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Analysis of factors affecting resilience towards climate change on several islands in the Spermonde Archipelago, Sulawesi, Indonesia

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Climate change is affecting the physical environment of coastal zones and small islands in numerous ways, resulting for example in saltwater intrusion into freshwater sources, increased wave action, flooding, droughts, inundation of low-lying areas and beach erosion, as well as an increased intensity and incidence of storms. This has implications for the life and livelihoods of coastal and small island populations. As an archipelagic nation, Indonesia features thousands of small islands, which makes this country especially susceptible to the effects of climate change.
The aforementioned environmental changes lead to effects on coastal morphology, ecosystems, biodiversity, availability of fresh water, infrastructure, fisheries, farming, health and tourism in coastal and small island areas, which in turn will negatively affect coastal livelihoods, threaten food security or even lead to the loss of low-lying islands and coastal areas. These negative effects are already being felt by island communities in the Spermonde Archipelago. Global climate change and its associated effects are reducing much-needed investment and threatening existing and planned coastal infrastructure. Hence, anticipatory measures are urgently needed.
Here, we present the results of a study on the level of local awareness of climate-change related changes in the physical environment. We analyze shortcomings and adaptive potential including the level of awareness and preparedness, and identify factors that help to prepare for and deal with environmental changes. Local knowledge stemming from experiences with past and current changes in the physical environment is a potential source of anticipation and adaptation.
We identify the points of leverage for mitigation and adaptation that reduce the negative effects of climate change. These factors are either situated in the communities, i.e. they have emerged locally among the affected populations, or they were introduced from the outside as part of coastal and small-island management and development programs.