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Convergence of Opportunities: Resilience and the ASEAN Community

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Abstract: *The year 2015 is a defining year for the Association of Southeast Asian Nations (ASEAN). As the region journeys forward in forging the ASEAN Community, the field of disaster management continues to face challenges and opportunities brought about by increasingly complex disasters and the evolving humanitarian landscape. This year also ushers in global conversations that impact national and regional initiatives in disaster management and, conversely, provide opportunities for the ASEAN to inform and influence these discussions. These conversations include, among others, the development of the successor framework to the Hyogo Framework for Action, the review and subsequent development of the post-2015 sustainable development goal, the ongoing debates on climate change, and other emerging issues on protection such as the Nansen Initiative on disaster-induced cross-border displacement, and the potential occurrence of natural disasters in conflict areas. At the regional level, the role of regional organisations in disaster management is deepening and becoming more pronounced and relevant to the member states and the international community. Large-scale disasters such as Cyclone Nargis and Typhoon Haiyan underscored the necessity of enhancing and strengthening synergy and cooperation between and among various stakeholders across multiple sectors. In reaching out to other stakeholders and sectors, ASEAN strives to maintain its centrality and leadership through the ASEAN Agreement on Disaster Management Emergency Response while, at the same time, being open and flexible to changes. As regional and global forces converge, it is fast becoming an imperative for communities--the peoples of ASEAN--to become more resilient. Attaining a shared analysis and understanding of issues, existing and emerging, in disaster management would better equip the ASEAN member states, ASEAN as a regional organisation together with its ministerial and sectoral bodies, and the communities, to continue building resilient communities post-2015. This paper identifies key thematic areas arising from ongoing and emerging regional and global discussions on disaster risk reduction, climate change adaptation, development of the post-2015 sustainable development goals, and protection issues arising from natural disasters, under the larger framework of resilience. It scans and analyses regional and global trends in disaster management, underscoring the emerging imperative of cross-sectoral and multistakeholder approaches, with a growing focus on issues of vulnerable groups and protection. The paper then five critical steps viz, strengthened legal framework, implementing integrated risk management, establishing a monitoring and evaluation framework, capitalizing private finance and capacity development as key components for formulating the post-2015 disaster management blueprint.*

Keywords: Climate change, disaster risk management, resilience, sustainable development
JEL Classifications: 044, Q54, Q56

1. Introduction

For the last 47 years, the Association of Southeast Asian Nations (ASEAN) has been an integral part of Asia's ongoing sociopolitical and economic transformation and remains an example for other regional groups such as the South Asian Association for Regional Cooperation and the Central Asia Regional Economic Cooperation of how carefully crafted cooperation can benefit all members even if these members are extremely diverse in size, geography, culture, income level, and resource endowment. Today, the ASEAN needs to consider how to move to new stages of integration, beyond open economic means. As it approaches the target for the creation of an ASEAN Economic Community by the end of 2015, it will find merit in forging a longer-term strategy towards the shared prosperity of its members.

Achieving a fully resilient ASEAN by 2030 is an ambitious target. Frequently occurring natural disasters remain one of the challenging realities with the potential to derail the benefits of the economic prosperity achieved in recent years. Along with taking lives and destroying homes and businesses, climate-induced events such as typhoons, earthquakes, and tsunamis disrupt livelihoods, interrupt supply chains, and damage infrastructure. With the frequent occurrence of earthquakes, volcanic eruptions, cyclones, floods, landslides, and annual monsoons, ASEAN member states (AMS) experience some of the world's worst natural hazards. Many of these phenomena are heavily influenced by climatic factors. The growing threat posed by climate change will aggravate this already very high disaster risk. Climate change can also magnify the uneven distribution of hazard risks, skewing disaster impacts even further toward poor and vulnerable communities in the AMS. Climate change is becoming one of the greatest economic, social, and environmental challenges of our time, the response to which will impact all future generations. To respond to this heightened threat, 168 member states of the United Nations (UN) adopted the Hyogo Framework for Action (HFA) in 2005 as a means of bolstering the resilience of nations and communities against disasters with the objective of reducing disaster risk by 2015. Resilience refers to the capacity of AMS to handle volatility and shocks from within and outside the region, thus reducing the vulnerability of households and economies. The HFA forms part of a growing number of international declarations, frameworks, and agreements indicating both recognition of the links between disaster risk reduction

(DRR), poverty reduction, and climate change and a growing political commitment to address these issues. The global momentum towards greater prioritisation of DRR has received support from various AMS which now realise that much can be done to minimise the impact of disasters before they occur and that, without action, more extreme weather events in the future are likely to increase the number, scale, and impact of disasters. The ASEAN strives to attain its centrality and leadership in these challenges through the ASEAN Agreement on Disaster Management Emergency Response.

