

Building Resilience with Private Sector Engagement: Enabling Socially and Environmentally Responsible Investments in Disaster-Prone Communities

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Partners for Resilience (PfR) commissioned this research conducted by masters students of the International Development Department at the London School of Economics (LSE) for a 6-month consultancy project. The aim of the report is to identify the possibilities of resilience investments that can create a co-benefit for both communities and private sector companies.

As an alliance of more than 50 Civil Society Organisations in the Netherlands, Africa, Asia, and Latin America, PfR functions through these partners with expertise on humanitarian, climate, land use and sustainable development, identifying areas of vulnerability and enhancing community resilience. PfR's programming is operationalised through an integrated-risk management approach (IRM), highlighting the importance of the nexus between climate change, ecosystem management, (mal)development practices, interdisciplinary action, centrality of communities, and the landscape approach. PfR is advancing dialogues with governments, private sector companies, multilateral donors and local CSOs to build resilience. For this research, the focus is on Responsible Investments defined as an approach to investing that aims to incorporate environmental, social and governance (ESG) factors into investment decisions, to better manage risk and generate sustainable, long-term returns¹.

To aid PfR in its continuous dialogue efforts on resilience focusing on responsible investments, PfR and the consultancy group came to the following research question:

¹ <https://www.unpri.org/pri/what-is-responsible-investment>

What key conditions are required to enable a resilience investment and what opportunities can be provided for promoting socially and environmentally responsible

The report identifies three key sub-questions to answer the research question:

1. What are the current practices of private sectors in building resilience, and what contributes to a strong private engagement in increasing resilience?
2. What elements of resilience-building are important to include in the investment cycle and development?
3. What is the role of government in encouraging private sector involvement in resilience?

Overview of Conceptual Framework (s): from literature review

There is limited research examining how investments can purposefully (or directly) improve community resilience, and how stakeholders should work together to facilitate investments to reduce vulnerabilities and improve adaptation capacities. In this report, we address the gap through a review of three concepts: shared value creation in private investment, humanitarian assistance in vulnerability reduction and adaptation, and the enabling environment that is facilitated and supported by government regulation and institutions. The conceptual framework is as follows:

1. The concept of **shared value creation** underpins the current partnership between the private sector and other stakeholders including governments, NGOs and communities. It indicates that integrating a Disaster Risk Management (DRM) strategy into business operations benefits both the communities and the investment itself. This concept is important to understand the motivations and incentives that drive business engagement in adaptation and resilience, and furthermore, provides guidance and information when collaborating with the private sector.
2. The concept of **resilience** is widely accepted by humanitarian and development practitioners as well as policymakers, working to reduce the vulnerabilities of communities highly affected by climate change hazards and climatic disasters. Although the conceptualisation and operationalisation of resilience is not universal, the understanding of resilience in humanitarian and development programming is not only useful but also

perceived as crucial. Generally, the concept describes the ability of an individual or community to not only recover from stress and shocks (Adger et al. 2005), associated with natural hazards, but also prepare and manage the changing environment. In other words, resilience activities involve strengthening livelihoods so that communities have the means to lessen the effects of such disturbances. Resilience is affected in many dimensions. For example, physical infrastructure, access to natural resources, as well as government policies and bureaucratic capacities enable or obstruct adaptation opportunities (Oxfam, 2013). Therefore, when analysing investments and their impacts on the community, resilience and resilience-building are important concepts to deploy in order to understand the myriad of effects investments can have on livelihoods and the possible opportunities that exist for stakeholders to participate.

3. Both public and private institutions often wonder how they can work more effectively together and what conditions are required to enable the transition to systemic resilience. The concept of an **enabling environment** is a varied term in academia. In regard to resilience, the concept underscores the essential pre-conditions required to facilitate or hinder community resilience. Government mechanisms, partnerships, institutional frameworks act as incentive structures for responsible investments that reducing disaster risk and enabling adaptation (UNISDR, n.d.).

