“River Water Resource Management and Flood Control Using GIS”

Project by Final year students of Civil Engineering department, Don Bosco College of Engineering Fatorda

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Abstract

Uncertainties in monsoon, together with inappropriate mitigation strategies have led to two extremes namely- draughts and floods in various parts of the globe. We have tried to approach this problem in way, so as to minimise the cost and maximise efficiency of the flood control system.

Fig1 Bridge during dry season

Fig1 Bridge during flood season

Every year during peak monsoon, the low lying areas in the heart of Villages in South Goa, on the bank of river Kushavati get submerged. History has it that, eight hours of continuous rain will put some places and roads under water making it unavailable for locals to commute. The

meteorological records repeatedly suggest that the duration of the storm, its time of occurrence and intensity is nearly same every year. However, annually the problem gets magnified as silting due to floods has resulted in making the river shallow.

Hence to minimize this problem we have performed a few studies and suggested remedies in order to control the flood problem in the region. Solution to this problem is mainly involved with identifying areas for detaining water nearer to the affected region of Village Paroda and at a lower elevation. Topography and nature of soil was well understood and used to obtain contours, settlements, river, streams and roads. Using the map, the critical areas and the potential relief areas were identified.

This project commenced after the students visited village Paroda and after few confrontations with the villagers the problem of flooding & waterlogging was identified. The field visits confirmed the problem and also opened opportunities for probable sites for construction of detention structures. Methods for harvesting water in the area and recharging the ground water along with detention structures to store the water during excessive downpour have been proposed. Sites & materials were so selected that they are economical and environment friendly compared to most other alternatives that will offer a sustainable solution to the long pending menace in the region.