In a region already undergoing dangerous climate change and disaster-related ills, there is widespread understanding among policymakers that environmental objectives need a higher profile alongside poverty reduction as all these three are intertwined. The Millennium Development Goals have become a type of global report card for the fight against poverty for the past 15 years. AMS have made substantial progress towards the achievement of the Millennium Development Goals although the progress has been highly variable across AMS. As a successor to the Millennium Development Goals, the world's governments are poised to adopt a set of sustainable development goals (SDGs). The SDGs are an important idea and could help finally move the region into a sustainable trajectory by addressing issues like natural disasters, which are, in part, linked to climate change.

Addressing these three issues simultaneously requires a change from business-as-usual practices to practices that have net positive benefits in terms of disaster risk management (DRM), climate change adaptation (CCA), and sustainable development. ASEAN's economic growth will be rapid and sustainable but can also be made resilient if opportunities for convergence are fully utilised. This paper reviews regional and global developments on these three frontiers as well as emerging issues post-2015 that will have an impact on the ASEAN cultural community. In that process, it refers to recent ASEAN studies on the regional HFA monitoring of DRR and the ASEAN Agreement on Disaster Management Emergency Response work programs.

This review begins by assessing the similarities and differences among DRM,[1]

[1]Disaster Risk Management: The broad development and application of policies, strategies, and practices to minimise vulnerabilities and disaster risks throughout society through prevention, mitigation, and preparedness

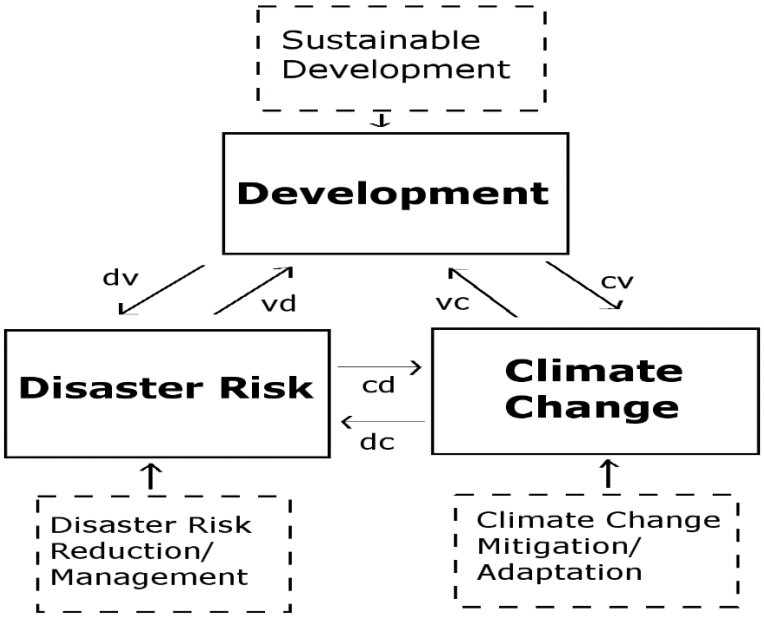
climate change adaptation (CCA),[2] and SDGs[3] before examining what is at stake if these three agendas do not converge at the regional, national, and local levels. It then presents updated evidence where DRM, CCA, and SDGs are already converging followed by an analysis on obstacles and opportunities in further convergence. The material presented in this review is drawn from an analysis of the country reports covering progress towards the implementation of the HFA, National Action Plans for Climate Change and National Adaptation Programmes of Action (NAPAs) across ASEAN countries, global literature, consultation with key actors and international organisations, and from the author's own experience of working in this field.

