

Climate Change Adaptation, Dispossession and Displacement (ADD): Co-constructing Solutions with Coastal Vulnerable Groups in Africa and Asia

Introduction/ Overview

The coastal regions of Bangladesh, Ghana, and the Philippines are highly exposed to climate risks where warming seas along with frequent and intense cyclones cause serious erosion. Sea-level rise leads to flooding, submergence, water logging, and increased salinization and contributes to the alteration of coastal ecosystems and livelihoods (Addo, 2013; Ataur Rahman & Rahman, 2015; IPCC, 2022; Sales, 2009). Climate change also adversely impacts marine environments, leading to changes in the composition and diversity of local fisheries (Alcantara et al., 2022; IPCC 2022; Murshed et al., 2022; Perry & Sumaila, 2007). The combination of these climate impacts lead to involuntary human mobility, which is held as the gravest social consequences of climate change (Ahmed et al., 2019; Assan et al., 2018; Tatlonghari & Paris, 2012; IPCC, 2022). However, place-based efforts to properly understand the social consequences of climate change impacts in relation to specific response mechanisms and solutions have been limited. This proposal seeks to examine the processes of dispossession and displacement under impacts of climate change in coastal West Africa, South and South-East Asia by linking them with multilevel adaptations and adaptive responses.

Numerous climate change adaptation (hereafter CCA) programs are currently underway. However, most current adaptation responses are fragmented, uneven, and risk contributing to maladaptation (IPCC, 2022), which occurs when adaptation efforts produce unintended negative consequences on people and environments, especially vulnerable groups such as women (Asare-Nuamah et al., 2021; Daron et al., 2018; Dhakal & Mahmood, 2014; IPCC, 2022). Yet, linkages between climate change adaptation, dispossession, displacement and its gendered dimensions are under-researched. The project's objectives are to 1) map connections between CCA, dispossession and displacement and 2) identify pathways to more inclusive CCA. Hence, we ask: How do CCA programs contribute to gendered processes of dispossession and displacement? We will consider several CCA strategies in coastal regions in Bangladesh, Ghana and the Philippines to see impacts in various contexts, following different implementation timelines, and to capture similarities and differences as well as transnational solutions.

One CCA program increasingly implemented in coastal areas is reforestation, meant to conserve biodiversity and protect vulnerable communities from extreme weather by providing natural protection against cyclones and sea-level rise (Hochard, Hamilton & Barbier, 2019; Sandilyan & Kathiresan, 2015). However, coastal fisher communities depend on access to waters and adjacent land and forests. Affected groups' access to such land conflicts with CCA reforestation programs, potentially dispossessing the most vulnerable of their livelihoods when this land is allocated to reforestation. This reinforces affected groups' vulnerabilities to climate impacts, exacerbating the risks of involuntary movement due to loss of livelihoods and land on which to live (Ahmed et al., 2019; Assan et al., 2018; Tatlonghari & Paris, 2012; IPCC, 2022). Especially vulnerable groups are landless women and gender minorities (Levien 2017; Adnan, 2013; Behrman et al., 2012).

A second popular CCA measure is the construction of embankments to protect settlements near water. Embankments are often tied to complicated dynamics of land use, as landless populations – often previously dispossessed of and displaced from their land – inhabit the slopes and land on the immediate outside of embankments (Campion & Venzke, 2012; Dewan, 2020; Evertsen, 2023). Reforestation is often planned on the same land, interlinking landlessness, embankment infrastructure and reforestation. The control over management of embankment infrastructure is important in relation to a third CCA strategy: shrimp farming. Shrimp farming has been promoted as a CCA strategy that can provide vulnerable communities with alternative, more climate resilient, livelihoods in response to increased soil salinization and acidity. However, shrimp farming was originally introduced to coastal areas as a development strategy and the process of turning agricultural land into aquacultural land has been associated with – often violent – elite capture of land with assistance from the state (Ahmed & Diana, 2015; Macusi et al., 2022). Such land grabbing has often also included privatization of water resources, followed by sluicing water in and out of embankments in conflict with interests of less powerful villagers,

contributing to water logging and the destruction of farmland (Adnan, 2013; Dewan, 2021; Levien, 2017; Paprocki, 2016; Paprocki & Cons, 2014). Shrimp farming furthermore requires less yet specialized labor than crop farming and has been seen to dispossess sharecroppers and day laborers of their livelihood (Adnan, 2013; Paprocki, 2016), subsequently leading them to migrate (Paprocki, 2018). Also, women and gender minority groups tend to be at greater disadvantage as they are less likely to own land and hence more likely to be day laborers, while also having fewer alternative income opportunities to turn to than men (Paprocki, 2018).

Despite such examples of maladaptation, most climate research and action have thus far focused on ensuring people do not move without taking into account the social production of vulnerabilities that surrounds such movement (Baldwin & Bettini, 2017; Dhakal & Mahmood, 2014; See & Wilmsen, 2020). However, research increasingly demonstrates how social effects of climate change cannot be understood as a linear process, and that effects of climate change are mediated through already existing social structures, like class and gender (Evertsen, 2021; 2023; Pouliotte et al., 2009; de Leon & Pittock, 2016). Hence, the impact of nature and society cannot be easily distinguished when asking questions about climate change and human mobility – including migration, displacement and dispossession (Islam & Hasan, 2015; Tadgell et al., 2017).

Little attention has thus far been given to conflictual and unintended negative consequences of the implementation of CCA programs, that is, to how the implementation of CCA programs in local communities may produce new or exacerbate extant socio-political and ecological challenges. In short, the risks posed by climate change and the risks posed by responses to climate change must be understood together to identify better adaptation solutions for the most vulnerable (Younus & Kabir, 2018; Soriano et al., 2017; Kalame et al., 2011). Hence, how maladaptation happens and who it affects are important questions to explore to improve efforts meant to aid vulnerable groups to adapt to climate change. This project contributes to this knowledge gap and identifies alternative adaptation pathways to maladaptive practices by working meaningfully with those most affected. The project will achieve this overarching objective through three solution pathways:

1. Novel theory creation: Heeding the interactions between nature and society, and foregrounding the tension between biodiversity and access to land and waters for vulnerable groups and communities, we will bring a set of social theories into conversation with a nature-based solutions framework (NbS), centering equity and place-specificity, and will produce evidence based, integrated, and interdisciplinary theoretical contributions. Social theories on gender, dispossession, displacement and CCA can aid in drawing out social factors leading to maladaptation, while NbS takes nature as its starting point for addressing societal challenges and can be used to look for synergies in solutions to challenges that involve both nature and society (Seddon et al 2019; see also Osaka et al., 2021).

2. Risk mapping: We will map CCA programs, using interdisciplinary methods (reviewing national and regional policies and CCA planning documents, conducting ethnographic fieldwork and collecting traditional knowledge, and using geospatial data in the three countries) to identify risks of dispossession. This knowledge can be utilized to ensure the meaningful participation of vulnerable groups and communities in CCA programs, a gender responsive approach, equitable access to resources and secure land tenure, and create guidelines on how to avoid maladaptive outcomes.

3. South-South platform: Finally, and most importantly, we believe that a key part of addressing the challenge of displacement from climate change adaptation is by shifting power to those who experience CCA impacts. Therefore, we adopt an inclusive, interdisciplinary, cross-sectoral, and localized approach to a decolonial co-production of knowledge. Consultations with local communities will help identify alternative, inclusive, and sustainable solutions and benefit groups at risk from dispossession and displacement. To ensure long-lasting impacts and to ensure local ownership, the project will build on the consultations to create regional networks and a South-South coastal community network. The networks will be supported by a low-tech platform that can be used for knowledge sharing and to create a coastal toolkit.

Biographical Information

We have assembled a world-leading team of experts to realize this project. The composition of the team intentionally brings together diverse perspectives related to the complex gendered dynamics of dispossession and subsequent displacement in relation to climate change adaptation. The team includes social scientists with climate change adaptation expertise, legal experts well positioned to explore the legal and policy aspects related to internal displacement and dispossession, coastal experts from both the social and the natural sciences, displacement and forced migration experts, and gender experts. The team foregrounds expertise in and from the Global South and combines the expertise of experienced and early career researchers. The team is connected by trust-based relationships and has a history of successful research partnerships. As a matter of principle, we avoid gendered pronouns throughout the description of the team members.

Principal Investigators

Canada

PI Michaela Hynie will hold the grant in Canada. Hynie is a Professor in Psychology at York University who conducts international mixed method community-based research on the relationship between local and national policies and health outcomes for forcibly displaced people. They also founded and led a university-based Program Evaluation Unit (2008-2014) to support and build capacity in evaluation for NGOs. They have led several national and international interdisciplinary and multi-sectoral projects with government agencies, NGOs, service providing agencies, and community members and been awarded or collaborated on grants totaling over \$9.75 million CAD. With **co-PI Nayak**, they led a SSHRC Partnership Development Grant (PDG), Living with Climate Change (2012-2015), that brought together teams from Canada, Nepal, Pakistan, and two regions in India, to explore local adaptations to environmental change, and support communication between local communities, science and policy makers and recently led an interdisciplinary, multi-team, \$1.3 million Canadian Institutes of Health Research (CIHR)-funded project exploring integration pathways and health outcomes for resettled Syrian refugees across Canada (SyRIA.Ith, 2017-2023). A former president of the Canadian Association of Refugee and Forced Migration Studies (2016-2018) and former Department Chair, Associate Dean and Research Institute Director, they have broad networks in forced migration theory and strong management and governance skills. Hynie will be supporting governance, team management, community engagement and KM strategies, as well as providing expert knowledge in forced migration theory.