Structure and relevant areas of analysis

We begin with our introduction, methodology, theoretical framework and review of literature as related to investments in climate adaptation and DRR. Subsequently, the report presents our analysis of different forms of investments in two disaster-prone countries, Kenya and Indonesia, which are relevant to PfR's current field work on climate adaptation and resilience. The consultancy group mapped the four cases according to the type of investment for closer analysis. With information from desk research and interviews, the report examines the impact of investments on community vulnerability to natural hazards; the current roles of relevant stakeholders in adaptation; and possible opportunities for improvements in resilience. The report concludes with possible challenges for resilience-investments and the consultancy group's opinions on the future of private sector investments in climate adaptation and resilience.

The main argument consists of three sections. Our analyses are presented as the following:

Firstly, the consultancy group investigated the DRM strategies that is adopted by business. These strategies differ according to their size, structure and investment environment. Accordingly, the consultancy group made a comparison between the DRM strategies adopted by Nestle and Sarova Shaba Hotel. We found that through reducing risks and strengthening resilience in the communities, business continuity is ensured and the communities benefit through a more stable livelihoods. The DRM strategy has been developed systematically along Nestlé's supply chain which aims at reducing risks. ON the other hand, the strategy adopted by Sarova Shaba Hotel, a private enterprise, presents a greater dependence on local partnership with community leaders and government officials. In addition, we found that collaboration of multi-stakeholders can stimulate business participation if the factors that drive their adoption of DRM strategy can be recognised. We argue that adaptation and resilience centre on the wellbeing of the locals, and therefore, require different investments approaches than traditional business models. Our analysis also suggests that standardising an effective practice is necessary to make resilience more measurable and more compatible to business models. Moreover, higher DRM awareness among stakeholders can urge transformation in business strategy with greater risk sensitivity, since business, regardless of size, is subjected to market pressure and stakeholder inspection.

Secondly, investments, both small-scale and large-scale have intended and unintended socio-economic impacts on vulnerable communities. While the concepts of vulnerability and resilience are well understood there lacks a consensus on how to apply the humanitarian concepts and tools for resilience investments. The investments of LAPSSET and BwN have a variety of effects on vulnerability and resilience, and in both cases, investments did not include systematic tools for evaluation. Although the Kenyan government conducted a Strategic Environmental Assessment (SEA) for LAPSSET, and WI is developing resilience indicators for the BwN project, the consultancy group finds that both investment cycles lacked crucial elements of resilience-building in their development plans. For resilience-investments stakeholders must understand not only the climate risks, but also the social, economic and political risks. Therefore, investments require strong community engagement throughout the project cycle. In addition, knowledge-sharing, or information extension services, are imperative for project success and for adaptation.

Thirdly, with increasing recognition of the importance of private sector finance and role in adaptation, governments and researchers have and continue to debate the right conditions to encourage and support private sector adaptation whilst improving community resilience. This section finds that essential elements include general legislature acting as incentives for

responsible behaviour. Viewing the case of LAPPSET, although the Kenyan government has stringent legal frameworks, issues of land access and land tenure are main aspects of the project. The need for stronger regulatory mechanisms ensuring private compliance with laws. Furthermore, this report finds that a limitation facing private sector adaptation is the problem of finance. Finally, our findings suggest that due to a lack of political will and coordination amongst both national and local levels of governments, legal frameworks for DRR and adaptation often falter during implementation. Both LAPSSET and BwN show the importance of coordination and multi-stakeholder participation in creating an enabling environment for adaptation. Our findings show, a main element of BwN's success is grounded in its ability to influence policy dialogue and collaborative coastal protection between the varied ministries.

