

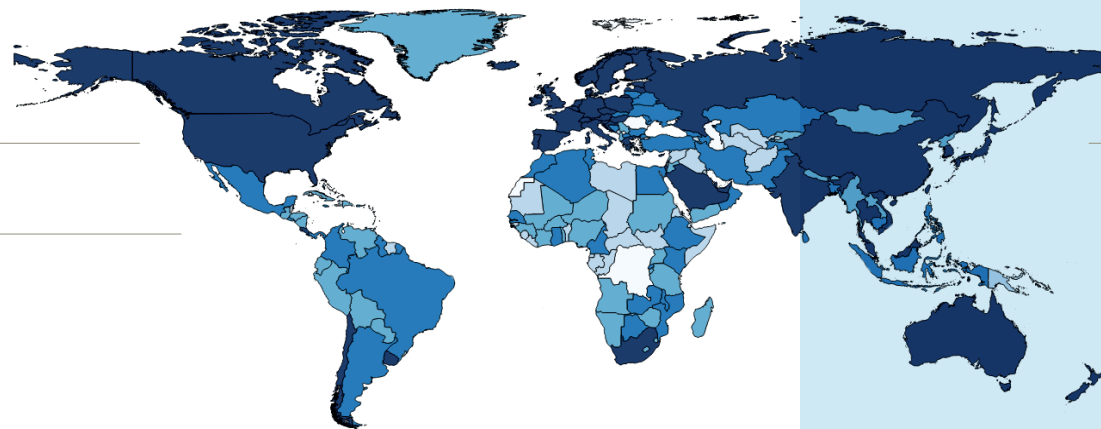
Coastal protection strategies from a social perspective

Around the world, the risk of flooding is higher in low-lying coastal areas and cities like Jakarta, Miami and Ho Chi Minh city. Although the need for coastal protection may be evident, the actual implementation of effective flood risk management strategies is quite a different story. Plans for these strategies may look wonderful on paper but they are difficult to implement due to financial, political and social constraints. In Italy, for instance, corruption undermined the construction of Venice's storm surge barrier and flood risk management plans for Ho Chi Minh city in Vietnam were developed beyond the financial and technical capacities of the Vietnamese government to implement them.

This project addresses the plan/implementation gap by estimating the feasibility of seven different coastal protection strategies worldwide. The strategies range from the construction of hard, permanent structures such as sea walls and storm surge barriers to the preservation of existing natural structures like dunes, coral reefs, nourishment, and the restoration of salt marshes and mangroves.

We assessed the countries' capacities to implement flood risk management strategies on the basis of five dimensions that represent factors which may result in implementation failure. The dimensions are political will, local participation, financial capacity, construction capacity and maintenance & enforcement. A question with respect to political will, for example, is whether politicians are prepared to take action to manage flood risks.

Implementation feasibility curves were developed for each dimension based on the analysis of literature for coastal projects. The curves indicate how important the dimension is for the successful implementation of a strategy. A strategy like mangrove restoration requires local participation and strict



▲ Estimated implementation feasibility for mangrove restoration

enforcement. Otherwise, young mangrove trees may be planted in the wrong way or cut down illegally later. Similarly, a complicated and expensive strategy such as a closable storm surge barrier requires high levels of financial and construction capacity. Databases with global indicators were used to determine country scores for the five dimensions. The database information was combined with the feasibility curves to explore the implementation feasibility of specific strategies in specific countries.

The results of the project are global maps showing implementation feasibility for the various strategies. These analyses help to inform discussions about which protection strategies are most feasible in a given country and whether a strategy is easier to implement in, for instance, New Zealand or China. Furthermore, the analyses help to focus attention on the social factors that enable or constrain implementation, and therefore to raise awareness about the risks for implementation.

This project provides direct input for the Aqueduct Global Flood Analyser, an online tool that shows maps of potential flooding around the world. The tool will integrate the analyses of coastal flood risks, the technical feasibility of strategies, and social implementation feasibility. The maps can be used in two ways. The first is to select those measures with a higher implementation feasibility. The second is to identify the additional efforts required to implement a measure in a specific country.



Mangrove tree



Further reading:
<http://floods.wri.org/>