Co-PI Prateep Nayak is Associate Professor at the School of Environment, Enterprise and Development at Waterloo University. Their academic background is in political science, environmental studies and international development. They do transdisciplinary work with an active interest in combining social and ecological perspectives. Their main areas of expertise and interest include commons, governance, social-ecological system resilience, wellbeing, environmental justice and political ecology. In the past, Nayak worked as a development professional in India on issues around community-based governance of land, water and forests, focusing specifically on the interface of research, implementation and public policy. Co-PI Nayak is currently leading the Vulnerability to Viability Global Partnership (V2V), which received a seven-year, \$2.5 million Partnership Grant from the Social Sciences and Humanities Research Council (SSHRC), Canada. The V2V project is a transdisciplinary initiative for the co-creation of knowledge and the development of community-based capacity to reduce vulnerability and enhance viability of small-scale fisheries (SSF) in Asia and Africa.

Norway

Co-PI Kathinka Fossum Evertsen will hold the grant in Norway. Evertsen is a Senior Research Fellow at Institute for Social Research in Oslo, where they work together with **Co-PI Damsa** on research related to gender and migration. CO-PIs Evertsen and Damsa have an ongoing collaboration with **PI-Hynie** in one such project. Evertsen holds a Ph.D. in Sociology from Nord University in Norway and a Master's degree in human rights and humanitarian action from SciencesPo. Evertsen has worked and conducted research in Bangladesh for more than ten years, focusing on issues related to gender, climate change adaptation, migration and displacement. They have experience with conducting ethnographic fieldwork and carrying out in-depth interviews with local communities in coastal Bangladesh, especially women who have migrated or been displaced due to interlinkages of political and

environmental processes. Their work on climate change adaptation has furthermore given them solid knowledge of the actors currently involved in climate change adaptation efforts in Bangladesh. This will be an advantage to the team to contextualize and evaluate climate change adaptation programs. Evertsen has previously worked with critical approaches to climate change adaptation and intersectionality and is thus also well positioned to contribute to the theory development of the project.

Co-PI Dorina Damsa is a Senior Research Fellow at Institute for Social Research in Oslo. They hold a Ph.D in Criminology and the Sociology of Law and a Master's degree in the Theory and Practice of Human Rights from the Faculty of Law at the University of Oslo in Norway. Damsa's work is situated at the intersection of border studies, human rights law, and feminist scholarship, and in the past ten years they have focused on migranticized women's experiences of inequality at the intersection of gender, race, class and legal status; gender and global i/mobility; and gender and legal rights. Damsa's work has utilized feminist scholarship, including intersectional approaches to methods and theory creation. They have conducted extensive research with hard-to-reach populations and used collaborative methods to co-create knowledge outputs. This expertise will be of high value to the team both in implementing methods and in theory creation.

United Kingdom

Co-PI Corey Robinson will hold the grant in the UK. Robinson's research interests are focused on the Philippines and he is co-applicant on a SSHRC Partnership Engage Grant, 'Resettlement as Climate Change Adaptation? Exploring the longer-term impacts of post-disaster resettlements in rural coastal and island communities in Eastern Samar, the Philippines', together with **Co-applicant Su**. Through a combination of surveys, interviews, fieldwork and focus groups, this partnership with the Guiuan Development Foundation, Inc. (GDFI) in the Philippines, analyzes the challenges and opportunities associated with using resettlement as a climate change adaptation strategy in the decade since typhoons Haiyan and Hagupit. They hold a Ph.D. in Political Science and a Graduate Diploma in Refugee and Migration Studies from York University. They are currently a Lecturer in International Relations in the School of Social and Political Sciences at the University of Glasgow. Working at the intersection of **refugee and migration studies** and international relations, Robinson's research examines the international politics of **displacement and migration governance**.

Bangladesh

Co-PI Alifa Haque works at the intersection of endangered species conservation and fisheries as a means of livelihood generation for fishers of **Bangladesh** to produce context-appropriate, community-based, collaborative and sustainable fishery models. They are an Assistant Professor at the Department of Zoology, University of Dhaka, Bangladesh. Haque completed an MS in Fisheries (2012) from the University of Dhaka, Bangladesh and a MSc in Biodiversity Conservation and Management (2014) from the University of Oxford. They further pursued their doctoral studies at Nature-based Solutions Initiative at Oxford. Their research has aimed to prepare a sustainable model for threatened species of sharks and rays in close conjunction with fishing communities. To ensure a just and environmentally sound outcome, Haque launched a model that is bottom-up and locally driven. Since 2021, fishing vessels have voluntarily collected spatial data using a mobile app. This endeavor is a pilot for the technological innovation 'FishSafe', an audio-visual device to record by-catch events at sea. Haque's experience with co-creating this model will be of great value to the current project.

Co-PI M Sanjeeb Hossain is Director of Research at the Centre for Peace and Justice (CPJ), BRAC University, and an Advisory Board Member of the BEYOND Project at Oslo University, where they became part of the same research environment as **Co-PI Damsa**. Hossain studied law, criminology, and criminal justice at BRAC (LLB, 2010), Oxford (MSc, 2011), and Warwick University (PhD, 2018). Over the past decade, Hossain's research and writing focused on forced displacement, looking at constitutional law, international criminal law, and international refugee law, with a special focus on Bangladesh. Their expertise in constitutional law, criminal law, and criminal justice, as well as the application and incorporation of international law in domestic legal systems. Their expertise will add value to understanding the legal framework in Bangladesh geared toward addressing climate change and adaptation. Hossain works on expanding CPJs research to include themes related to climate justice, humanitarian crises, migration rights, conservation, and decolonization.

Co-Applicants

Canada

A member at Centre for Refugee Studies together with **PI Hynie**, **co-applicant Yvonne Su** is an Assistant Professor at the Department of Equity Studies at York University. They hold a PhD in Political Science and International Development, University of Guelph, an MSc in Refugee and Forced Migration Studies, University of Oxford. Su is an interdisciplinary migration and international development scholar with expertise on climate change adaptation, climate change-induced mobility, post-disaster recovery, participatory methods, forced migration, and indigenous adaptation methods in the Philippines. They hold a significant amount of expertise in undertaking high-risk research with hard-to-access populations such as mobile indigenous communities in the hinterlands of the Philippines, refugees, LGBTQ+ asylum seekers, internally displaced peoples, disaster-displaced and affected households and sex workers. Su takes an inclusive, interdisciplinary and participatory approach to research and has invested a significant amount of their career so far developing strong local connections with local communities, academics and NGOs. Su also has extensive experience managing large teams and grants as they have garnered over \$1.5 million in research grants. Currently, they are the P.I. on three SSHRC research grants examining migration in the Philippines, Brazil and Colombia. One of these SSHRC grants examines the use of disaster displacement and relocation as a proactive climate change adaptation policy in the Philippines.

United Kingdom

Co-applicant Alasdair Davies has worked with **Co-PI Haque** to develop technological solutions to conservation of fisheries in coastal Bangladesh in close collaboration with local fisher communities. They are a conservation technologist developing, designing and deploying conservation technologies globally. Davies is Technical Director of the Arribada Initiative, a not-for-profit, UK-based conservation technology research and development organization that specializes in open-source solutions through co-development. They are also a Senior Technical Specialist and Advisor to the Zoological Society of London, and a Shuttleworth Foundation Fellow, with 14 years' experience developing, designing and deploying conservation technologies for conservation organizations globally, including the National Geographic Society and the World Wide Fund for Nature.

Bangladesh

Co-applicant Ziaul Hoque Mukta is the General Secretary of Campaign for Sustainable Rural Livelihoods (CSRL) which is a coalition of 235 grassroots organizations active in Agro-Ecological Zones in Bangladesh. In the last two decades, they have served ActionAid, Oxfam and the United Nations. Since 2002, they have managed numerous humanitarian, programmatic, and policy interventions in coastal Bangladesh. Their major areas of engagement include climate change policies and practices advocating for grassroot concerns in national plans and policies and multilateral climate negotiations at UNFCCC. Since 2007, either being part of the official delegation of the Government of Bangladesh or as an NGO representative, they have joined UNFCCC negotiations with a very specific attention on issues around climate induced forced displacement. They completed an MSS in Anthropology and have extensive research experience in developing ToR, commissioning, and managing research projects related to climate change, climate change adaptation, and forced-displacement.