Cases in brief

LAPSSET Corridor Program is a regional infrastructure project aiming to facilitate economic growth between the Eastern African countries Kenya, Ethiopia and South Sudan (LAPSSET, 2016). The program is funded under the PPP framework—an agreed upon concession or other form of contractual arrangements (PPP Act, 2013). PPP Act 2013 articulates an important role of the government in undertaking feasibility studies, which includes environmental and social impact assessments. One major concern about the LAPSSET project stems from its impact on the communities in the region. Some argue that the project is likely to intensify land and resource competition particularly in Isiolo

Building with Nature (BwN) in Demak is a coastal zone management project headed by EcoShape, a consortium of knowledge institutes, government agencies and private sector firms that actions both environment restoration and designed engineering (Ecoshape, n.d.). The project's objective is to both mitigate further coastline degradation by restoring the existing mangrove ecosystem and facilitate adaptation to rising sea-levels and land

Sarova Shaba Game Lodge (Sarova Shaba) is one of the branches under Sarova Hotels, Resorts & Game Lodges, and a leading hotel chain in Kenya. It is a private enterprise and has integrated social and environmental concerns into its business operations through a plethora of partnerships with communities and NGOs in its various locations. Floods and drought in the area affect business, which also intensify tensions between communities.

Nestlé is a publicly traded multinational enterprise, and therefore, must comply with stringent regulation and inspection from investors and shareholders. The changing climate threatens the supply of its raw materials. In response, the company undertakes a variety of shared value projects in the communities in which it operates, including the *Nescafé* Plan. Starting in 2010 to promote responsible farming, Nestlé maintains the quality of its products through investment in high yield disease resistant coffee trees. This has been successful with the farmer increasing food security in its first few years.

Data collection

Our arguments and suggestions are supported by both primary and secondary data. The three key components of the report, which relate to private incentives, resilience assessments and enabling environment, are all informed by academic literature and tertiary case examples. The consultancy group conducted desk research in each case, which includes government reports, business reports, legal documents, project brochures and workshop materials. Also, the groups conducted interviews with key stakeholders in each case, including a local officer of PfR in Kenya, researchers from Deltares, a hotel manager from Sarova Shaba hotel, and a survey from the Nestlé Kenya's regional officer. The interviews provided us with insights for each case and strong support for the key recommendations in this report.

Limitations

As in any research, some limitations can be raised.

- The group realises that in addition to changes in temperature, climate change is also associated extreme weather events, and thus, require specific mechanisms for risk management apart from general adaptation framework. The topic of climate adaptation is broad, and there is often a lack of clarity on what differentiates a DRR from CA intervention. We use both of the terms together in our report.
- As private sector involvement in CCA and DRR measures is still relatively new, there is a shortage of research on this topic.
- The analysis in this research is largely informed by previously published materials. We utilised interviews as additional support, rather than as main sources of evidence.

Despite these limitations, the consultancy group suggests that the findings and recommendations in this report are valuable in facilitating dialogues among multi-stakeholders.

Policy Context

In December 2015, 195 countries signed the Paris Agreement on climate change, and since COP22 in Marrakech, Morocco, ASEAN member states and over 30 African countries have committed to full implementation of climate resilience activities (Munang, R., & Mgendi, R., 2017; UNFCCC, 2017). The Paris Agreement highlights both ecological and economic importance of climate resilience-building; however socio-economic challenges, such as food insecurity and unemployment, pose a challenge to the promotion and construction of sustainable development in many developing countries. Despite the concerted efforts by governments, to mitigate, respond, and prepare for the adverse effects of climate change, further funding, technology and other forms of assistance are needed to effectively reduce vulnerability and increase both human and environmental resilience.

Multinational organizations and consulting groups are investing in research and the development of frameworks within which corporate investments can embed and drive resilience (Izumi & Shaw, 2015). A report by UNISDR and PwC states that the cost of damage from natural hazards and extreme weather is increasing by the decade. The cost of damage to factories, offices, resources, and other assets, cost about 10 billion USD in 1975, increasing to nearly 400 billion USD in 2011 (PricewaterhouseCoopers, 2013). Hence, driven by motivations to protect their operations and assets, businesses are often among the first responders to natural hazards and the first investors in climate risk prevention. 70 to 85% of investment dollars in disaster risk reduction come from the private sector, most commonly engaging in contingency planning for natural hazards, financial mechanisms in disaster preparedness and public-private partnerships for production of sustainable products and services (Johnson & Abe, 2015). However, given the increasing frequency and scale of climate change-related shocks and risks (IPCC, 2012), the international community is planning to further engage the private sector, encouraging plans to enhance human capacity for adaptation and disaster risk management (DRM) in business strategy, investments, and operations.

