

FLOOD RESILIENCE AND LIVELIHOOD DEVELOPMENT

Building Back Better: Using Innovative Finance to support Climate Resilience and COVID-19 Recovery in Indonesia

JULY 2020

Given ODA and philanthropic funding now being shifted to immediate response measures for COVID-19, we should not overlook innovative financing. Mercy Corps has been exploring innovative financing options that not only address climate change but also can address the massive unemployment and economic shocks caused by COVID-19. In partnership with Yayasan Mercy Corps Indonesia, Quantified Ventures, InsuResilience Global Partnership, and Zurich Flood Resilience Alliance, we have completed a comprehensive concept development study for a financing mechanism that supports nature based solutions and strengthens livelihoods to increase flood resilience in Pekalongan, Indonesia.

Overview

It is estimated that the effects of COVID-19 could push 265 million people into acute food insecurity by the end of this year. That's almost double last year's total¹. Yet the global pandemic of COVID-19 is not happening in isolation. The start of this year saw an estimated 168 million people already in need of humanitarian assistance². This number – the highest in decades – is driven by conflict, climate extremes, and economic shocks. For many people, COVID-19 is just one of the many challenges they face. Disasters like floods and droughts do not stop because there is a global pandemic. Climate change remains a major global threat. As such it is important to creatively leverage response (humanitarian) and recovery (long-term stimulus) packages to build resilience to multiple hazards and maintain momentum on reducing climate-related risks.



Due to sea level rise and land subsidence, Northern Pekalongan has been permanently flooded for the past 3 years. Some properties have been abandoned whereas others (as pictured here) are being adapted to withstand the permanent inundation.

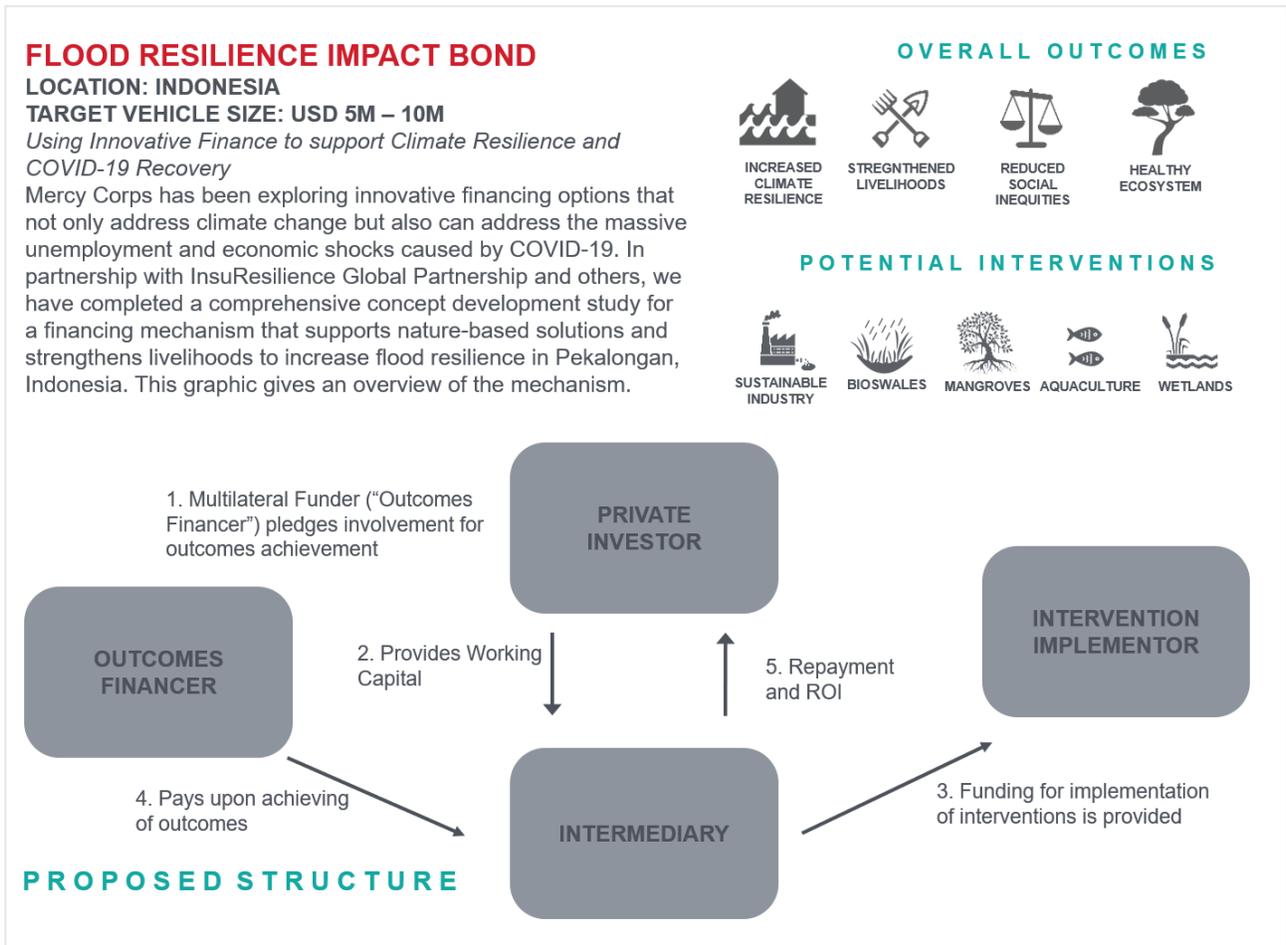
Flooding affects more people globally than any other type of natural hazard. Rising sea levels will put more than half the world's population at risk. As the effects of climate change intensify the problem will only get worse. Estimates of the cost of adapting to climate change are projected to rise to over \$100 billion per year³. And those affected will disproportionately be from low-emission, less developed countries. Given that