Ghana

Co-applicant Denis Aheto is working with **co-PI Nayak** in the V2V research project. They are Associate Professor in coastal ecology and the director for Centre for Coastal Management and the Africa Centre of Excellence in Coastal Resilience at University of Cape Coast, Ghana. Aheto holds a PhD Degree and an MSc. Degree in Environmental Sciences and Tropical Aquatic Ecology from the University of Bremen respectively and a MSc. Degree in Rural Development Studies from the Swedish Agricultural University, Uppsala, Sweden. Aheto has been working in the field of coastal zone management in Ghana for over a decade and has been central in advising on government policies regarding environmental protection, fisheries and coastal management. Aheto has extensive experience in managing projects funded by the World Bank, the African Union, USAID, DANIDA among others. Aheto has in-depth knowledge of cross-cutting issues in the field of maritime studies, coastal research, coastal community

development and fisheries extension, where their focus has been addressing issues of coastal/marine ecosystem conservation, vulnerable populations, including small-scale fishers and their livelihood issues.

Philippines

Co-applicant Albert Salamanca has worked with **Co-applicant Su** on projects related to climate change adaptation in the Philippines. They are a Senior Research Fellow at the Stockholm Environment Institute's Asia Centre where they lead its Climate Change, Disasters and Development cluster. They hold a PhD in Geography from Durham University. Salamanca has over 15 years of experience working on climate change adaptation, natural resources management, conservation, development and sustainable livelihoods issues in several countries in Southeast Asia, including the Philippines. Their current research interests are on the themes of resilience, risk and vulnerabilities, traditional ecological knowledge, disaster displacement, and sustainable livelihoods. He previously led the Regional Climate Change Adaptation Knowledge Platform which was a pioneering initiative on climate change adaptation. He currently implements a Global EBA Fund project on EBA-enhanced climate field schools for climate resilience. Salamanca will actively work with RIMCU in implementing the project.

Co-applicant Chona R. Echavez is Director of the Research Institute for Mindanao Culture (RIMCU) in the Philippines. They completed her PhD in Demography at the Australian National University. Working in research for the past 30 years, Chona has managed an extensive research and communication portfolio including: population, migration, health, social protection, education, peace and conflict, violence against women and children and livelihood programmes, considering gender as a cross-cutting issue. Of great relevance to this project, Chona has worked with Higaonons indigenous in the Mt. Balatukan Range National Park supporting the documentation of Indigenous Knowledge Systems and Practices (IKSP) for biodiversity conservation, and has conducted studies that were conflict, culture and gender sensitive. Chona will work closely with Edvilla R. Talaroc, ethnologist at the Research Institute for Mindanao Culture and Dexter S. Lo, founding director at the XU Engineering Resource Center, Xavier University, in the Philippines. Edvilla's research experience includes work with Indigenous People, sensitivity of projects to peoples' culture, rights, and belief systems, and interfaith dialogue. Dexter focuses on disasters and climate resilience, renewable energy, ridge-river-reef conservation, food security, and public health.

Collaborators

Several action-oriented research institutes, NGOs and grass-roots organizations will collaborate with the research teams in Bangladesh, Ghana, and the Philippines.

Uttaran, active in Bangladesh since 1985, is a regional NGO working in several districts, with a focus on coastal areas. Program areas include land, education, health, social protection, tidal river management, climate change adaptation, DRR, emergency response, WASH, legal aid, agriculture support, and gender equality. **PROGOTI** (People's Research on Grassroots Ownership & Traditional Initiative), active in Bangladesh since 1968, is a local NGO working in south-western coastal regions. The platform works to mobilize people and has a particular focus on research, advocacy, and campaigning. One of its many successful initiatives is recovering and re-excavating a 32 kilometers long river named Aadi-Jamuna.

Hen Mpoano is a not-for-profit organization in Ghana operating since 2013 and based in Takoradi in the Western Region. They provide technical, policy and extension support to actors in government, private sector and civil society through capacity building, research, networking and project development in fisheries and coastal ecosystem governance.

RIMCU, a research institute founded in 1957 and hosted at Xavier University and SEI, will facilitate action-oriented research in Macajalar Bay, southern Philippines. Macajalar is one of the Philippines' most vital bays. RIMCU has a strong expertise in participatory action research while SEI has been leading several flagship adaptation programmes across various scales such as the Regional Climate Change Adaptation Knowledge Platform, weADAPT, and the Adaptation Without Borders partnership. RIMCU has established a track record in research where findings are co-generated with stakeholders and shared with a wider audience of students, policymakers, line agency executives, local government units, non-government organizations, and research communities and participants.

Research Proposal

The ADD project aims to cocreate pathways to inclusive climate change adaptation by linking it with processes of dispossession and displacement of vulnerable groups in coastal West Africa, South and South-East Asia. It will generate accessible and usable knowledge resources that will assist in the development of collaborative, sustainable responses and just approaches to the challenges of landlessness, dispossession, and displacement produced by CAA programs in coastal areas in Bangladesh, Ghana, and the Philippines. Our approach aims to leverage and *transform knowledge on CCA programs to drive durable change* in these coastal communities.

Anticipated scientific approach and impact: While an extensive literature exists on dispossession and displacement from development and conservation initiatives (Lunstrum et al., 2016), similar experiences linked to CCA programs, especially focused on vulnerable, disadvantaged and marginalized social groups, is understudied and politically overlooked (McDowell, 2013). There is a growing awareness that people will not only be displaced from increased climate change impacts, but also from related adaptation efforts (Bose, 2016; de Sherbinin et al., 2011; Warner and Wiegel, 2021). Furthermore, the needs of vulnerable populations may come into conflict with goals of biodiversity conservation (Baldwin, 2009; Büscher & Davidov, 2016), mainstream development schemes such as the blue economy and blue growth, infrastructural and climate protection schemes (Warner & Wiegel, 2021), or alternative livelihoods like shrimp farming (Paprocki, 2018). Research shows that adaptation projects must be understood in relation to the social context in which they are implemented, where social structures influence who wins and who loses as a result of adaptation initiatives (Nightingale et al., 2020). In this project, we thus understand climate change adaptation as a *political process* (Eriksen et al., 2015), a "deliberative challenge involving the satisfaction of competing preferences", as well as a social dilemma (Sovacool, 2018, p. 184).

Questions about *gender* tend to be overlooked in most research agendas (Evertsen, 2021). In the context of displacement and dispossession due to climate change adaptation initiatives, it is important to consider gender from the start, which continues as an under-researched and under-theorized topic in dispossession literature (Fernandez, 2018; Levien, 2017). And yet, land dispossession is a fundamentally gendered issue, as women and men often have different entitlements to land and utilize land in different ways (Adnan, 2013; Behrman et al., 2012). Being disadvantaged in the distribution of land entitlements puts women and gender minorities at a disadvantage from the outset, a dynamic that is further reinforced through processes of dispossession (Adnan, 2013; Levien, 2017). Such gendered dynamics of dispossession are evident in coastal Bangladesh where shrimp farming not only requires fewer workers, but tends to be especially detrimental to women, who have few other livelihood strategies to turn to (Paprocki, 2018). Feminist researchers have further highlighted how dispossession must be understood in relation to not only legal rights and economic production, but also in connection with *social reproduction*, which can be understood as "the labor and set of social processes and relationships that supports production, exchange, and the maintenance of individuals, households and communities" (Fernandez, 2018, p. 145). Dispossession thus diminishes rural women's capacity to socially reproduce everyday lives and livelihoods (Fernandez, 2018; Nielsen, 2018; Paprocki, 2016).

While gender is now a requirement in most current climate change adaptation initiatives (Evertsen, 2022), this is often an 'add and stir' approach, which risks reinforcing gender stereotypes and power dynamics that marginalize and disadvantage women and gender minorities (Arora-Jonsson, 2011; Evertsen, 2021, 2023). Because gender is often overlooked in both the literature on dispossession and climate change adaptation, and since climate change adaptation might contribute to gendered processes of dispossession and subsequent displacement, it is important to analyze how these heteronormative gendered processes are interlinked. We will explore how the political process of CCA interacts with dynamics of gender, dispossession and displacement, and by so doing bring insights both from literature on displacement and dispossession, and nature-based solutions and feminist scholarship into the conversation about what climate change adaptation can and should look like. The project will thus have a clear scientific impact by integrating a gender-sensitive, interdisciplinary and transdisciplinary framework in the analysis of challenges related to dispossession and subsequent displacement from maladaptive practices.

Displacement and forced migration studies in the context of climate change: This project contributes to an emerging critique within the field of climate mobilities – initially built on the premise that "climate change, whether in the form of sea level rise, extreme weather events or drought, will 'induce' a complex pattern of human mobilities, including migration, displacement and resettlement" (Baldwin & Bettini, 2017, p.1). The field has favored a mechanistic view of mobility as a *direct consequence* of climate change. This view has failed to account for the social factors and non-linear relationships between the environment and society which shape human mobility in the context of climate change (Zetter, 2011; Baldwin & Bettini, 2017; Bettini, 2013; Hulme, 2011; Paprocki, 2015). Furthermore, the field has focused primarily on environmental events as well as top-down solutions like resettlement schemes (Su & Le Dé, 2020) and technocratic forms of "migration management" (Robinson, 2018), premised on notions of disaster risk, adaptation and resilience. The focus on outcomes has also been reproduced in the wider displacement and forced migration literature, where less attention has been paid to the social inequalities that contribute to displacement (Robinson, 2022). In order to bring in how social factors precede and interact with environmental events, we will bring in insights from dispossession studies.

