

Slow-onset climate hazards in Southeast Asia

Enhancing the role of social protection to build resilience

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Key messages

- The adverse effects of climate change, including slow-onset hazards such as sea-level rise, pose significant risks to humans, communities and livelihoods across the globe. Though sudden-onset events such as typhoons draw more attention, slow-onset hazards can have severe long-term impacts on human and natural systems alike.
 - Sea-level rise is a particular concern for Asia, where more than 100 million people live in coastal areas. Sea-level rise not only exacerbates storm surge risks, but can also lead to displacement, saltwater intrusion that affects freshwater supplies and agriculture, floods, coastal erosion, and risks to livelihoods, food security and human health.
 - Social protection mechanisms have been used for decades to reduce poverty and vulnerability, and they are increasingly used after disasters and in anticipation of climate change impacts. However, their potential for building long-term resilience and supporting adaptation, including to slow-onset hazards, is not being fully utilised.
 - Tailoring social protection to slow-onset hazards such as sea-level rise offers a unique opportunity for these measures to be truly transformative. Because these hazards manifest gradually, there is time to drive structural changes that would not be practical in the context of sudden-onset events.
 - Several knowledge gaps need to be addressed to inform the effective use of social protection to support adaptation in coastal communities, including when interventions might be most effective in addressing slow-onset hazards; specific needs related to sea-level rise and to urban settings; and how best to realise the transformative potential of social protection in these contexts.
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A man in Baan Koh Chai, a floating village in Southern Thailand where villagers rely on boats for transportation to get to the market or the other side of the river © NICOLE ANSCHELL / SEI

Introduction

Climate change is already having severe impacts on human and natural systems alike. Along with temperature increases and changes in seasonal patterns, the most widely noticed impacts are often abrupt, such as extreme weather events and disasters such as typhoons. However, many serious climate change impacts occur on long time scales – for instance, sea-level rise, desertification and loss of biodiversity (Box 1). The United Nations Framework Convention on Climate Change (UNFCCC) refers to changes that evolve incrementally over several years, or recurring events that become more frequent or intense, as “slow-onset events” (UNFCCC 2012).

This report focuses on the potential role of social protection mechanisms in building resilience to slow-onset climate change impacts, with special attention to how social protection can support transformation for resilience-building, adaptation and disaster risk reduction (DRR). Social protection generally aims to help the poorest and most vulnerable members of a society. It is also considered a key element of climate change action and DRR (UNESCAP 2019) and plays a critical part in disaster recovery efforts. At the same time, the viability of social protection itself may be imperilled by climate change and disasters.

A coherent approach is thus needed to understand the interactions between compounding climate risks, social protection, poverty and inequality. More knowledge is also needed on how different social protection mechanisms can appropriately address different types of hazards with varying time scales and risks. This report, an output of the project Critical Challenges of Coastal Southeast Asia (3CSeas), examines those issues and identifies principles to guide future research on social protection to build resilience to slow-onset events, focusing on coastal communities.

Sea-level rise and its impact on coastal communities

For decades, sea-level rise has been highlighted as a significant challenge for low-lying coastal zones and small island developing states (Rouviere et al. 1990). It has been one of the most visible manifestations of climate change, threatening large populations and a wide range of livelihoods around the world. Sea-level rise can also have particularly dire consequences for coastal habitats and contributes to coastal erosion, flooding and salinisation (Box 2).

Although it is widely recognised that the global mean sea level is rising, at an accelerating pace, the impacts vary regionally (IPCC 2019). In Asia, sea-level rise may have severe consequences for the more than 100 million people living in coastal areas (ADB 2017), including displacement, risks to local livelihoods and food security, and harm to human health.