2. The Nexus in Disaster Risk Management-Climate Change Adaptation-Sustainable Development Goals

Over the past 20 years, the ASEAN brought the AMS together in two important global efforts: Agenda 21, which set out a strategy for achieving sustainable development, and the Millennium Development Goals, which were aimed at improving the life of the region's poorest and most vulnerable by 2015. The links between sustainable development, DRR, and CCA may be understood with the help of a diagram. Figure 1 presents the triangular relationships between DRM, CCA, and SDG.

[2]Climate Change Adaptation: An adjustment in natural or human systems in response to actual or expected climate stimuli or their effects, which moderates harm or exploits benefit opportunities
[3]Sustainable Development Goals: One of the main outcomes of the Rio+20 Conference, which will build upon the Millennium Development Goals and converge with the post-2015 development agenda

Figure 1: Linkage between Disaster Risk Management, Climate Change Adaptation, and Sustainable Development Goals



Source: Author

To begin with, a distinction may be made between the two kinds of impact of climate change. One is in terms of a rise in average temperatures and sea levels. This appears to be the focus of discussion and scientific enquiry in most of the climate change literature, at least in the early years when the discipline developed. The other impact takes the form of increased weather variability (e.g. changes in rain patterns and an increase in extreme weather events). It is primarily the latter which has implications for disaster risks facing a community, country, or region. In the diagram, these two effects are represented by the arrows cv (denoting rise in average temperatures and sea levels) and cd (denoting increased weather variability).

In the literature, while the first effect is seen as long term, the second is primarily considered as short term. However, this is arguable. The second effect can be long term as well as short term. It may yet be found that there is insufficient scientific evidence to predict the increased weather variability many decades into the future. Nevertheless, there can be no denial that increased weather variability can happen over the long term as well as the short term. It seems that the second effect is primarily seen as short term because while the predicted long-term changes in temperatures and sea levels will, of course, take time to materialise, the variability effect may already be with us. Additionally, it also seems to be because, for various reasons, disasters and

our responses to them have historically been treated as a short-term matter. There is, however, no reason why this approach should continue.

Increased weather variability increases disaster risks directly and indirectly. First, increased weather variability can, of course, worsen weather-related hazards. However, coupled with other intervening factors such as environmental degradation and ecosystem destruction exacerbated by particular models of development, it can also change the level of exposure and vulnerability of communities in question to certain hazards, thus raising the combined disaster risks facing a community. In the diagram shown in Figure 1, such indirect effect would be indicated by the cv arrow to 'development' and then by the vd arrow down to 'disaster risk.'

Table 1: Impact of Major Disasters in Asia 2004-2013

Disaster event	Year	Lives lost	People affected	Economic cost
Typhoon Haiyan, Philippines	2013	11,234	350,00 displaced	US$14 billion
Great East Japan earthquake	2011	19,846	470,00 evacuated	US$210--375 billion
Thailand floods	2011	813	9.5 million	US$40--45.7 billion
Cyclone Nargis, Myanmar	2008	138,366	2.4 million	US$4 million
Wenchuan earthquake, China	2008	87,476	45.6 million	US$120 million
Indian Ocean tsunami	2004	226,408	1.3 million	US$2.9 billion

Source: EM-DAT: The OFDA/CRED International Disaster Database

The impact of a disaster on development has, of course, been well recognised and is indicated in the diagram by the arrow dv. Table 1 summarises the lives and property lost in major disasters in Asia from 2004 to 2013.

This direct or indirect impact can be on humans and/or the economy and the livelihoods of people. Even though the impact of a disaster on development is well recognised, it is, in fact, only the direct impact that has been reasonably well recorded and understood thus far. The wider research community and policymakers still have a long way to go to understand the indirect impact of a disaster on development, whether the impact is on a community, a country or economy, and indeed even on other economies and countries through regional and global supply chains and production networks.

Historically, the disaster risk research community has been concerned with studying only this impact. More recently, there has been a growing recognition that there is a reverse impact of development on disaster risks that needs to be considered and understood. How development is managed and achieved can have a profound impact on the disaster risks facing a community, an AMS, or the region as a whole. Human-induced climate change is a notable example but only one example. Environmental degradation and ecosystem destruction are another. It may even be possible that human actions are exerting an impact on earthquake hazards.

The way development is managed and achieved can impact the disaster risks of a community, nation, or region by changing the level and pattern of hazards (e.g. climate change) or by changing the level of exposure and vulnerability to given hazards (e.g. urbanisation and migration to unsafe locations, destruction of local ecosystems). This impact is indicated in the diagram by arrow vd.