¹ World Food Programme | <https://www.wfp.org/news/covid-19-will-double-number-people-facing-food-crises-unless-swift-action-taken>

² United Nations | <https://news.un.org/en/story/2019/12/1052731>

³ Global Commission On Adaptation | <https://gca.org/global-commission-on-adaptation/report>

every \$1 invested in flood resilience saves up to \$5⁴ in future losses, the case for investments in flood resilience is clear.



Multiple Threats in Pekalongan: Flooding Susceptibility and COVID-19

The Natural Disasters Risk Index has rated Indonesia as a country at highest most risk from extreme weather and natural disasters⁵. Pekalongan City and Regency, both on the North Coast of Central Java, Indonesia are among a growing number of coastal areas in Asia suffering from extreme flood events. The situation in Pekalongan is alarming with some Northern (coastal) parts of the city permanently flooded resulting in loss of property, land, and livelihoods. Inland areas are also distressed from extractive local industry, deforestation, and inadequate flood defense infrastructure.

Flooding in Pekalongan has led to cascading negative effects on the population. Farmers and fishers are particularly vulnerable to flooding, causing them to lose their livelihoods and live in poverty. Over the past decade, coastal flooding impacts have worsened in both the City and the Regency. By 2050, over half of Pekalongan’s administrative area is projected to be permanently flooded. Sea level rise that reaches 6-10 mm/year in the region, combined with land subsidence that occurs at an average of 11-25 cm/year impacts

⁴ Mechler R. and Bouwer, L. (2015). Reviewing trends and projections of global disaster losses and climate change: Is vulnerability the missing link? *Climatic Change* 33 (1) : 23-35

⁵ Indonesia | GFDRR <https://www.gfdrr.org/en/indonesia>

Pekalongan threatened by flooding from two distinct drivers, the upstream area and sea; with combined impact that is detrimental.⁶

In Pekalongan City over 70% of households experienced negative social and economic impacts of the COVID-19 outbreak. Alongside the harrowing direct health impacts, the economic impacts of the COVID-19 crisis have been ravaging for the two key industries in the area. The local aquaculture economy has been severely impacted by the timing of the outbreak since it has coincided with the main harvest season and cut all access to regional and national markets. In addition, the local batik industry has seen drops of 50-80% due to closing of wholesale shops in Jakarta and elsewhere.⁷

Despite the severe multi-dimensional negative impacts of COVID-19 across the country, the Indonesian government's budgets are now dedicated to addressing immediate health needs. In response to the health crisis and immediate social support, the local government has reallocated more than half of its flood response funding to COVID-19 response which will have dire implications for ongoing flood mitigation initiatives. Medium-term and longer-term recovery initiatives will be critical to work towards, especially ones that are able to concurrently address building climate resilience and economic recovery.

Nature-based Solutions To Build Resilience and Enhance Recovery

Mercy Corps is developing a vehicle that will finance flood resilience projects including nature-based solutions/natural infrastructure and livelihood initiatives.

The combination of interventions supported by this financing mechanism will increase resilience to flooding at individual, household and community levels while boosting the local economy through livelihood generation. Specific metrics of progress related to the adaptation outcomes of the facility will depend on the exact combination of interventions that are selected in the subsequent design phase. Example of interventions could include: cash-for-work community projects for the planting of mangroves to serve as coastal protection through green and grey infrastructure, green engineered riverside swales for storm water runoff management as well as for sediment removal, eco-edu tourism, wetland rehabilitation, silvofishery (mangrove-aquaculture activity) and sustainable batik production through natural coloring substrate and constructed wetland for wastewater treatment. In the context of coastal and river protection and revitalization for flood risk management, the proposed measures will promote the integration of green infrastructure with the existing and/or planned grey infrastructure. The existence of this green infrastructure will reduce the risk of grey infrastructure to be impacted by hazards such as flooding. Combination of this green and grey structure is thus expected to improve the performance and decrease the operational cost of grey infrastructure, especially in mid and long term.



Permanently inundated neighborhood in Pekalongan

⁶ Nashrullah, Syams & Aprijanto, & Pasaribu, Junita & Hazarika, Manzul & Samarakoon, Lal. (2013). Study of flood inundation in pekalongan, central java. International Journal of Remote Sensing and Earth Sciences. 10. 76-83.