Dispossession studies make up a related albeit separate field of research. Dispossession can be described as "a social relation of coercive distribution" (Levien, 2018, p. 1). This concept calls attention to the unequal distribution of power and resources, which takes place through capitalist relations that involve a variety of actors, including the state (Levien, 2018), multinational corporations (Ahasan & Gardner, 2016), villagers (Li, 2014), landowners, and development actors (Dewan, 2021). Those who can engage in these relations will benefit, while those who are unable to will lose out (Dewan, 2021, p. 85; Li, 2014). Dispossession studies is hence concerned with relations of power and can function as a critical theoretical lens. It draws analytical attention to the political nature of CCA programs and how these may contribute to involuntarily movement through dynamics of elite control over management of natural resources like water, land, and forests.

Nature-based solutions (hereafter referred to as NbS): While much climate research has been criticized for not taking society into proper account, it has shown how the environment influences the social. To analyze how the social and environment interact in complex and contingent ways, we are bringing in a nature-based solutions framework that focuses on equity and social justice. NbS are "actions inspired by, supported by, or copied from nature, envisioned to protect, sustainably manage, and restore ecosystems, while offering environmental, social, economic and climate resilience benefits" (Anguelovski and Corbera 2023, p. 45). Examples include CCA initiatives like planting and conservation of forest to protect communities from floods and erosion (Smith et al., 2017). However, while nature-based solutions have received considerable attention in the scholarship on CCA (Chausson et al., 2020), such solutions can come in conflict with the interests of vulnerable groups. Research has shown that NbS, when uncritically implemented, may lead to dispossession through land and resource appropriation, which undermines vulnerable groups' interests and abilities to utilize natural resources, subsequently also undermining their ability to remain in place (Anguelovski & Corbera 2023, p. 46). This concern about maladaptation is also voiced in the most recent IPCC report (2022). Further work is therefore necessary to bring about an inclusive and climate-just NbS that considers the political context in which the initiatives are implemented (Anguelovski and Corbera 2023). Our focus on climate justice foregrounds the uneven, disproportionate and unjust outcomes of both climate change and climate adaptation (Seddon et al., 2021; Sultana, 2021a). Hence, a justice-focused, nature-based solutions framework can aid in identifying solutions that take both social and environmental consequences into consideration (Haque et al., 2022, 2023).

An inclusive methodological approach: Mainstream approaches to research on climate change impacts tend to marginalize Southern perspectives as well as contributions from the social sciences and humanities, which emphasizes the social structures and contexts that result in climate change maladaptation. The lack of epistemological diversity in extant research on CCA results in "cosmetic interdisciplinarity" (Price, 2007) and the reproduction of a positivist worldview, in which the human dimensions of climate change and the voices of affected groups are side-lined. By contrast, our use of a

decolonial, intersectional, and interdisciplinary approach addresses the interdependent challenges posed by climate change adaptation through a methodology that foregrounds multiple axes of oppression and privilege, while also including natural sciences through a nature-based solutions framework. Our project is furthermore trans-sectoral, bringing together community advocates, legal professionals and an open-source technology solutions organization to chart out new adaptation solution pathways.

A decolonial approach to knowledge production: Knowledge production and thereby solutions to climate change impacts have been predominantly driven by interests and actors in the Global North, leading countries in the Global South to "call various climate solutions to be false and a form of perpetuating colonialism through land grabs, extraction, displacement, and dispossession" (Sultana, 2022b, s. 1). Rooted in colonial practices and histories, such solutions tend to focus on large-scale infrastructural solutions over local knowledge and social justice (Dewan, 2021; Sultana, 2022b). Considering this, we take a decolonial methodological approach, an ethical imperative when 'working with populations oppressed by colonial legacies' (Thambinathan & Kinsella, 2021, s. 1) that focuses on the co-production of knowledge (Zanotti et al., 2020). The perspectives described in this research proposal may therefore change and evolve in line with the perspectives, experiences, and the knowledge of affected groups and communities. The project aims to address power asymmetries in research on climate change (adaptation) by: implementing a horizontal governance structure, where local community organizations are represented in the management and steering of the project (Wilkens & Datchoua-Tirvaudey, 2022); building meaningful collaboration with local communities to foreground local and traditional knowledge and perspectives; and opening pathways for transformative research and practice (Smith Tuhiwai, 2013), driven by a concern for social justice (Jolivette, 2015).

An intersectional analytical lens: ADD will use intersectionality as a sensitizing lens throughout the research process to capture multiplicity, the situatedness of knowledge, and co-construction of social inequalities (Damsa & Franko, 2023; Lykke, 2006; Stoetzler & Yuval-Davis, 2002). Intersectionality builds on the critique that postcolonial, Black feminism, and indigenous situatedness hold epistemically disadvantaged positions and hence are being overlooked. The Western position has been the norm against which everything else is measured (Stoetzler & Yuval-Davis, 2002) and illustrated how interlinkages between multiple disadvantages shape who is invited to speak (Crenshaw, 1989, 1991; hooks, 1983; Lorde, 1984; Trinh, 1989). This is of importance to this research project, as CCA has been primarily formulated by interests in the Global North, while aimed at people in the Global South (Ojha et al., 2016; Sultana, 2022) and formulated from the perspective of well-educated, wealthy, urban elites, not taking into account traditional and minority knowledge and adaptation strategies used by those most vulnerable (Bronen & Cochran, 2020; Rahman et al., 2023). Acknowledging such inequalities calls for a critical re-reading of intersectionality scholarship, one developing a better understanding of how the post-colonial condition demands a transcendence of the traditional race–class–gender nexus and an acknowledgement of global divergences between social groups (Henne & Troshynski, 2013, p. 463).

When extended to climate change research (Mikulewicz et al., 2023), intersectionality is "particularly helpful in detecting the overlapping co-construction of visible and, at first sight, invisible strands of inequality" (Lutz, 2015, p. 39) and will allow us to understand how concurrent axes of climate-related oppressions interact in CCA, foregrounding the gendered dimensions of climate change maladaptation, dispossession and displacement, and the under-examined role of social reproduction in achieving climate justice (Kaijser & Kronsell, 2014; Mikulewicz et al., 2023). This project therefore seeks to better understand the socio-political conditions, such as social reproduction and the gendered distribution of power, that shape access to resources and influence the capacity of marginalized groups to adapt to climate change.

Methodology

We therefore propose the following interconnected short-, medium-, and long-term activities, solution pathways and timelines (see Table 1).

Timeline of Activities for Solution Pathways

Solution pathways	Activities/ actions/ items	Year 1				Year 2				Year 3			
		1	2	3	4	1	2	3	4	1	2	3	4
Theory development	Desk-based review/ work; consultations; paper writing	x	x	x	x	x	x	x	x	x	x	x	x
Mapping: Training and meetings	Training material preparation			x	x	x							
	Local committee meetings/ Consultative meetings			x	x	x	x	x	x	x	x	x	x
	Researcher trainings			x	x	x		x					
Mapping: Desk Review	Desk review/ case studies review/ Literature review	x	x	x									
	Fieldwork/ participatory mapping/ risk assessment			x	x	x	x	x	x	x	x	x	
	Launch of website, training, evaluation										x	x	
Mapping: Ethnographic study	Case studies review, fieldwork, consultations	x	x	x	x	x	x	x	x				
	Data analysis and reporting				x	x	x	x	x				x
S-S Coastal Network: Toolkit	Toolkit development/ framework development for technology/consultations			x	x	x	x	x					
	Technology development, piloting, troubleshooting				x	x	x	x	x	x	x		
	Launch of the technology/ device/ dissemination									x	x	x	x
S-S Coastal Network: Platform development	Framework/Consultative meetings/Capacity building/					x	x	x	x	x	x	x	
	Manual preparation for how this platform will run/wok after the project completion									x	x		
Knowledge mobilization	Student presentations/ conference presentations/ publications			x	x			x	x			x	x
	Development / delivery of local dissemination materials			x	x		x	x	x	x		x	x

1. Map CCA programs to comprehensively assess adaptation initiatives to identify risks of dispossession and displacement of vulnerable groups and communities, of which landless women and gender and sexual minorities make up an especially significant part. Triangulation will be ensured by using document data, ethnographic and traditional knowledge, and geospatial data. The mapping will provide an empirically informed basis for advocacy and participation of those most vulnerable in CCA programs, ensuring that their needs are taken into account. Drawing on context specific knowledge, policy guidelines and practices that work best, will ensure a gender-responsive approach, equitable access to resources and secure land tenure, and the meaningful participation of vulnerable groups and communities in CAA programs. The easy-to-use maps and resources will be publicly accessible to be utilized for knowledge sharing, learning, and decision-making related to the risks and/or successful outcomes of CCA programs.

