

Valuing the Role of Mangroves in Protecting Coastal Communities from Super Typhoons in the Philippines

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The existence and livelihood of coastal communities in the Philippines are being threatened by the increasing frequency of damaging typhoons. There are anecdotal evidences suggesting that mangroves provide protection against typhoon-related disasters, however, the empirical evidence on this protective function is very limited. Hence, we investigated the protection service provided by mangroves using the incident of super typhoon Haiyan that devastated central Philippines in November 2013. We used data from 384 coastal villages controlling for historical mangrove cover and other confounding village-level characteristics to examine the influence of remaining mangrove vegetation on human deaths and housing damages. Results show that coastal villages with substantial mangrove cover suffered less damages than those with reduced mangrove cover. This life- and property-saving effects of mangroves is robust across several specifications suggesting that the remaining mangroves played a significant protective role in protecting coastal communities from the super typhoons. The estimated average cost of saving a life by retaining the remaining mangrove vegetation amounts to as much as USD 302,000 (PHP 15 million), while the estimated reduction in compensation for totally damaged houses is around USD 53,000. Empirical findings of the study provide substantial evidence that mangroves are capable of protecting coastal communities from damaging typhoons. Policy makers could use these findings to intensify efforts in conserving mangrove forests as a nature-based solution, long-term strategy in protecting coastal communities and better adaptability to typhoon-related disasters.



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