

# Climate Change Adaptation in Coastal Areas Based on Local Issue and Community Participation: Case Study at Demak District, Indonesia

Subandono Diposaptono\*

Firdaus Agung

Directorate for Coastal and Ocean Affairs  
Ministry of Marine Affairs and Fisheries  
Jakarta, Indonesia

\*E-mail Address: subandono.diposaptono@yahoo.com

The impacts of climate change have been perceived in many Indonesian coastal areas in the form of frequent coastal inundation from sea tide, erosion, and extreme wave and storm events. Response and adaptation at the local level remains a challenge for most local governments. Lack of data and information, awareness on the issues, and capacity to develop an adaptive management are among the problems.

The adaptation programs on the other hand need a strong policy and program commitment to ensure its sustainability. As the impacts are cross cutting and related to many sectors in coastal areas, we need an integrated approach for developing and implementing an adaptation program. ICM provides many opportunities to address different sector interests and increase local participation. Implementation of related legislation basis is a must to encourage all stakeholders to respond to climate change impacts in their every day life.

Demak is one of the coastal districts in Central Java, Indonesia that has faced coastal erosion in many years. The erosion rate has been increasing due to sea level rise in that area. Many village infrastructure, facilities, schools, and fish ponds have been damaged by erosion and inundation from the sea. A number of structured and non structured countermeasures have been implemented at the village level to reduce the impacts.

Mangrove rehabilitation was carried out to restore the coastal sediment, supplemented with bamboo structure to reduce wave energy before the mangrove settled. A number of fishermen's houses were also reconstructed in the form of a pile house to adapt with inundation. For the



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longer term, a village development plan was developed through local consultation to facilitate long term development for the area in response to climate change impacts.

Integration of science and management has been shown during the identification of mangrove rehabilitation activities. Harmonization between national program and district program has been carried out to optimize available resources. Local participation and input during issue identification, plan development, and project execution provided valuable support for project success. This approach will be used as a model for climate change adaptation program at the local level in Indonesia.