In light of the efforts and goals of the U.N. and its operating multinational bodies, our partner, PfR, is focusing its efforts on spreading awareness of resilience-building, and communicating the importance of community empowerment for risk and vulnerability reduction to stakeholders in different sectors. Therefore, the report examines factors which

strengthen multi-stakeholder engagement in increasing resilience, and the conditions under which investments will be environmentally and socially responsible.

Literature Review

Context of Resilience and Adaptation

In the context of today's globally interconnected economy, private company and public-private investments are gaining increasing attention within national and international governance (Crick et al, 2017). Climate change threatens global value chains, economic growth and development initiatives; simultaneously, investments may exacerbate the effects of climate change and natural hazards, exposing vulnerable communities to climatic, but also social and economic risks (Izumi & Shaw, 2015). Policymakers, academics, and humanitarian-development practitioners explicitly call on the private sector to engage in the generation of adaptation strategies and sustainable development that foster resilience-building (Crick et al, 2017).

Spearheaded by the United Nations (United Nations Global Compact and UNEP, 2012; UNFCCC, 2013; UNCTD, 2014), the international community advocates for the promoting adaptation and sustainable development by all actors, and investors, in society (Crick, et al, 2017). For instance, unlike previous reports, the IPCC's Working Group II report of AR5 (2014) focuses on co-benefit generation in adaptation investments for both the investors and the community. The AR5 report refers to such efforts as "climate resilient pathways;" in other words, investments in adaptation that do not exacerbate or cause "dangerous interference with the climate system" (UNFCCC).

However, climate-related disasters are increasing in severity and intensity, making the efficacy of sustainable development projects more difficult (AR5, IPCC). Studies show that the most vulnerable to climate change-related hazards are those that do not have the capacity to prepare, mitigate, and recover from natural threats. Recognising that adaptation is a key issue for the success of sustainable development, the Sendai Framework for Action (2015-2030) further highlights both adaptation capacity and risk management at the community-level. Evidently, practitioners and policymakers have expanded the discourse of climate change and disaster risk reduction beyond analysis of

geographical features of vulnerable communities to address adaptation systematically (Djalante & Thomalla, 2010; Smit & Wandel, 2006; Brooks, 2005). To equip communities to face changes in their environment, UNISDR promotes the use of resilience as a tool to be adopted into investment and development planning.

Similarly, academic literature explains that in light of climate change and climate change-related risks, investments in disaster-prone areas should be recognized as impactful on individual and community adaptation in a plethora of facets (Ayers & Huq, 2009). Investments, both large-scale (bridges, dams, roads) and smaller-scale (seeds, fertilizer, education programs), affect the level of vulnerability and the capacity to be resilient to climate change and natural hazards. The concept of vulnerability, is used analytically to explain risk reduction and resilience-building as contextual and requiring personal dimensions (Cannon, 2008). The concept shows that individuals, households, communities are exposed to risk due to political, economic, and social processes (ibid). Given the contextually-specific nature of vulnerability, development that separates vulnerability and resilience-building from investments may leave communities unprepared and unprotected from ecological as well as other social and economic changes (Wechselgartner & Kelman, 2015). Therefore, the private sector needs to understand the drivers of vulnerability to climate change and related natural hazards in order for investments to be resilience-sensitive (Crick et al., 2017; Ayers, 2010).

In the following chapter, the consultancy group will investigate under what conditions the private sector is more likely to incorporate adaptation strategies and resilience thinking in their investments.

Private Sector Engagement

As is shown above, building resilience is the responsibility of all stakeholders. Businesses can provide necessary services and required technologies for resilience, including infrastructure construction, dissemination of adaptation products and provision of financial resource (Biagini & Miller, 2013). Additionally, business operations are also affected by climate change but also by mismanagement of natural resources. Under rapid globalization, many companies outsource their production to low income countries that are often vulnerable to climate hazards. Climate change and associated natural hazards can lead to losses in reputational capital, private properties, and financial returns, and

disrupt main supply chains (Principles for Responsible Investment [PRI], 2017). Certain risks will be discussed in the case studies in the following chapter.