2. Develop novel interdisciplinary theories of CCA that takes into account the complex interactions between social and natural systems in the context of climate change adaptation. This involves a) integrating knowledge and approaches from both the social and natural sciences and across several fields of research that until now have remained disconnected; b) foregrounding local knowledge through

the meaningful participation of those most affected by dispossession and displacement caused by CCA programs, but who have been historically marginalized from such theory creation; and c) comparatively considering diverse geographies, cultures and time scales across the Global South. A highly interdisciplinary, global network of scholars, working together with affected communities in the co-creation, implementation and ownership of research outcomes, will produce topical and timely knowledge to advance ongoing scholarly conversations, including key traditional knowledge that can be mobilized in powerful ways to contribute to change from the bottom up. This knowledge will be translated into forms that motivate cooperation among stakeholders who can enact change and allow for local ownership and durable change, through:

3. Establishment of a South-South Coastal Network, following consultations, to connect local affected communities in the three countries and larger NGO and policy actors between countries to share knowledge, experiences, and solutions to challenges posed by the CCA programs. This knowledge will be publicly accessible in the form of a coastal toolkit. The attributes of the toolkit will be developed through co-creation with affected communities across the three countries. The network and the toolkit will be supported by a low-tech platform, created in consultation with affected communities to fit local needs. Ownership of the network, toolkit and platform will remain with the communities, to use for reporting, advocacy and data generation, while allowing the formation of new local, regional, and international coalitions. Training will also be arranged for the toolkit and the platform to be used and adapted as needed on the ground. An exit strategy will be co-designed with the communities, so that network, toolkit, and platform will have a long-lasting impact.

Solution Pathways

Solution pathway 1: Novel theory creation--Years 1 through 3

Informed by decolonial and intersectional approaches to knowledge production and critically weaving together contributions from the fields of displacement, dispossession, and NbS, the project will generate novel theoretical perspectives on CCA. Taken individually, each field highlights specific risks and opportunities faced by vulnerable groups, while remaining incomplete. However, when brought together, these fields can provide a holistic understanding of the challenges and solutions to the interlinked risks of CCA that take into account both society and nature. Moreover, the theory creation will be shaped by the knowledge co-produced in the contexts of the three countries.

Solution pathway 2: Risk mapping--Years 1 and 2

To identify maladaptive practices linked to dispossession and displacement across the three countries, we will conduct a country-by-country mapping of relevant CCA programs. An interdisciplinary, mixed-methods design will be employed to include diverse approaches to knowledge production.

Step 1 (Year 1): Analysis of CCA documentation. Document analysis of data collected about CCA programs registered in the three countries from 2015-2025, will be used to gain an overview of potential developments over time, using databases such as the Green Development Fund (GDF), Global Environmental Facility (GEF), and government archives and programs with inherent risks of dispossession and/or displacing people from their land and livelihoods will be identified. The projects identified will indicate the range of programs that carry an inherent risk of dispossessing and displacing people. Next, especially relevant projects will be selected and high-risk sites will be identified. This risk analysis will only be preliminary at this stage. It will be complemented by geospatial data, ethnographic data and traditional knowledge, as described below. Consultations with local communities and grassroot organizations for a better understanding of issues related to dispossession and displacement from CCA.

Step 2 (Year 1): Geospatial data, analysis and information system methods and tools will be used in all country case study locations to incorporate a balanced perspective on the spatial, temporal and functional aspects inherent in our key research questions. *Geospatial data* is time-based data related to a specific study location. It can generate insights into relationships between variables and reveal patterns and trends in the experiences disadvantaged communities have with climate change adaptation resulting in dispossession and displacement processes. We will access geospatial data from diverse sources in

varying formats including but not limited to census data, satellite imagery, and weather data. These conventional types of data will further undergo *geospatial analysis* to create place-based and comparative data visualisations in the form of maps, graphs, statistics and cartograms that further understanding of historical changes and current shifts. Geospatial analysis ensures that insights often overlooked in large spreadsheet are visually depicted in easy-to-recognize patterns and images, thus enhancing the possibility of faster, easier and more accurate solutions. Further, our use of *geospatial information system (G/S)* will ensure that both qualitative and quantitative data result in physical mapping and other forms of visual representation through overlaying of multiple layers of data, which facilitates accurate understanding of complex experiences and phenomena.

Step 3 (Year 2): Ethnographic fieldwork and traditional knowledge. Critical ethnographic methods and Participatory Action Research (PAR) will be employed in sites identified as high-risk, to get an in-depth understanding of the context. The research will be informed by feminist perspectives that prioritize women's and gender minority knowledge and are committed to women's rights and gender equality in an effort to generate societal change (Haraway, 1991; McHugh, 2014). Through observation, ethnographic and semi-structured interviews with vulnerable groups and communities most affected by CCA risks, this design will accommodate a multiplicity of experiences that may coalesce around consensus and facilitate rapport, enable two-way understanding of the local context and of the research, and establish meaningful relationships with the groups most affected by CCA programs. The ethnographic fieldwork will cover at least one seasonal cycle, to account for seasonal factors. This approach will spotlight local and traditional knowledge systems and it be implemented through collaboration between local early career researchers (ERCs), community researchers, and experienced researchers in the consortium countries. It will also provide the knowledge and foundation of trust necessary to undertake the steps necessary for the next solutions pathway - the local and regional networks and the South-South Coastal Network.

Solution pathway 3: South-South Coastal Network --Years 2 and 3

To shift power to vulnerable populations who experience displacement from maladaptive CCA practices, facilitate the exchange of knowledge, challenges, and solutions, and to ensure the sustainability and impact of the research beyond the project, we will support the formation of regional networks and of a South-South Coastal Network. The network will be established through the consultation process at the core of this project, and it will produce a **coastal toolkit, supported by an accessible low-tech platform**.

Step 1 (Year 2): Consultations. Consultations with stakeholders in Bangladesh, Ghana and the Philippines have already begun in order to produce this research proposal facilitated by Co-PIs and Co-Applicants in each country. We are currently engaging with the local organizations detailed below to identify key issues for coastal communities, their desired level of participation, and expectations:

- **Bangladesh:** Campaign for Sustainable Rural Livelihoods (CSRL); Uttaran (confirmed); PROGOTI (People's Research on Grassroots Ownership & Traditional Initiative (confirmed)).
- **Ghana:** Centre for Coastal Management Cape Coast; Iroko Consult; Hen Mpoano (confirmed).
- **The Philippines:** Stockholm Environment Institute Asia Centre; Research Institute for Mindanao Culture, Xavier University (confirmed).

We will continue to work with local community organizations working in the area of environmental adaptation, livelihoods, gender and equity at every stage of the project. Foregrounding the knowledge, perspectives and experiences of vulnerable communities and those most affected by CCA risks will produce responses that take the concerns of communities in coastal areas as a starting point.

Community members will be engaged through a series of strategies. First, key representatives from each partner organization are participating in the steering committee at the regional level; and community partners will be represented at the central steering committee level. Community leadership in the project will help to ensure that strategies for community consultation are appropriate both locally and across the project overall. Community consultations will be conducted under the leadership of local partners at each stage of the project: proposal and design; implementation; interpretation of findings; and dissemination strategies. Engagement of community partners throughout the project ensures it will be relevant, implementable and sustainable by being grounded in the unique needs and interests of each community.

Step 2 (Year 3): Training. Training and mentoring will be provided where appropriate with local community researchers for data collection and analysis. Mentorship of student trainees with backgrounds in the social sciences, natural sciences, and technology will be provided by both community and academic partners in interdisciplinary teams by project activity to ensure that all participants can strengthen their skills in community collaboration, local knowledge, knowledge dissemination, and the ability to work across disciplines and methodologies. Training will also be provided in any knowledge resource and technological solutions developed, such as the toolkit, and the low-tech platform described below, in collaboration with community partners to ensure that technology is usable, acceptable, affordable and appropriate for the intended users and uses. In this way, participating individuals and communities will acquire the skills to continue work with the toolkit and network developed in this project and develop sustainable partnerships for future projects.

Step 3 (Year 3): Toolkit. The toolkit will be developed by and for local communities, with the purpose of creating a publicly available repository of knowledge useful to local communities across the three countries as well as other stakeholders and policy makers. The toolkit may broadly involve data information and resources, best practices and guidelines, decision support tools (e.g., risk analysis), stakeholder engagement resources, case studies, and capacity building materials.

Step 4 (Year 3): Low tech platform. Establishing a low-tech platform provides sustainability to the network and allows for sharing the toolkit among coastal communities. To ensure accessibility, the network will employ a low-tech platform developed in collaboration with Southern partners. In line with the project's goal to address the needs identified through community consultations of local coastal communities, a fit-for-purpose open-source technology platform will be co-designed, developed and trialed with communities across the three sites, taking into account data security, language and literacy, accessibility and political considerations.

The purpose of the platform and its interface will depend on the community and their use of it. The platform may be utilized for several interrelated purposes, including:

- **Reporting**, where network members can continuously report instances of maladaptive practices.
- **Advocacy and activism**, where network members can share knowledge of how to impact relevant decision makers, by creating a coastal toolkit.
- **Data generation**, where network members can continuously submit information to the platform to collect longitudinal data on maladaptation.

Information submission may include the use of mobile phones, incorporating use of touch screens with pictures or sounds. To ensure anonymity, if necessary, acoustic data capture, enabling recordings of natural voice to be captured and converted from voice to text passively via a smartphone application, can be incorporated.

To support the visualization of knowledge captured, a range of visual data dissemination tools will also be made accessible via a cloud dashboard. These tools will enable evidential reporting in the form of graphical charts, images and reports that can be shared with stakeholders, communities, governments or associates easily and efficiently. All software developed will be published under the GNU General Public License v3.0 (GPLv3). The platform will be software-based and will not introduce new hardware.