Indeed, disaster risks could even have an impact on climate change. A good example of this is the Great East Japan Earthquake causing a massive tsunami which, in turn, destroyed the Fukushima Daiichi nuclear plant. This resulted in the cessation of Japan's nuclear power program and, consequently, increased the use of fossil fuels instead. This cannot be an isolated example. An effect like this is indicated in the diagram by the arrow dc.

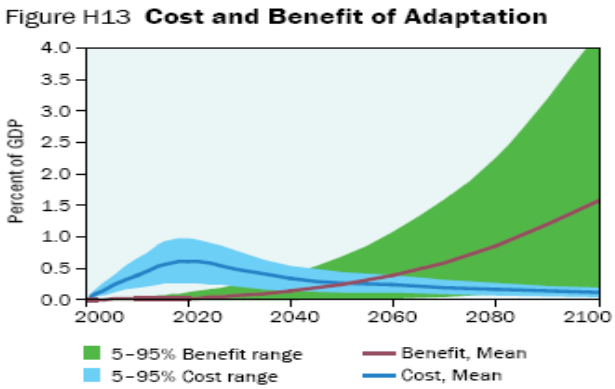
The possible effect of sustainable development—or how it is managed and achieved—on disaster risks has already been noted, and there is, by now, hardly any controversy over the effect of development on climate change as indicated by arrow vc in the diagram. Figure 2 illustrates the estimated impact of climate change in five Southeast Asian countries.

At the policy level, the imperatives and objectives of sustainable development must, of course, call for adequate efforts to reduce disaster risks and limit the scale of climate change. However, as long as such risks and change cannot be completely eliminated, appropriate actions to manage the remaining risks as well as to adapt to, and to be prepared for, possible outcomes would be critical.

It needs to be noted that the full objectives and imperatives of sustainable development would, in fact, go well beyond a call for necessary actions on the DRM and CCA fronts. Environmental and ecosystem protection and sustainable natural-

resources management are, for example, some other objectives. However, as indicated previously, these other sustainable-development policies can contribute to a strengthened system of CCA and DRM as well.

Figure 2: Economics of Climate Change Adaptation in Five Southeast Asian countries



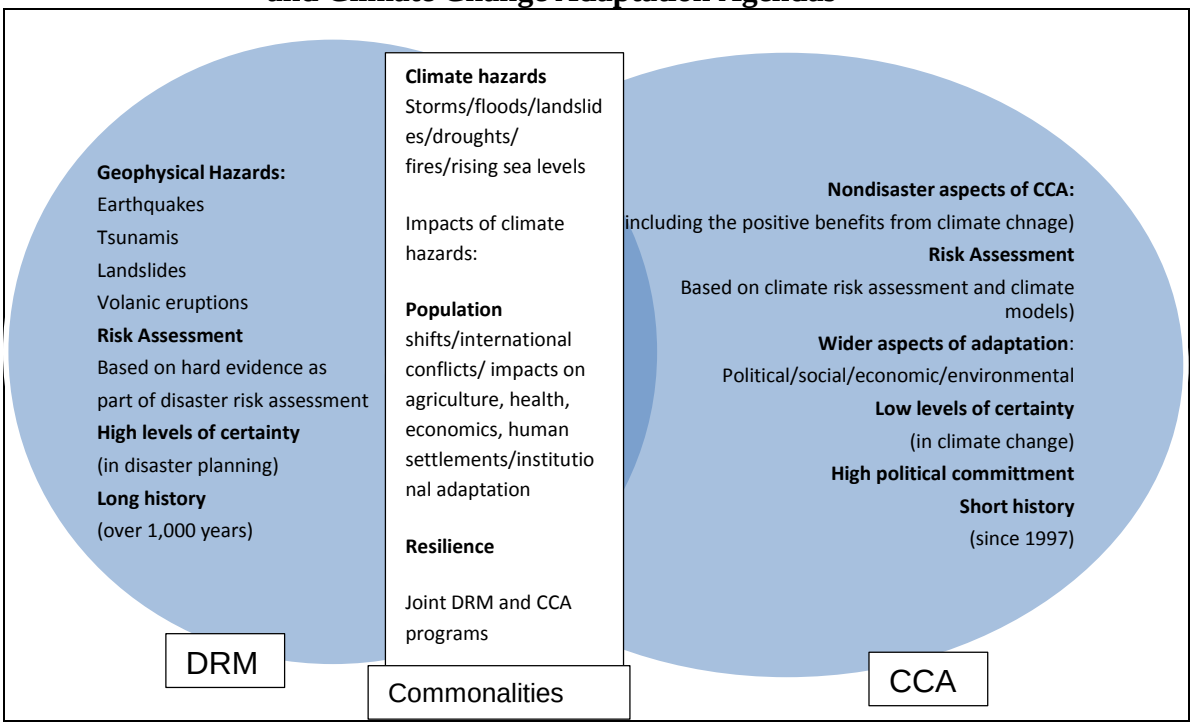
Source: ADB (2009).