⁷ Mercy Corps Indonesia field office research and reports.

Research and Findings to Date

In partnership with Mercy Corps Indonesia, we have completed a comprehensive concept development study for a financing mechanism that supports nature-based solutions and strengthens livelihoods to increase flood resilience in Pekalongan while simultaneously supporting COVID-19 recovery.

Our research identified a range of interventions the vehicle could finance including the following: mangrove belts, water infiltration basins, constructed wetlands for wastewater treatment, tree planting combining with agroforestry activities, and non-wood energy source introductions for local industry to use instead of cutting trees. The exact combination (including exact locations and scale of individual interventions) will be scoped through a design phase. Impacts of each intervention need to be measured closely and reliably so the transaction structure can rely appropriately on monetizing the co-benefits. While the exact metrics to be used needs to be further researched and selected through the design phase, potential metrics have already been mapped out such as the following: satellite imaging (land-water ratio, forested areas, etc.) over time, sediment/accretion rates, fishery counts, water quality, surface water flow, and wood consumption. Currently, we are also conducting a landscape resilience analysis, flood resilience analysis and economic-non economic loss valuation aspects in Pekalongan to feed into this structuring of the initiative.

The proposed overarching structure of this vehicle is a results-based financing mechanism often referred to as an impact bond. Like a traditional bond or other debt, impact bonds provide upfront capital to pay for projects from private investors who are repaid over time. However, rather than using a set interest rate, repayment in an impact bond is made based on the value of beneficial environmental, social, and economic outcomes that are generated by projects. By tapping into a holistic, economic-based view of project outcomes, governments and other entities can ensure capital spending on projects is made more efficient and aligned to the impact the projects achieve, while potentially leveraging payments from a broader set of project beneficiaries. While the anticipated size will likely be between \$5 million - \$10 million, the exact terms of the mechanism—such as size, interest rate, tenor, performance payment probability, and performance payment size—requires further research and stakeholder engagement.



There are a variety of adaptive measures in place in Pekalongan including both green and grey infrastructure.

Findings of this study included an in-depth review of the local institutional context including existing financing structures for flood resilience projects in Indonesia and how public good provision is financed in Indonesia including the local regulatory environment, government structures, budgeting processes and relevant actors. Additionally, the study identifies stakeholders that could potentially be involved in the transaction. For a copy of the full study, please email Aparna Shrivastava, Climate Finance Lead (ashrivastava@mercycorps.org).

Looking Ahead

As funds flow towards COVID-19 response and recovery, it is critical to ensure investments do not result in maladaptation (ex. building health centers in flood plains) to current and anticipated hazards, and have wider co-benefits for resilience, livelihoods and economic recovery, especially where DRR funds are being reallocated to COVID-19.

The World Bank has already developed a “Sustainable Checklist for Assessing Economic Recovery Investments”⁸ to help to guide governments and donors towards a resilient recovery. But to ensure resilience thinking is deeply embedded in COVID-19 response and recovery packages and is the most cost-effective in times of economic crisis, donors and governments should also screen their response and recovery packages to ask the following:

- Are you providing enough flexibility to incentivize “multi-purposing” funds to address COVID-19 and other threats?
- Are current aid practices hurting a more resilient recovery?
- Is money going to “where it matters most”?
- Are you considering protecting and strengthening communities’ social capital even in times of physical distancing required by COVID-19?
- Are civil society and community perspectives and needs considered in recovery plans?
- Are you taking a ‘systems-approach’ to recovery from COVID-19? Are you and implementing partners considering the full spectrum of risks localities are vulnerable to?
- Do recovery packages fit into long-term developments plans that are climate smart and risk informed?
- Are projects stimulating local economies and addressing livelihoods to enable economic recovery from the impacts of COVID-19?

The initiative outlined in this brief aligns strongly with this checklist and with outcomes gathered from the completed study, the subsequent phase of work will focus on finalizing and operationalizing the financing structure. While directly addressing the economic impacts of COVID-19 and looming concerns relating to climate change in Indonesia, this initiative will serve as a replicable model for the growing number of coastal geographies needing to strengthen their climate resilience while recovering from the impacts of the COVID-19 crisis. Mercy Corps is interested in exploring partnerships with interested parties for collaboration and implementation.

⁸ Planning for the economic recovery from COVID-19: A sustainability checklist for policymakers | <https://blogs.worldbank.org/climatechange/planning-economic-recovery-covid-19-coronavirus-sustainability-checklist-policy-makers>

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About Mercy Corps

Mercy Corps is a leading global organization powered by the belief that a better world is possible. In disaster, in hardship, in more than 40 countries around the world, we partner to put bold solutions into action — helping people triumph over adversity and build stronger communities from within. Now, and for the future.

About the InsuResilience Global Partnership

The InsuResilience Global Partnership for Climate and Disaster Risk Finance and Insurance Solutions was launched at the 2017 UN Climate Conference in Bonn. Since its launch, more than 75 members have joined the Partnership. The Partnership aims to strengthen the resilience of developing countries and protect the lives and livelihoods of poor and vulnerable people against the impacts of disasters.



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