Several international frameworks address coastal climate change and disaster risks, including Article 8 of the Paris Agreement (focused on loss and damage), the Sendai Framework on Disaster Risk Reduction, the United Nations Convention to Combat Desertification, and the Global Compact for Migration. The 2030 Agenda for Sustainable Development identifies the impacts of sea-level rise and other coastal risks on coastal areas and low-lying coastal countries as great concerns for its pledge to “leave no one behind”. The Global Compact for Migration, meanwhile, highlights the need for states to cooperate to identify, develop and strengthen solutions for people migrating in the context of slow-onset hazards such as sea-level rise.

Southeast Asia faces particularly high risks from sea-level rise and related hazards (Hoegh-Guldberg et al. 2018) due to a combination of geophysical characteristics; large coastal populations, including in densely populated cities; poverty, and extensive reliance on coastal livelihoods. Coastal communities in the region have experienced repeated major disasters, with significant death tolls, physical destruction and economic losses. The Association of Southeast Asian Nations has explicitly acknowledged climate change as a threat to the region (see, e.g., ASEAN n.d.). Poor and marginalised households are often disproportionately affected, as they may be more physically exposed to climate

risks but also have a lower capacity to cope or adapt. Governments are increasingly integrating social protection schemes with disaster response frameworks and planning to address risks associated with climate change and related disasters (ILO 2015).

BOX 1. HAZARD TIMESCALES: SLOW VS. SUDDEN

Slow-onset emergencies do not emerge from a distinct event, but rather occur gradually over time. In contrast, **sudden-onset** events are triggered by a hazard that emerges quickly or unexpectedly; examples in the context of climate change include typhoons or extreme precipitation.

Slow-onset events can interact with and exacerbate sudden-onset events by increasing vulnerability and eroding coping capacities. At the household level, reduced fish catches and lower crop yields, for example, may affect food, nutrition and livelihood security and reduce access to water and other essential services. A UNFCCC technical paper found that there are “synergistic interactions between rapid onset and slow onset events that increase the risk of loss and damage” (UNFCCC 2012, p.3), so there is a need for integrated short- and long-term risk management and planning.

Slow-onset events also threaten many aspects of sustainable development. Though they affect households, communities and nations in a variety of ways, they are already taking a toll on human health and well-being, particularly in least-developed and developing countries, and among low-income, marginalised and otherwise vulnerable communities.

Social protection and climate-related risks

Social protection has emerged as a key tool for strengthening the capacity to prepare for, withstand and recover from climate-induced disasters. It is a central part of social and anti-poverty policy. There are four main types: social assistance, social services and care, social insurance, and active labour market policies (Oxford Policy Management 2017). Social protection helps people living on the margins of society to manage risks and cope with shocks by protecting access to basic needs, preventing deprivation, and promoting livelihood-enhancing capabilities (Devereux et al. 2015).

Current research and practice in social protection follow two major schools of thought: a growth-oriented approach primarily concerned with poverty alleviation, asset protection and economic growth; and a rights-based approach recognising the fundamental correlation between livelihood security and empowerment (Devereux et al. 2015; Tenzing 2020). Rights-based social protection assumes a transformative function, including collective action, policy change and other measures to protect the rights of and ensure equity for socially marginalised groups (Devereux and Sabates-Wheeler 2004).

Our analysis defines transformation as fundamental changes that address root causes of vulnerability and marginalisation, focusing on equity and social justice in resilience practice (Thomalla et al. 2018). A transformative approach highlights the potential for policies and programmes to contribute towards social equity, empowerment, and the realisation of economic, social and cultural rights. Rather than providing purely an economic safety net or resource transfers, additional social services and opportunities for community and political engagement contribute to long-term resilience by addressing power imbalances and meeting those rights.

In the context of climate change, social protection may also offer potential to offset losses related to the impacts both of climate change, and of some climate policies. The link between sea-level rise and social protection mechanisms was first made explicitly in 1991, when Vanuatu submitted a proposal on behalf of the Alliance of Small Island States (AOSIS) requesting an international fund to support states impacted by climate change as well as an insurance fund to protect against sea-level rise (Roberts and Huq 2015). Since then, the development community has furthered the connection between climate change, disaster and social protection by seeking to “climate-proof” social protection.

