Deltas in Depth Scientific Sessions	
Deltas in Depth 10. Economics and Finance of Adaptation	
DD 10.1 Financing Adaptation	
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The perennial dilemma of public private partnership projects in policy makers, engineers, scientists and financers continues into climate change adaptation initiatives. While engineers want to build the most robust infrastructure to minimize damage, financers want to minimize the risk of return. Financing adaptation projects is like shooting in the dark, because there is no clear understanding of what actually is considered an adaptation. So, in such an unclear environment for investment, should government institutions take the risk for funding? Contrary to the common perception, most of the funding in climate adaption (about 80%) is coming from private institutions. Even with such a large share of private funding in adaptation, in a review of about 99 privately funded adaptation projects worldwide, it was very hard for many projects to be categorized as genuine adaptation projects. Projects are classified based on the 10 criteria underlined by UNFCC for getting finance for projects related to adaptation. However, these criteria and the indicators therein are defined vaguely, leaving room for negotiation between the funding institution and the recipient. These negotiations often play into interests of corporate and political interests ignoring the requirements of public at large. This lack of clarity in criteria probably explains why many of the projects reviewed did not qualify as adaptation projects even based on the criteria per se. The biggest question then is if private funding is matching the public ambition?

A small step closer to matching public ambition can be to follow a collaborative approach to use the knowledge of the local people and strength of the local ecosystems for adapting to climate change. Every adaptation project is different, and can have a very peculiar geographic characteristic associated to it. In a focussed direction within adaptation is the interesting concept of green adaptation. It is about using natural strength of a local ecosystem to mitigate the threat from climate change. Mangrove dikes in Indonesia to stop storm surge and sea rise are a good example. Regular and traditional dikes need more upfront investment but still cause erosion over time. Mangrove dikes partly supported by traditional dikes (hybrid dikes) need less investment upfront and also cause less erosion, as they are more adaptive. However, when funding such 'green' adaptation projects, that match public ambitions, there is an urgent need for different kind of PPP models as working with nature takes a long time and therefore these projects cannot be evaluated on the same yardsticks for investments in grey or 'non-green' projects.

Another challenge often faced in financing adaptation projects is the need to overcome the common notion that these projects need to be of huge scale in order to attract financers. But as stated before, investing in adaptation projects is yet very unclear for financing institutions. In such a case, it is probably easier to invest in small projects that can show quick results and increase the confidence in such projects. Some such projects include those of urban re-development schemes such as renting school roofs for solar panels, which can help schools to gain additional income that can be put to better use in other areas; greening of public open spaces to create better drainage system and therefore to increase the living standards in the neighbourhoods, which can in turn encourage small







scale business investments in that area that can help recover upfront costs for recovering the costs of redevelopment. Both the cases listed are examples of revolving funds for adaptation projects. These are some of the many innovative ideas being implemented by small companies in collaboration with research institutes in Netherlands. These projects are small in scale and people are able to see the benefits, and when peoples' expectations are met, it encourages a cycle of investments -public private partnerships, in similar projects and thus putting adaptation on a fast lane.



