

Storm Protection by Mangroves in Orissa: An Analysis of the 1999 Super Cyclone,  
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**Abstract**

This study assesses the storm protection role afforded by mangroves. It uses data on human casualties, damages to houses and livestock losses suffered in the Kendrapada district of the State of Orissa during the super cyclone of October 1999. The cyclone (of T 7 category) devastated 12 of the 30 districts of Orissa causing 9,893 human casualties and 441,531 livestock deaths, and damaging 1,958,351 houses and 1,843,047 hectares of crop.

The analysis incorporates meteorological, geo-physical and socio-economic factors to separate out the impact of mangrove vegetation on cyclone damage. The results indicate that the mangroves significantly reduced human death and seemed more effective in saving lives (both human as well as animals) than in reducing damage to static property. While there was significant reduction due to mangroves in damage to residential houses and to big animals like cattle and buffaloes, these results were not robust. If the width of the mangrove forest was 10% more than what it was at the time of the cyclone, human casualties would have been lower by 12.48 %, buffalo loss by 6.6 %, cattle loss by 2.23 % and fully collapsed houses by 2.21%. Factors like land elevation, immovable asset holdings, etc., too, had decisive effects on human casualties in the storm surge affected areas.

Key words: Mangrove cyclone protection, storm surge, human casualty function, house damage, livestock loss, wind velocity.