Several concepts have emerged that reflect the fundamental differences in perspective on social protection itself. “Climate-responsive social protection”, for example, assumes a growth-oriented model, based on climate-aware planning and asset-based, capacity-building interventions (Kuriakose et al. 2012). “Adaptive social protection” is rooted in rights-based social protection, linking disaster risk reduction, climate change adaptation and development (Bowen et al. 2020). “Shock-responsive social protection” links social protection to humanitarian assistance in the context of compounding climate and other risks (Oxford Policy Management 2017).

Whether “adaptive”, “climate-responsive” or “shock-responsive”, social protection offers a low regrets investment, as it simultaneously addresses climate change resilience and poverty alleviation (Solórzano and Cárdenes 2019). In sync with climate resilience capacities, social protection contributes to people’s capacity to absorb and cope with shocks (absorptive capacity), anticipate and prepare for future shocks (anticipatory capacity), and learn and adapt to long-term risks (adaptive capacity) (Bahadur et al. 2015; Ulrichs et al. 2019). It aims to build resilience by investing in poor and vulnerable communities to enable them to better deal with climate risks, so they do not fall deeper into poverty.

Despite its potential to contribute to climate resilience, most efforts to apply social protection in the context of climate change have focused on responding to climate extremes and sudden-onset disasters (Aleksandrova 2019). Social protection mechanisms are often used in the aftermath of

BOX 2. SEA-LEVEL RISE AND THE COMPLEXITIES OF COASTAL HAZARDS

Climate change causes sea-level rise through the thermal expansion of the oceans as well as rising temperatures leading to the melting of ice sheets and glaciers (UNFCCC 2012). According to the Intergovernmental Panel on Climate Change, global mean sea-level rise, an average of the sea-level rise occurring worldwide, has been accelerating over the past century, primarily due to climate change (IPCC 2019).

Slow-onset hazards can also intensify the effects of sudden-onset events, leading to disasters (UNGA 2020). Sea-level rise can exacerbate storm surges, for example, resulting in floods and rapid coastal erosion. Storm surges are also intensifying due to warmer sea surface temperatures and increased cyclonic activity resulting from warmer seas (IPCC 2012). Slow-onset climate change impacts further deepen vulnerability by breaking down natural barriers that protect coastal communities from storms and floods, such as mangroves, reefs and other natural breakwaters.

Less immediate, but also serious impacts of sea-level rise include encroaching high tides and the salinisation of freshwater supplies. Communities and households feel the impact through increased saltwater intrusion, submerged farmland, and more severe damage from cyclones due to more intense storm surges. Low-income groups living in floodplains and directly on coastlines are especially vulnerable (McGranahan et al. 2007).

a disaster to help the poor cope and recover (Kuriakose et al. 2012). Fast action during the post-disaster recovery process can be important for a population's safety and security. Unconditional cash transfers, for example, are often used to address short-term consumption needs while giving the beneficiaries flexibility to decide how to best invest their resources (Johnson et al. 2013). In addition to meeting essential needs, multiple social protection programmes may be needed to reach different households and at different time periods. For example, social protection may be useful to aid sustainable reconstruction and build resilience to future events (GFDRR 2020).

The gap in social protection and slow-onset events

While the links between social protection and climate-related risks are increasingly recognised, several gaps remain that may affect outcomes. One is in understanding how social protection may mitigate risks resulting from slow-onset hazards, specifically sea-level rise. More focus has been given to reactive measures after sudden-onset events. The role of social protection in addressing coastal risks in an urban context, and its transformative and adaptive functions in the context of sea-level rise, are also still poorly understood.

There is growing research on social protection in the context of climate change adaptation and disaster risk management, but few studies have explicitly explored how social protection measures can build resilience to slow-onset events in general and sea-level rise in particular (Aleksandrova 2019; Johnson et al. 2013). Creeping hazards associated with climate change have the potential to undermine development gains and poverty reduction efforts, and exacerbate existing inequalities. It is thus vital that social protection is coordinated across sectors, including those focusing on health, education, climate change, disaster management and development. Yet when social protection programmes are designed with climate risks in mind, they tend to address risks associated with sudden-onset events (Aleksandrova 2019). Measures targeting slow-onset events in general or specific mechanisms to address sea-level rise have received much less attention.