Environmental footprint: The implementation of the project will not alter the environment where implemented, and the technological solutions used will have negligible greenhouse gas emissions, as development will focus on the creation of software capable of running on existing community-owned devices and will not introduce new hardware. Furthermore, any cloud-based services necessary to maintain or host the low-tech platform will be utilized "on-demand", reducing overall power utilization and only scaling when demand is high. We will also seek to reduce the environmental footprint associated with research as much as possible by taking advantage of online tools and conferencing to limit travel but still keep the research teams connected.

Equity, Diversity and Inclusion in Research Design (EDI-RD)

The ADD team is committed to a decolonizing approach to explicitly incorporate EDI considerations. We address equity, diversity and inclusion in terms of relationships between the Global South and the Global North, between community and academic communities, and within communities along a number of intersecting dimensions, including gender, age, class, and religion. Because the project is participatory in design, EDI in research design and EDI in research practice are inherently intertwined; equity-seeking groups are included in all aspects of the project from its inception, and thus EDI in the management of the project is also part of the EDI in research design.

The critical ethnography and community-based participatory approaches described throughout the proposal centre on the inclusive engagement of members of vulnerable communities. Decolonizing and inclusive community-based research approaches are explicitly built into the methods and are central to the research expertise of co-PIs Hynie, Nayak, and Haque and co-Applicants Ahero and Echavez. The inclusion of community leaders and community organizations in the writing of this proposal has ensured that consultations with community members regarding project design and implementation will begin with project inception in each of the research sites. A commitment to clear communication with community is central to ensuring that local community priorities and expectations, and local knowledge and practices, are incorporated in the design and implementation of the research; are included in, and inform interpretation of, the findings; and shape research dissemination. The creation of formal structures like the Community Advisory Committees (CACs), governance roles (inclusion of community representatives on decision-making committees), and interactive and consultative processes support the development of shared values and goals in the research and ensure that the research project does not reproduce the extractive research practices commonly observed in international partnerships. Active steps will also be taken to support the inclusion of marginalized groups, through the use of verbal (as opposed to written) materials, provision of travel, childcare and sustenance support during meetings, flexible scheduling, and ensuring gender balance in meetings to attend to local EDI concerns in research development and design. The E&M Committee will monitor these processes both within and between sites.

Gender studies and dispossession studies underpin our theoretical framework. ADD acknowledges that gender is typically overlooked in the literature on dispossession and climate change adaptation, and yet climate change adaptation can contribute to gendered processes of dispossession and subsequent displacement. The study of these heteronormative gendered thus form the key research question in this project and thus, EDI considerations are at the core of this project. Co-PIs Damsa, Evertsen, Hossain and Su and co-Applicants Echavez and Salamance, are experts in areas of gender, Indigeneity, climate justice, and intersectionality, and bring this expertise to the framing of the overall project. EDI considerations therefore have been, and will continue to be, central to the research. EDI considerations are also explicitly built in to the interdisciplinary and intersectional analyses that will ground this work and are the main focus of the novel theoretical work that is anticipated as a result of this research.

EDI-RD is not only central to the generation of new knowledge and practices but also central to how knowledge will be shared. The co-development of knowledge products with communities will be supported by the local and consortium team members' extensive experience in Participatory Action Research. While specific knowledge products will be determined through local community consultations, approaches that have been successfully implemented in these or similar sites by the team members include the development of educational material for schools, cell-phone facilitated videos, fact sheets, infographics, community meetings, policy briefs, and theatre radio- and social media-based communication. We anticipate similar approaches to be implemented in the current project. The phone-based toolkit is a key research project that will be explicitly developed and tested with members of vulnerable communities in these sites, for whom the toolkit is intended. At this stage, as in every stage of data collection, steps will be taken to include the most vulnerable and hardest to reach communities and individuals, to ensure that their experiences, knowledge and resources are included. This will ensure the toolkit's relevance and usability for those most affected by climate change adaptation displacement. The South-South Coastal Network platform is the other main community-engaged output of the project and will be developed in consultation with community members and NGO representatives and modified to ensure the format and content can be useful and sustainable across different languages, settings and regions.

Management Plan

Financial Administration: The financial administration of the project is divided by project element and research sites. York University will administer the costs of overall project coordination, knowledge mobilization, and the ethnographic research in the Philippines. University of Waterloo will be subcontracted by York to administer funds for the ethnographic research in Ghana. The University of Glasgow will administer the funds for the desk review and geospatial data for the risk mapping, as well as subcontracting Aribada to build the platform and supporting NGO consultants in Bangladesh and the Philippines. The Institute for Social Research in Oslo will administer funds for the ethnography in Bangladesh.

Project Governance: Our Project Governance draws its strengths from the values we attach to a collaborative, bottom-up, decentralized and interactive model that is grounded in the principles of respect, collegiality, transparency and accountability. The governance structure of ADD is made up of three elements, **Local Management**, **Working Groups**, and **Overall Coordination** (see Figure 1).

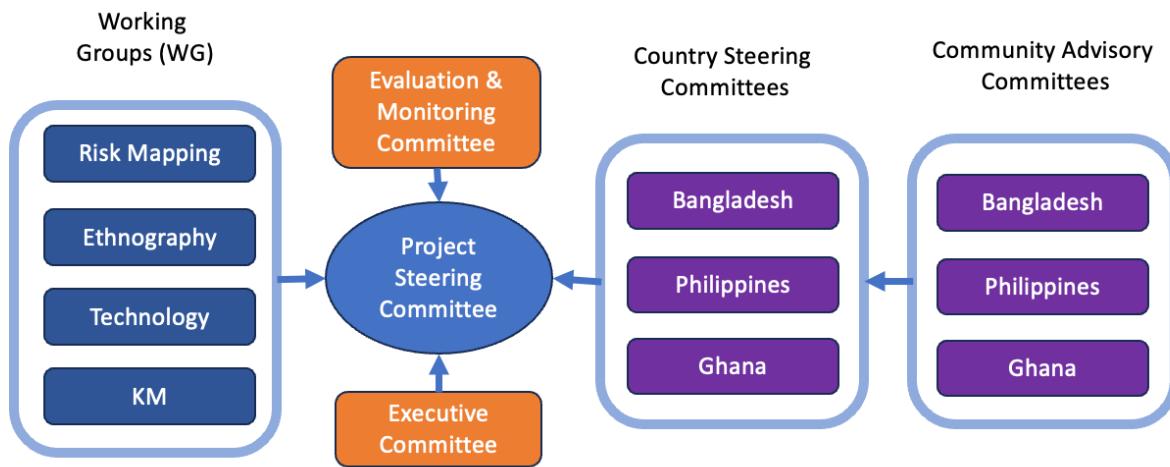


Figure 1: Management structure

Local management: Each ADD country (Bangladesh, Ghana, Philippines) will have a local **Community Advisory Committee (CAC)**, comprising 8 to 12 local community members and community organization leaders, at least 60% of whom are women, and two project team members, and will meet quarterly to ensure regular consultations and dissemination with community members. **CACs** will elect two co-chairs, at least one of whom will be a woman or sexual/gender minority and at least one of whom is not a project team member. At least two members of each **CAC** (normally the co-chairs, and while maintaining diversity of gender identities) will represent in their respective **Country Steering Committees (CSC)**, which will comprise community organization representatives, community members, and academic partners. Each CSC will have two representatives who will act as **Country Coordinators** on a rotational basis, at least one of whom will represent a local community organization while also ensuring diversity in gender identities. The local **CSCs** will oversee local implementation and governance, coordinate research activities, undertake project management and help build partnerships on the ground and guide the local case study research and knowledge co-production activities.

(2) Four **Working Groups (WG)**, each led by two **Working Group Leaders**, will coordinate the priority research themes and ensure key knowledge mobilisation and capacity development outcomes and outputs. The **Risk Mapping WG** will oversee the desk review of climate change adaptations in the three regions, and the organization and integration of the geospatial data into the analysis. The **Ethnography WG** will coordinate and oversee the three ethnographic studies (one per site) and support the conceptual and methodological innovations required for this activity. The **Technology WG** will coordinate the development of the on-line ADD platform. Finally, the **Knowledge Mobilization WG** will ensure concrete deliverables for communities, policy makers, NGOs and academia. The role of the **Working Group Leaders** is to ensure appropriate key deliverables are achieved under each objective

that are intellectually supported and achieved as per project timelines, in collaboration with the **Evaluation and Monitoring Committee (EMC)** (see below). **WGs** offer significant space and opportunity for broad-based participation; all project participants can join as members and contribute to the project through the **WGs**. Working Group Leaders however, are subject matter experts, and at least one Working Group Leader in each **WG** will be situated in one of the three site areas. The Working Group Leaders ensure interaction between the **WGs** and the country activities, as well as within the groups themselves to produce results. Theory development, the third arm of this research project, will occur across all committees rather than within a single working group.