So while a strong DRM and CCA program are themselves components of a full and sustainable development agenda for an economy or region, other sustainable development-oriented policies can be instrumental to the achievement of these programs as well, thus creating new opportunities.

A full agenda for sustainable development must include policies and actions to strengthen DRM and CCA. However, because many of their functions and objectives closely overlap, there is a strong need for these two sub-agendas to integrate. Over the past decade, in parallel with the emergence of "adaptation" as a critical component of the global response to climate change and the institutionalisation of DRR as signalled by the international agreement on HFA, progressively more attention has indeed been given to converging the DRM and CCA agendas both conceptually and in practice at the international, national, and subnational levels. However, despite some considerable work, both academic and policy-focused (e.g. Sperling and Szekely, 2005; the 2006 special edition of Disasters; Few et al., 2006; Yamin et al., 2005), the 2009 United Nations Office for Disaster Risk Reduction (UNISDR) Global Assessment Report on Disaster Risk Reduction (GAR/DRR) concludes that the majority of national processes for tackling DRR and CCA still exist in parallel and have separate policy and institutional frameworks. For historical reasons, the CCA and DRM agenda have

evolved and developed separately in AMS, which is summarised and illustrated in Figure 3.

Figure 3: Content and Commonalities between the Disaster Risk Management and Climate Change Adaptation Agendas



Source: Author

Both DRM and CCA aim to reduce the impacts of shocks by anticipating risks and uncertainties and addressing vulnerabilities. Addressing disaster risk across multiple scales in and in multiple sectors as well as integrating CCA into planning decisions has now become government policy (Anbumozhi, 2012). Indeed, as noted, a significant portion of climate change impacts will take the form of exacerbating climate variability and as far as this portion of the impact is concerned, a CCA agenda should be no different from a DRR agenda. Both should have the same functions and objectives. That being so, to avoid duplication, minimise interdepartmental rivalry, exploit potential synergies, and increase the effectiveness and efficiency of both programs, there is an overwhelming case for their close integration.

3. How the Disaster Risk Management and Climate Change Adaptation Agendas Are Converging in ASEAN Member States

CCA and DRM contain significant overlap in the essential characteristics that define their respective agendas. This can be analysed through a common conceptual understanding of the components of risk and the processes of building resilience. Risk is regarded as 'the product of exposure and vulnerability, either to hazard(s) or effect(s) of climate change or both' (Turnbull et al., 2013). The relationship can be summarised in the following equation:

Risk = Vulnerability + Exposure + Magnitude/Likelihood of Hazard/Climate Change

The objectives for both CCA and DRM are to reduce risk by addressing these underlying components. The disaster risk community widely recognises that hazards themselves rarely create disasters. Instead, it is the context in which the hazard occurs that contributes to disastrous outcomes, just like with climate change (O'Brien et al., 2008). For both DRR and CCA, damage is usually linked to poverty and inequality in development, thus requiring both disciplines to align closely with development to identify vulnerability- reduction strategies. However, there are two conceptual differences between CCA and DRM in their framing of these components: the scope of the hazards addressed and the perception of human interaction with the hazards.