One reason is that knowledge on slow-onset events is still limited. In the DRR sector in general, slow-onset hazards have larger aggregated impacts on communities and systems, but attract far less research and action than sudden-onset events (Reidar Staupe-Delgado 2019). Conceptual definitions, practices and strategies in DRR are often geared to sudden-onset events. As a result, discussions on social protection, disasters and climate change typically either fail to account for differences in onset speeds, or focus more on sudden-onset events. There are few examples of detailed examinations of slow-onset events (Aleksandrova 2019; Johnson and Krishnamurthy 2010). For social protection to work for slow-onset hazards, the unique characteristics of those hazards and pertinent practices need to be understood and addressed.

The very nature of slow-onset hazards is another challenge. Sudden-onset events have well-defined timelines, tangible damages, and clear opportunities for interventions before, during and after the event. As noted earlier, social protection measures are most commonly mobilised in the aftermath of a disaster, through relief and safety-net programmes to help the poor cope and recover. Slow-onset hazards manifest over longer periods, and their impacts accumulate over time. The effects of sea-level rise, for example, may not be seen right away. Instead, they creep up gradually, slowly altering livelihoods and living conditions in affected communities and increasing vulnerability to sudden-onset events. In such situations, it is less clear when are the best windows of opportunity for intervention.

When social protection has been used to proactively manage slow-onset hazards, it has often been in the context of agriculture, when farmers face recurring droughts or environmental degradation, for instance (Aleksandrova 2019). One example is crop and index-based insurance programmes, which have become increasingly popular as a means of reducing farmers' losses in the event of droughts (Agrawal et al. 2019; Johnson et al. 2013). Such measures have also been

criticised, however, for creating moral hazard, as they arguably incentivise continued investment in climate-sensitive crops (Johnson et al. 2013).

Risks associated with sea-level rise in urban areas have not received as much attention. 2017 data show that the coverage rate of social assistance globally is 25% of poor rural households, compared with 15% of total poor households, suggesting that coverage in urban areas is much lower (OECD 2017). Already, half of Southeast Asia's population is urban, and by 2050, it is expected to be two-thirds (UN DESA 2018), driven in part by continued rural-to-urban migration. This will increase the need for social protection in coastal cities. Given the multi-dimensional nature of urban poverty, high rates of engagement in informal economy, and rapid development of coastal cities, social protection focusing on active labour market policies and social services is increasingly critical (OECD 2017), even if cash transfers and insurance are more widely favoured in rural areas.

Another area that requires more attention is the adaptive – and transformative – function of social protection. Asset and cash transfers, the most common forms of social protection, often fail to address structural factors associated with intergenerational and systemic poverty that underlie people's vulnerability to environmental changes (Johnson et al. 2013). While research has documented the effectiveness of social protection in improving households' absorptive capacity, through such indicators as higher income, health and consumption, there is limited evidence linking social protection to increased capacity for adaptation or transformation (Agrawal et al. 2019). Social protection has been shown to improve the capacity of households to respond to shocks and risks regardless of the integration of climate risks in programme design, yet the benefits are often short-term and inadequate for coping with severe hazards, even maladaptive over the long run in certain cases (Tenzing 2020).

Tailoring social protection measures to slow-onset hazards such as sea-level rise could be an opportunity for truly transformative social protection. Because these hazards manifest gradually over time, early response has the potential and temporal scope to drive structural changes that would not be practical in the context of sudden-onset events. Social protection schemes that address the root causes of vulnerability and underlying drivers of risks over the long term can contribute to enhancing the adaptive capacities of coastal households. Unequal power relationships can put economic resources and livelihood assets beyond the reach of marginalised groups, deepening the vulnerability of small-scale fisheries, for example, in the face of sea-level rise. Policies that directly target or correct for those power imbalances can help people adapt. Similarly, social services that address gender inequality in the labour market, such as child care, can help working poor women participate in the economy, boost their incomes and improve their well-being.