(3) For Overall Coordination, the **Project Steering Committee (PSC)** will include the **CSCs** and Working Group Leaders, plus the Norwegian, UK and Canadian PIs, the Project Manager and two representatives of the **CSC** to ensure balanced representation by country site, sector, discipline, gender, knowledge and expertise. The **PSC** will be responsible for building strategies and policies for decision-making, resource allocation, conflict management, and information sharing across the project. The **Evaluation and Monitoring Committee (EMC)** will be responsible for monitoring key activities and deliverables against the proposed objectives, timelines and outcomes, including a clear EDI monitoring mandate. The **EMC** will liaise with the Working Group Leaders, and provide regular reports to the **PSC**. It will include representation from each country site, plus three additional members and the *Project Manager*. The **Executive Committee (EC)** will be made up of at least one representative from each of the country sites (both research sites and funding sites) plus the co-chairs of the **PSC**, and the Project Manager. The **EC**'s main role will be to support the coordination of the **PSC**, identify and respond to challenges and gaps by identifying where additional consultations or collaborative problem solving is required, offer a rapid response in crisis situations, and to oversee budgetary decisions. The Project Manager coordinates **WG** logistics, provides support to students and HQP, project meetings, field research, travel, knowledge mobilization and student training efforts. The Project Manager will report to the PI at York University, where they will be located.

Decision Making and Conflict Resolution: The primary means of decision making will be collaborative, and every effort will be made to achieve consensus. Should a committee be unable to come to consensus, a vote may be used, with a simple majority required within each of the relevant subgroups, i.e., within each country site or within each sector (academic/community/community organization). Mechanisms to enable collaboration and foster coordination as part of project governance will include at minimum an annual meeting of each country advisory committee and quarterly meetings of the country steering committees. Moreover, the project will have (i) a meeting of the **PSC** every 6 months with two face-to-face meetings of the **PSC** coinciding with the required Canadian meetings; the remaining meetings will be virtual; (ii) remote meetings of the **EC** every quarter; (iii) a series of meetings, training and workshops organized by the **WGs** over the life of the project to achieve their respective mandates; and (iv) annual virtual meetings of all **CSCs**, plus additional virtual meetings, as needed to share information and coordinate local activities across sites.

Performance Monitoring and Measurement: Performance monitoring will be led by the **Evaluation and Monitoring Committee (EMC)** which will work with the **Working Group Leaders** and the **PSC** to identify a clear set of indicators for activities and outcomes based on the project goals. This will also include consulting and annual monitoring of EDI outcomes. A Theory of Change model will be developed collaboratively to identify appropriate indicators qualitative and quantitative indicators for short to medium-term outcomes. The time-line for key activities and outcomes will be refined following consultations with the country-level steering committees to ensure reasonable timelines and appropriate indicators for each site, while still respecting the parameters of the larger project timelines. The **EMC** will develop tools to allow the easy and ongoing monitoring of outputs and outcomes as part of the regular **WG** and country level activities, and provide a brief annual report to the **PSC**, as well as flagging any areas of concern between reports if necessary. The **PSC** will work closely with the **EMC** to anticipate and monitor potential risks. The local team members are experienced in on-the-ground work in their settings and therefore are both knowledgeable of potential risks and have a suite of alternative solutions to ameliorate them. In emergencies, the **EC** can respond rapidly if necessary, but risk management will be based consultations with the broad network of local NGO and community experts as well as scholars and administrators in all six countries.

Data management plan: Our data management plan will be primarily guided by the key principles and values set out in the ADD EDI plan. The project will comply with the national ethical standards of all the partners in the project and seek approval from their institutions and national ethics committees. All data collection and processing of information will also comply with the [EU General Data Protection Regulations \(GDPR\)](#) and [NFRF Research Data Management Guidelines](#). All data will be anonymized and stored on encrypted, password-protected hardware. A memorandum of understanding will be drawn between partners in the project. Data sharing protocols informed by research ethics requirements, issues of intellectual property and open access use of the resources will be discussed. Open access will be encouraged within the limits of the data protection and privacy regulations. Further, we see opportunities for communities involved in ADD, in collaboration with local partners (e.g., local NGOs), to access and make use of open source data for their own monitoring and advocacy purposes, within data protection regulations.

Training

Capacity development across all levels of the project, with specific focus on students and HQPs, is a top priority and a central component of our commitment to EDI. Our faculty co-PIs and co-Applicants have excellent track records of graduate and HQP supervision and mentoring in line with their academic seniority. The theoretical and applied scholarship woven together in this project offers unique opportunities to students and HQP to learn from a network of global and local experts. Importantly, students will be working in collaborative, interdisciplinary, international teams that create unparalleled opportunities for developing the unique skills required for interdisciplinary and international collaborations across the social, natural and computational sciences, both through observation and through direct mentorship. We anticipate that the project will train 9 MAs / MSs and 2 post-doctoral fellows, in addition to community researchers. The project also includes several early career researchers who are co-PIs or co-Applicants on this grant and whose participation on a project of this size with experienced senior researchers is also a form of mentorship.

The prioritization of training and mentoring is reflected in the budget allocation for HQP stipends, research assistantships, research support for field work, travel to conferences and workshops, and support for training for all community members. We are also committed to following Equity, Diversity and Inclusivity (EDI) best practices in all hiring and training activities. Given the international and cross-cultural nature of ADD, we plan to provide opportunities to country-specific potential individuals to join the project as graduate students and HQP at our various partner universities in Canada, UK, Norway and project countries. During the first year of the project we will engage in a collaborative process of creating a commonly agreed EDI plan for the project outlining the key principles, values and actions as part of our Terms of Reference (TOR). We will strategically use project resources to secure additional HQP training funds (e.g., MITACS, IDRC) and leverage resources to maximize opportunities.

Our approach to training and mentorship will be ‘capacities-focused’. HQP will build capacities in a wide range of academic and professional skills. For example, HQP will play a key role in each identified study site through direct participation in collaborative research activities, and they will undertake interviews and surveys, conduct focus groups, develop and apply various research instruments and collaborate on technology testing or development. As well, HQP will build capacity in data analysis (qualitative and quantitative) and visualization, proposal development and writing, advocacy and leadership, project management, engagement in collaborative and cross-cultural field research, and disseminating research outcomes (see below). Importantly, students will be supported through conference and workshop opportunities to build their own research networks and, more generally, will benefit from experience with the interdisciplinary, collaborative, team approach that guides this partnership. In addition to the role in knowledge generation, students will collaborate actively with research partners, academic supervisors and each other in the dissemination of a wide range of research outputs. These research outputs will include peer-reviewed publications, targeted policy briefs, seminar and conference presentations, educational material for primary schools, and community specific materials such as graphic novels, infographics, and radio or podcast episodes. The academic partners have an excellent track record of co-authoring publications with HQP and we will continue this tradition. To foster and sustain a team approach, core team members will serve jointly on graduate student committees, wherever possible. Collaborative supervision and participation in team activities will ensure cross-fertilization of ideas and consistency in methods application.

Canada (CAD):

Canada will support overall project coordination through a Grant Project Manager and international project meetings. Research, students and research personnel in the Philippines will be supported by York University and Ghana by University of Waterloo, reflecting their on-going relationships.

1. Personnel costs

Researcher Team compensation (\$145,503): Three Co-Applicants in Philippines will receive salary support: Lo (Geomapping/Satellites) at 10% FTE @ \$10,000 per year; Talaroc (Ethnography) @ 15% FTE (\$60,000); and Echavez (Communications) at 25% FTE for \$8,638/year (\$24,914). Co-applicant Aheto in Ghana will oversee activities in country for 39 days/year @ \$19,863/year as per Cape Coast University guidelines (\$59,589 total)

Student salaries (\$126,038): *In Canada, two Master's students* at York University will aid with literature reviews and access to academic databases for 10hrs/week in Y1 for \$9,250 each (\$18,500 total). Two students at University of Waterloo will each receive stipends for one year for fieldwork in Ghana, for ethnography (Y2) or toolkit/technology testing (Y3), at \$15,000CAD each (\$30,000 total). *Outside Canada:* In Ghana, *two Master's student* research assistants will support data collection (\$3,923/year x 2 students x 3 years). In Philippines, *two Master's students* in social sciences and *one Master's student* in Natural Sciences will be supported at \$6,000/year each for three years to work on data collection, data analysis, and integration of climate data.

Nonstudent salaries (\$412,750):

Post-doctoral fellows (Outside Canada): A post-doctoral fellow (PDF) in Ghana will co-lead research activities across the 3 years (\$12,970CAD/year x 3 years). *Technical Staff (Outside Canada)* in the Philippines will include a research assistant to support data analysis and management, 50% FTE @ \$4800CAD for 3 years; an engineer and technology specialist, to oversee the GSI data and local mapping at \$10,000CAD (15% FTE); a technical manager to oversee the implementation of the South-South platform (\$4000CAD for Ys 1&2, \$5000CAD for Y3), 2 field coordinators for data collection @ \$960/month (\$2880 Y1; \$8640 Y2; \$5760 Y3) 6 field interviewers @ \$720/month (\$4320 Y1; \$8640 Y2; \$4320 Y3) and transcribers/coders @ \$720/month (\$720 Y1; \$1440 Y2; \$720 Y3). *Honoraria (outside Canada):* In Ghana, 30 community engagements @\$50 each: twice in Y1 for field preparation (\$3000) and 4 times in Y2, twice for fieldwork and twice for ethnography (\$6000). *Other (in Canada): Overall project manager (\$240,000)* with MA/MSc and project management experience will organize project activities and coordinate regional activities: 3 years @ \$80,000, including benefits. *Other (project managers – outside Canada):* Local project coordinators will support research activities in the Philippines (15% FTE, \$10,000/year for 3 years).

