLOOD REDUCTION PLAN

Abstract:

Surat city (which is the India's 3rd cleanest city) faces repeated Flooding from years can be saved by operating Ukai reservoir effectively. The flood mitigation and protection work which is not completed till date need to be completed at the earliest. The high inflow in a dam, reservoir releases and management of the flood during heavy rainfall should be studied well so that proper discharge methodology can be installed in the dam. The problems of flooding in Surat city can be solved by using two techniques. First is the study which may be selected may be mathematical modeling, physical model study, soft computing based control or it may be Proper warning system based study which should be installed in the catchment area of Tapi basin. Secondly a flood reduction plan may be prepared and preventive measures may be taken based on the developed plans. Also the rule levels of operating Ukai dam may be revised maintained properly for flood reduction and mitigation. Relying on software (mathematical) based model and physical model studied various flood reduction and mitigation plan should be studied well which shows the key features of the study area rather than the omission of sufficient data may happen. Due to failure in planning and ineffective operation Surat city is face major flood every after 5 year's recurrence interval and minor floods almost every year. For preparing the flood plan both analysis i.e. software based and map based has been carried out. Flood reduction plan: The Analysis of past flood of Surat city and high releases of Ukai dam has been done to form and develop a good methodology. For adopting the software based model Fuzzy Logic is used. Fuzzy logic based model has been developed to get a relation between Elevation, Gate opening and Outflow. The separate models are developed for all the monsoon months keeping the storage constraint in the form of rule level. Spillways are the hydraulic structures constructed to surpass the surplus water in the dam over it. Gate releases and High inflow events as a case study are considered and analysed in the present study. Both the studies have shown that proper implementation of operational procedure of Ukai dam and then flood relief plan must be implemented than the flood can be controlled up to desired level no problem of inundation.

Prepared By:

Sr. No.	Student Name	Enrollment No
1	PATEL HARDIK K.	120780106012
2	PATEL MIHIR S.	120780106017
3	PATEL SAMARTH A.	120780106027
4	SALVI AYUSH U.	120780106033