Biagini and Miller (2013) indicate that successful engagement of the private sector will increase investments in vulnerability reduction, and will lower the costs of replication of technologies resilient to climate change. The following shows how private sector can participate in tackling social and environmental problems.

Corporate Social Responsibility (CSR) currently underpins private sector engagement in humanitarian issues. Since the 1990s, the CSR argument and its frameworks, which address social and environmental issues, are viewed as business obligations (Bowen, 1953). But the practices were mainly carried out in the form donations, which had limited effect to tackle the root causes of vulnerability.

In 2000, CSR practices shifted from philanthropy towards **shared value creation**. Reciprocity became the most salient feature in the new corporate partnership of solving social and environmental problems (Dolan & Rajak, 2016). In this case, positive social impact and economic incentives are both created which act as the momentum of keeping the partnership. As a result, studies of CSR started to focus on performance-related analysis and to examine how CSR can generate profit to business while tackling social problems. Scholars and management researchers have made efforts to connect CSR to companies' internal performance, for instance, how CSR creates competitive advantages and new market expansion for the company (Lee, 2008). Thus, through shared value, business can create economic value by optimising their impact to the society (Porter & Kramer, 2011).

Shared value implies managing risks to reduce losses while also creating value for communities. Natural risks that arise from climate change affect both communities and business. In response to climate change, businesses need to adapt production to ensure the stability of its raw materials and protection of farmers' livelihoods. So, it is important for the private sector to both understand potential climate risks in their operations and build capabilities to respond to natural hazards (Chen et al., 2013). Also, communities in the region where business productions are located may benefit from a more climate resilient livelihood by reducing threats to their resources.

Creating an Enabling Environment

In the previous sections, our report has drawn from fairly disparate literature to identify key characteristics of business involvement in adaptation and DRR. As the previous sections suggest resilience entails a multifaceted process in which all stakeholders require an understanding and contribution in ensuring its success. The involvement of private investment and its successful engagement is crucial to reducing vulnerability and has shown considerable success when implemented. However, there are limitations in encouraging private sector involvement in adaptation. For instance, although awareness of climate risk is high in the private sector, businesses implementing adaptation strategies remain in the minority and tend to focus on specific sectors such insurance (Crick et al 2017). Therefore, to encourage risk-sensitive investments, scholars cite the need for governments to create an enabling environment, which creates incentives for innovation and positive impact and disincentives negative behaviour. For instance, Phong et al (2015) suggests that the private sector is unlikely to participate in necessitating climate change investments unless incentivised by government. Yet the role of government in enabling private sector adaptation has often been overlooked in the literature.

Examining the role of governments is important. Although adapting to climate change is often limited to technological transfers and technocratic approaches, adaptation requires enabling policies, as well as dynamic institutional frameworks (Phong et al,2015; Crick et al, 2017; Trabacchi et al, 2015).

With this in mind, this report conceptualizes an enabling environment for private sector engagement as a policy environment that encourages incentives for business activities and minimises environmental and social costs. According to Fox et al (2015) this can be ensured through the following:

1. Mandating legal and regulatory frameworks
2. Facilitating efficient institutional frameworks
3. Partnering with relevant stakeholders

Table 1: Overview of DRR and Adaptation Legislation and Institutional Arrangements