Three principles to guide future research

Southeast Asia is particularly vulnerable to the many compounding effects of climate change. Given the region's extensive coastlines, reliance on coastal livelihoods and large coastal populations, it is important for governmental and civil society organisations to identify the kinds of measures that will best reduce disaster risk and support adaptation. In this context, it is important to fully explore the potential for social protection mechanisms to reduce poverty and vulnerability for those living in coastal regions, particularly in relation to slow-onset hazards such as sea-level rise.

In this report, we have reviewed the literature on the interconnection between climate-related risks and social protection; highlighted the potential of social protection for addressing climate risks; and identified knowledge gaps with regard to slow-onset hazards, urban coastal contexts, and social protection as a means of increasing adaptive and transformative capacity. Based on this analysis, we suggest three principles for future research:

1. Integrate risks associated with slow-onset hazards into social protection

Sea-level rise and other slow-onset events affect communities and systems through different mechanisms, on different temporal and spatial scales, than sudden-onset events. For social protection to be effective, it needs to be tailored accordingly. Different types of social protection may have different impacts and may interact differently in the context of slow-onset events. Future research should identify ways to align the specific needs of those affected by slow-onset hazards with appropriate social protection mechanisms. In general, more work is needed to understand how social protection can best contribute to climate change adaptation and disaster risk reduction in the context of slow-onset hazards.

More knowledge is also needed on how different institutional strategies and programmes integrate slow-onset coastal hazards. For instance, coastal community mappings can shed light on how different hazards are being addressed and prepared for at local and national levels, the social protection measures that are available, and the impacts that communities face. Community members themselves should be asked how existing social protection measures help them cope with coastal hazards (especially sea-level rise), and be given the opportunity to discuss their needs and what might be most effective moving forward. At the same time, a broader understanding is needed of the potential for slow-onset hazards to undermine the goals and objectives of social protection policies and programming.

2. Prioritise the transformative potential of social protection in adaptation to slow-onset hazards

Slow-onset hazards allow more time and space for deliberate transformation than sudden-onset events. However, there is little evidence to date that the potential of social protection to support adaptation and transformation is actually being realised. For social protection to be truly transformative, it needs to be framed as a human right, and the lack thereof, as a root cause of vulnerability. Better understanding is also needed of the unique impacts of sea-level rise on social inequality, multi-dimensional poverty, long-term resilience and their interconnections.

Research should identify structural as well as non-structural barriers that prevent at-risk communities from access to social protection. Factors such as gender inequality, informality and discrimination, and their intersection with exposure to slow-onset hazards, need further exploration. Future research may examine, for example, how social protection, particularly innovative social services and labour market policies, can address the root causes of vulnerability for those working in the informal economy in coastal cities – for instance, in fisheries. Urban coastal areas are at great risk due to sea-level rise and are also home to large and expanding informal economies. It is important to gather insights from this population to understand risks and potential mitigating mechanisms.

3. Consider how existing social protection mechanisms can best fit a coastal context

In addition to sea-level rise, coastal communities face risks related to coastal erosion and loss of community land, declining fish stocks and salinity intrusion. Conservation efforts may also impact local livelihoods and access to land. More research is thus needed to consider how existing social protection mechanisms can be adapted to better fit coastal contexts, accounting for the extended timeline of sea-level rise and compounding risks related to other coastal hazards. Some mechanisms, such as cash transfers, which work well in an emergency setting, may not be appropriate for a long-term hazard such as sea-level rise. Similarly, food and other in-kind transfer programmes could alleviate some impacts for the time period that assistance is given, but will not address the underlying causes and create resilience in the long term.

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A fisherman at a dock in Jakarta, Indonesia © SOPIAN SOPIAN / PIXABAY

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