2. Professional/Technical services (\$30,400): Costs will be incurred in the Philippines for Website and IT related items (\$2000 in Y1; \$4000 each Ys2 and 3). In Y1, the Geospatial Centre in Ghana will provide geospatial data for all project sites (\$20,400)

3. Travel Costs (\$278,874)

Fieldwork and data collection (\$131,264): Fieldwork in partner countries forms the core of the project and research activities. In the Philippines ethnographic fieldwork activities occur in Y1 and Y2 and tool kit testing occurs in Y3. Fieldwork, data collection and toolkit validation costs include per diems for data collectors @\$75/day (Y1: \$4500; Y2: \$14,400; Y3: \$18,000). Co-applicant Su from York will travel to support data collection and analysis in the **Philippines** for 2 weeks in each year: airfare \$2500, accommodation for \$150/night; per diem \$87/day x14 days = \$5818/year. In Ghana, fieldwork is led by the PDF. Preparatory work in Y1 is 28 days (vehicle: \$100*7 days; fuel \$200: accommodation: \$70*28=\$1960; per diem: \$60*28=\$1680; Total = \$4540). Fieldwork in Y1 and Y2 involves the PDF, project coordinator, research assistants, and local staff (7 people in total for 28 days, divided between Y1

and Y2). Car rental for 7 days for 7 people at \$100/day = \$4900; fuel costs will be \$200/day* 7 = \$1400; accommodation @\$70/night per person *28 days is \$13720; per diems @ \$60/person * 28 days is \$11,760 for a total of \$31,780 (\$15,890 per year). Ethnographic study to prepare for the toolkits will be conducted in Y2 by the PDF and 4 other team members over 28 days. Car rental \$100 for 7 days for 5 people = \$3500; Fuel @\$200*5 = \$1000; accommodation for 28 days @\$70*5 people = \$9800; per diems for 5 @\$60*28 days = \$8400 for a total of \$22,700. An MA student from Waterloo will spend 3 months in Ghana on fieldwork (Y2, airfare: \$2000, university accommodation and food: \$1000/month = \$4,250); a second MA student will travel for toolkit testing (Y3, airfare: \$2000, university accommodation and food: \$1000/month = \$4,250). Co-PI Nayak will support fieldwork in Ghana and overall project activity coordination by travelling to Ghana for a 2 week trip each year (airfare: \$2000; accommodation: \$200/week = \$2,800/year).

Conferences (\$20,000): Knowledge mobilization travel for students in Y2 (\$10,000) & Y3 (\$10,000)

Other Travel (\$127,610): *Community consultations* are central to community-based approaches. In the Philippines, research validation meetings in Y3 include per diems @\$75/day for 10 people, 10 days and, refreshments and room rental for team meetings for (\$18,330). In Ghana, annual community consultations are \$4000/yr, including community member travel, refreshments and room rental for the event. *Project meetings* will be held locally and internationally. A local project inception meeting in the Philippines in Y1, \$10,000, for local community member travel costs, meeting room rental, accommodation and refreshments. The York budget funds a face-to-face full team inception meeting in Y1, with 10 co-PIs in Ghana for 4 days (airfare: \$2000/pp; accommodation: \$250/pp = \$30,000; meeting room and meals \$5000 = \$35,000 total. The York budget funds one partner from Philippines (airfare: \$2500; accommodation/per diem: \$2500/yr), one from Ghana (airfare: \$2000; accommodation/per diem: \$2305/yr) to attend the NFRF meeting in Ys 2 and 3, and co-PI Nayak from Waterloo (\$200 train; \$800 accommodation/yr).

4. All other costs (\$112,000):

Production of local knowledge products will be co-designed in communities in the Philippines in Y1 (\$10,000CAD), Y2 (\$20,000) and Y3 (\$20,000) comprising community consultations and workshops, art creation, education materials development and design, and audio-visual material development. *Training* will be provided for community and research teams in research methodology, technology, GIS mapping, and data analysis. In the Philippines in Y1 (\$10,000) and Y2 (\$4000). In Ghana, research training in Y1 (\$8000) and toolkit training in Y3 (\$12,000). *Knowledge mobilization and Communication* support includes open access publication fees for Y3 (\$10,000). The Philippines has \$7000 in each of Y2 and 3 for publications and translation. In Y1, the Ghana team will spend \$4000 on radio and media communication to reach communities for fieldwork preparation.

UK, University of Glasgow:

(Note that the 80% direct costs to UKRI are reported here to align with the NFRF budget template unless noted for exceptional items)

1. Personnel costs

Research Team compensation (£49,529): The UK co-PI Robinson will be compensated for 33% FTE (£16,013 Y1; £16,511 Y2; and £17,005 Y3). Co-Investigator Davies will be compensated at £5,000 per year, providing 5% FTE to serve as the technical director.

Nonstudent salaries (£155,516): *Post-doctoral research fellow (UK):* for 2 days/wk in Y2 (£17,491) and Y3 (£18,025) to coordinate mapping activities and toolkit development. *Technical Staff (UK)* will be hired through Arribada as an exceptional item (100% funded) to develop, test, and implement a South-South platform: a software engineer (£60,000 Y1, £20,000 Y2, £7,500 Y3); a technical project manager (£20,000 Y1, £7,500 Y2, £5000 Y3).

3. Travel costs

Fieldwork and data collection (£20,570)

Co-PI Robinson will contribute to fieldwork in the Philippines for three 2-week trips, in Y2: flight: £1600; accommodation and per diem: £300/week, visas £240/ trip: total = £7320. Travel for the Arribada technical team (3 ppl)to conduct fieldwork for the South-South platform and toolkit will occur in Y2 (exceptional item). Bangladesh Airfare £1500 , shared accommodation and per diem for 2 weeks £333, visas £250 for 3 people = £6250. Philippines airfare: £2000 each, accommodation and per diem for 2 weeks £333, for 3 people= £7000.

4. All other costs (£88,160)

Materials in the form of a laptop for the PDF in Y1 (£960).

Professional and Technical services: Community consultants from NGOs will be supported by Glasgow in Bangladesh and the Philippines, at an average of £29,067/year (£87,200 total). They will be key actors in facilitating and working with local communities.

Norway:

Norway will support research, training and research personnel in Norway and Bangladesh

1. Personnel costs

Research Team compensation (kr4,732,736): *In Norway:* Co-PIs Damsa and Evertsen will be compensated for 50% FTE: kr681,225 Y1, kr702,150 Y2, and kr723,283 Y3 each. *Outside Norway:* Co-PI Haque in Bangladesh will be supported at 30% FTE for 3 years at kr173,140/yr.

Student salaries (kr347,067): *Outside Norway:* A PhD student in Bangladesh will support climate community based research activities for 3 years at kr115,689/yr.

Nonstudent salaries (kr445,122): *Technical staff* include an IT/technical manager for development/testing of the on-line tool/platform, 18 months across Y2 (kr46,440) and Y3 (kr23,220). Two research assistants with expertise in social sciences will support data collection and pilot testing of toolkits, RA1 in Y2 (kr52,564) and Y3 (kr26,286) and RA2 in Y2 (kr81,769) and Y3 (kr40,885). *Other (project managers – outside Norway):* A local project manager will coordinate integration of research elements of the projects across the three years at kr57,986 per year.

3. Travel costs

Fieldwork and data collection (kr593,500)

Co-PIs Damsa and Evertsen will support fieldwork in Bangladesh in Y1 and Y2, 2 trips each 9 weeks (airfare: kr16,000*2 = kr32,000; accommodation and meals: kr1000 per week *9 weeks * 2 trips = kr18,000) = kr50,000 ppy. Fieldwork in Bangladesh in Y1 and Y2: 42 days/yr for student, co-App Mukta, 2 community consultants and co-PI Haque: local travel (car rental, refreshments, accommodation @ kr936.9/day*42*5=kr196,750/yr, Y1 and Y2.)

Conferences (kr100,000) - Travel to conferences for the Norwegian team will be kr50,000 per year for Y2 and 3.

Other (kr155,126) *Project meetings (Outside Norway):* One inception meeting in Bangladesh Y1 (kr29,206 for travel and refreshments, co-Applicants/co-PIs). The Norwegian budget will provide funds for 1 Norwegian and 1 Bangladeshi co-PI to attend the Canadian NFRF meetings (kr31,480 per person, Y2 and Y3).

4. All other costs (kr298,548)

Daily rates for data collection: Three fieldwork participants will be compensated in Y1 and Y2 rounded to kr98,119/year (~kr779/day * 42 days * 3 people). *Publications, books, and printing* in Bangladesh will be supported at kr31,480/yr for Y1 and Y2. *GIS Training:* Training on Research methodology, technology, GIS, Mapping, Socio-ecological studies, data analysis in Bangladesh in Y2 (kr39,350).