COUNTRY	KENYA	INDONESIA
Relevant legislation	<p>Climate Adaptation: Climate Change Act 2016 County Governments Act 2012 N.17 of 2012 Environmental Management and Coordination Act 1999</p> <p>DRR: National Disaster Management Draft (2009)</p>	<p>DRR: Disaster Management law no 24/2007</p> <p>Sector specific: Law no 27/2007 management of coastal areas; Law no 32/2009; Village Law 6/2014; Mangrove Law no 32/ 1990</p>
Climate Adaptation and DRR Plans	<p>Climate Adaptation: National Climate Change Action Plan (NCCAP 2013)</p> <p>DRR: National Disaster Response Plan 2009 (Draft)</p>	<p>Climate Adaptation: National Action Plan 2010-2012</p> <p>DRR: Disaster Risk Management plan RENAS PB 2010-2014</p>
Institutional Arrangements	<p>DRR: Coordination with eight main agencies including Kenyan Red Cross, National Drought Management Authority and National Disaster management Agency (NADIMA) (not yet created)</p> <p>CCA: Minister of State for Special Programmes; National Climate Change Coordinating Committees; National Environment Management Authority; County governments</p>	<p>Inter-ministerial coordination: Ministry of Environment; Ministry of Marine Affairs and Fisheries; Bappenas</p> <p>CCA: National Climate Change Committee (NCCC) to coordinate responses</p> <p>DRR: BPBD, also has regional agencies BNBD</p>

In this section, the report will demonstrate that resilience-building is a key element of development and investment planning that can be best conducted through participatory and dynamic vulnerability and capability analysis. Through investigation of two PPP investments, the comparison of Lamu Port and Lamu-Southern Sudan-Ethiopia Transport Corridor (LAPSSET) and Building with Nature (BwN) presents models of development that differ in the degree to which they incorporate and adopt resilience. Although the investments are similar in that they are large-scale infrastructure projects, the case of BwN demonstrates superior conditions for improving adaptation capacity and resilience-building. This section will underscore key characteristics of resilience interventions, supported by interviews with different stakeholders connected to both LAPSSET and BwN, and analysis of reports on completed humanitarian resilience-building projects.

Vulnerability

Through trade, GVCs, PPP investments, and CSR initiatives, investments and business operations affect individual and community vulnerability as well as the ability to cope with natural hazards. As explained previously, investments in community adaptation and resilience are on the margins because firms are incentivised to invest according to the level of risk, but also where projects result in quantifiable evidence of a return on investment. Although governments, private enterprises, NGOs, and community leaders are aware that investments such as dams, bridges, roads etc. will affect individual and community adaptability, investment plans currently do not embed strategies to empower and protect communities from climate change and climate-related hazards (Ayers, 2010). Although businesses invest according to global standards for sustainable practices and investments (Appendix II), often in the forms of contingency plans and impact assessments, assurance of accountability appears to be weak. Specifically, for investments in community adaptation, impact assessment projects require thorough research on social and economic indicators in order to establish a solid baseline. Community vulnerability impact assessment toolboxes exist; however, few invest in the project because of cost implications or insufficient methodological knowledge and guidance.

As illustrated in the methodology section, the investments of LAPSSET and BwN are motivated by public incentives and interests, such as coastline protection and economic

development; therefore, the commitment to adaptation and vulnerability reduction differ to that of a humanitarian and humanitarian-development initiatives. The consultancy group finds that large-scale investments, most commonly in the form of PPP, often do not *systematically* evaluate and monitor vulnerability, nor do they embed resilience activities into the investment cycle, resulting in projects that do not effectively address the root causes of community vulnerability.

- As part of Kenya's Vision 2030 development plan, LAPSSET is intended to bring new economic opportunities to the pastoral northern regions of Kenya, including new job opportunities and higher agricultural productivity through the development of new irrigation systems and hydro-electric dams (Enns, 2017). While economic improvements in livelihoods of communities in northern Kenya are important factors for improving adaptation capacity to natural risks, such as floods and droughts (Twigg, 2009), it appears that the economic development priorities may complicate vulnerability reduction and resilience building.

Scientific research suggests that the proposed Isiolo Dam will reduce streamflow for downstream communities, especially those who live by the entry point of the Isiolo River are dependent on the water supply of the Ewaso Ng'iro River (Vilela & Bruner, 2017). Prior to the proposal of the dam, the community was concerned with high-levels of water abstraction and storage for government-led investments (SEA). The Memorandum, written by several communities on the construction of the Isiolo Dam, demonstrates concern for the absence of adaptation strategizing built into the development plans that are needed to be resilient to the socio-ecological changes connected to the construction of the dam. The Memorandum includes a request that the government pegs development to the pace of water conservation efforts as currently it is projected that the current development plans do not properly address issues of water distribution (Takai, 2013). Although construction of the Isiolo Dam will meet the water demand for some users, the available water for the downstream communities is projected to decrease significantly (Vilela & Bruner, 2017).

