

# **“Development of Drainage Infrastructure in Xeldem Village using GIS”**

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

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## **ABSTRACT**

Drainage is most essential while considering road design. A good drainage ensures that water from the surface, as well as subsurface, is taken care of. This reduces the maintenance and increases the lifespan of roads. However, due to uneven geometry, poor maintenance and inadequate discharge, water tends to overflow and causes various problems like surface cracking, mud pumping and pothole formation.

Xeldem is a village in Quepem Taluka in the state of Goa. This village has been facing multiple hazards in the form of water-logged roads, landslides, soil erosion and poor water quality issues because of the inadequate and poor drainage system to drain out the storm water. Many a times drains are constructed in an incorrect way because of negligible understanding about the need of safe drainage of both surface and sub-surface flow, hence there is a requirement of holistic planning and concept of total design is necessary for design of a sustainable drainage system.

We selected ward no.3 which is named Davodxet-Taki as our critical area as it is a mountainous region having little to no drainage infrastructure hence during the peak



**Fig No.1.Critical Area of Drain (i)**

monsoon seasons, storm water rushes and seeps down the mountain slope water-logging the road in turn flooding it.

This disrupts the life of the local residents as it blocks the route preventing them from carrying out their daily chores, it is also a commercial route frequented by many heavy vehicles.



**Fig No.2** Critical Area of Drain (ii)



**Fig No. 3**Water Entering on Road



**Fig No. 4** Poor Drainage Design (

After the visits to the wards and hearing the problem faced by villagers from their representatives, we decided to take up this project and offer a feasible solution to drainage problem.

Hence, this project has been commenced with the intention to improve the functionality of the road by minimizing the drainage problem by proposing a feasible alternative or correction to the existing drainage system.

The corrective measures propose in this project are offering economical and sustainable solution to the problems face by the residents of the village. Apart from drainage we have also tried harvest water for the agriculture and domestic purposes The materials used are so selected that there will be minimum and eco-friendly materials used.