It is evident in the case of LAPSSET, the community's perception of vulnerability differs to that of the government, which currently prioritizes economic

improvements over other factors that contribute to the level of resilience such as DRM skills and knowledge.

Implications

The negative consequences and perceptions of LAPSSSET suggest a similar model to what Blaikie et al (1994) refers to as the 'disaster pressure model': unsafe conditions and increases in vulnerability follow project development due to unequal power relations. Under this model, investors and developers do not adequately measure or evaluate vulnerability and the adaptive capacity of all communities. As a result, the absence of resilience in investments is the root cause of community vulnerability. The usual coping and adaptation strategies to climatic risks become insufficient because they are no longer effective for the resulting changes and additional stresses from the investment.

- In recognition of the both environmental and economic importance of the mangrove ecosystem in Demak, BwN aims to both mitigate further erosion and improve the coastline through sustainable development—including engineered water infrastructure solutions—and humanitarian assistance to the local community. Previous investments along the coast have caused significant harm to the environment and have increased community vulnerability due severe flooding and loss of key economic resources. For decades private business and investors used the resources provided by the mangrove area, such as timber, fuel wood, non-timber forest products, the supply of fresh water for domestic developments and economic activity in the city of Semarang (Tonneijck et al., 2015). However, rising sea-levels, land erosion, and flooding has had adverse effects on infrastructure, like irrigation canals, and has diminished farming productivity (ibid). With weak government oversight, investments did not assess environmental impacts or understand the community's level of vulnerability to land erosion and water pollution. Although the development of irrigation canals and ponds have benefited industry, it has also contributed to the rural community's vulnerability to climate change.

BwN has a two-pronged approach for addressing the economic and biophysical vulnerabilities of the community: it assists communities adapt and manage

coastline erosion, as well as cope with the decline in farm and fishing productivity. Unlike other coastline erosion prevention investments that fund the construction of seawalls or dikes (Tonneijck et al., 2015, p.20), BwN is an investment in the existing environment, aiming to improve the landscape surface, minimize intrusion of seawater, and revitalize the aquaculture that the economy is dependent upon. In the interview with the Coastal Safety Manager of Wetlands International (WI), he explained that understanding the importance of mangrove reconstruction among farmers and private business is beneficial to both community adaptation and vulnerability reduction. He further suggests that the project will assist the formation of linkages between rural farmers and fisherman with the private sector (January 18, 2018).

Implications/Conclusions

A major component of the BwN project is to address the co-benefit to investing in coastal adaptation. Particularly in Demak, protection of the coastline is a profitable endeavour for both the state and business as fish farming is the dominant form of employment and business in the area. Hence, BwN allocates a significant proportion of time and money to conducting research and developing businesses cases to present adaptation as a potential growth market for both government and private companies. The research shows that the 'Business as Usual' scenario in Demak would result in fully flooded farming areas and villages: it is projected that 30 million people will be affected by coastline erosion. According to a Resource Economist at Deltares, despite the figures and the sense of urgency among the community for change, the public sector often does not allocate sizable funding for coastline protection due to scarce resources, demands on ministry budgets for other affairs, as well as the high risk of negative trade-offs of investment. For example, as a result of construction, often individuals and families must be relocated for the benefit of the majority (February 1, 2018). It is evident that government budgets for coastline protection are not sufficient, especially in Indonesia, and therefore, private finance is necessary for coastal adaptation.

However, although adaptation is a key feature of the project, vulnerability and resilience have yet to be mainstreamed into the investment cycle. According to a Resource Economist at Deltares, there is no existing mechanism to ensure that private companies

invest in coastal resilience and adaptation; it is not directly a lucrative investment, but rather an investment to mitigate risk and reduce future damages. Furthermore, interviews revealed that the investors of BwN perceive adaptation as a public responsibility, not a private initiative. In other words, business will invest in development, but it is the responsibility of the government and NGOs to establish adaptation strategies and implement resilience-building programs (February 1, 2018).

LAPSSET and BwN also differentiate on the basis of community engagement in planning and implementation.

- In the case of LAPSSET, the degree of community involvement is disputable. The SEA document, which states that pastoralists were consulted for the evaluation, commits to recognizing the livelihoods of pastoralists by planning and implementing “a mitigation strategy” with the purpose of incorporating social and environmental factors into land-use planning and development strategies (Enns, 2017). However, the Memorandum (March 30, 2017), submitted to NEMA on behalf of the Isiolo, Laikipia, and Samburu Communities on the Isiolo Dam, states that the claims of community involvement and consultation are erroneous (Takai, 2013). The Memorandum expresses that the community is concerned with the current level of knowledge about ecosystem management and requests further investments in capability building given the potential consequences of the dam on their livelihood (ibid).

Implications/Conclusions

Studies show that information sharing through networks and cooperation on CCA strategies, and resilience will improve adaptability and improve livelihoods (Di Falco et al., 2011; Ayers, 2010). For instance, a study conducted in Ethiopia on small-scale farmers found that private sector investments in climate adaptation strategies—changing crop varieties, adoption of soil and water conservation strategies, and tree planting—would not only improve resilience but also would result in financial returns for the farmers and the investors (Di Falco et al., 2011). However, changing farming practices and adaptation strategies requires access to credit, as well as information. According to the study, information extension services led to changes in farm household adaptation and adaptation increased food productivity. In the case of LAPSSET, the consultancy group

suggest that investments in adaptation training and social networks by the government, and facilitated by NGOs and CSOs, would reduce vulnerabilities and improve the resilience of the affected populations.

- BwN investors recognize the importance of capacity building and education on adaptation strategies. According to the interview with Resource Economists at Deltares, low awareness of coastline protection still remains an issue in Demak (February 1, 2018). Often coastline protection is viewed as a disruption to tourism and other economic activities. A lack of support and awareness of the benefits of coastline adaptation among community members can halt a project. Thus, WI plays the important role of information extension among the local fishing communities, building awareness and support through formal schooling and local workshops on coastal zone management and to involve them in mangrove the project itself (Tonneijck et al., 2015). WI also conducts consultations with different villages, both for government officials and community-members, to ensure that they understand the adaptation strategies and are informed of the progress of the project. According to the Coastal Safety Manager of WI, changing village norms is not simple or immediate, but as stated in the interview, he has noticed improvements in resilience among the villages that have adopted the adaptation strategy (January 18, 2018).

Implication/Conclusions

The case of BwN shows that engagement with the community has resulted in greater success of the project and improvements in livelihoods. However, in the interview with the Coastal Safety Manager of WI, the program for information extension on adaptation is inefficient and slow-moving, resulting in “contradictory” adaptation strategies (January 18, 2018). For example, WI is primarily responsible for spreading awareness about adaptation, which can only include about 30 people in each workshop at a time. In addition, WI still does not have tools to monitor the success of information extension or resilience: the indicators “are still in development.” In the interview with the Resource Economists at Deltares, it was also explained that benchmarking coastline adaptation investments would be beneficial (February 1, 2018). The Sendai Framework is a flexible framework and encourages transparency in regard to the different investments in adaptation and the

resources used by countries for the development. However, more documents on adaptation findings in developing countries would be useful for community to community, as well as country to country comparisons.

In both cases, more participation and local engagement would benefit all stakeholders. If resources are allocated to knowledge sharing and capacity building, the community will be better equipped to not only accept adaptation and resilience strategies but also provide feedback and voice concerns on socio-ecological impacts of the project. The cases suggest that money and time spent on developing adaptation strategies and participatory vulnerability assessments by investors would benefit both business and the affected community.

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