Both CCA and DRM are concerned with managing disaster risk and addressing the underlying components that contribute to disaster risk. Both disciplines are concerned with the role of inequality in increasing exposure and vulnerability to disaster risk. The special report released by the Intergovernmental Panel on Climate Change (IPCC) notes that 'individuals and communities are differently exposed and vulnerable based on inequalities expressed through levels for wealth and education, disability, and health status as well as gender, age, class, and other social and cultural characteristics' (IPCC, 2007). Both are concerned with the increasing exposure of people and economic assets which have been the major cause of long-term increases in economic losses from weather- and climate-related disasters. Although at their core, both concepts are concerned with disaster risk and its resulting impact on sustainable development, both disciplines cover different ranges of disasters and have different

interpretations on the immutability of hazards. These core differences between DRM and CCA provide additional differences that highlight their synergies in addressing future disaster risk.

If we apply the analytical framework to assess the actions taken by the AMS towards Hygo Framework of Actions (HFA) and NAPAs, we get some signs of convergence and some differences, which is illustrated in Table 2.

Table 2: Convergence and Differences between Disaster Risk Management and Climate Change Adaptation in ASEAN Member States

Differences		Signs of convergence
DRM	**CCA**	
Relevant to all hazard types	Relevant to climate- and weather-related hazards	DRM programmes have always considered weather-related hazards but there are indications that some programmes are now taking into account the impact of climate change on hazard frequency and magnitude and on vulnerability and planning interventions.
DRM practice is strongly influenced by post-disaster humanitarian assistance.	Origin and culture of CCA is derived from scientific theory and international climate change policy theory.	Common ground found in joint mainstreaming into sectors so that CCA and DRM specialists are working on infrastructure-, water-/sanitation, or health-related projects, for example.
Most concerned with present and near future; addresses existing risks based on, for example, an assessment of local experience and historical record	Most concerned with the short-, medium-, and long-term future; addresses uncertainty and new risks arising from the impacts of climate change	DRM increasingly forward looking and CCA increasingly using existing climate variability as the entry point for activating the adaptation process. The idea of a "no-regrets option" is a key area of convergence.
Traditional and local knowledge is the basis for community- based DRM and resilience building	Widely held view that traditional and local knowledge at the community level may be insufficient as impacts of climate change introduce new risks and changes to the frequency and magnitude of existing hazards. However, there is also increasing recognition that local knowledge also includes people's ingenuity in facing risks.	Growing number of examples, where local knowledge and meteorological /climatological knowledge are being considered side by side to inform DRM interventions.
Traditionally has considered DRM as a function of hazard, vulnerability , exposure, and capacity	Traditionally has treated vulnerability interchangeably with physical exposure	IPCC Fifth Assessment Report (5AR) promises convergence in this area

Full range of established and developing tools	Range of tools under development	Significant progress made in integrating learning from DRM into adaptation tool development
Incremental development, moderate political interest	New, emerging agenda; high political interest	Disasters more often seen as linked to climate change, and governments recognising the need to consider both simultaneously
Funding schemes often ad hoc, unpredictable, and insufficient	Funding streams are increasing and showing signs of becoming considerable although delivery and implementation problems are widespread.	DRM community demonstrating sign of being increasingly savvy in engaging in CCA funding mechanisms

Source: Compiled by the author

In addition to their similar aims of reducing disaster risk and underlying risks through poverty reduction, both CCA and DRM also use non-structural measures, mainstreaming, and converging political agendas. Non-structural measures refer to policies, knowledge development/awareness, and methods and operating practices, including participatory mechanisms, which can reduce risk and related impacts (Venton and La Trobe, 2008). Both agendas require the use of non-structural measures to further their dissemination. Both DRM and CCA have converging political agendas. AMS with current climate vulnerabilities use existing DRM activities to improve their capacity to deal with future climate change. There is growing recognition of the importance of improving adaptation to future extreme events caused by climate change which can be addressed through current knowledge and tools developed through DRM. However, it should be noted that both CCA and DRR must be mainstreamed into development and be recognised as integral components of development planning and integration.

There are several significant differences between CCA and DRM: adaptation strategies to future risks, design limits for structural measures, and comprehensiveness of measures to reduce vulnerability. DRM focuses on reducing foreseeable risks based on previous experience. It is a long-established field with plenty of case studies available for analysis. Because climate change is a new phenomenon, CCA necessarily focuses on current changes to predict future consequences and is thus less certain. However, Sperling notes that 'DRM is increasingly incorporating scientific advances' to adapt to changes in extreme events caused by the changing climate (Sperling and Szekely, 2005). As a result, DRM cannot rely solely on 'traditional knowledge,' an

important starting point for developing DRM strategies. DRM must collaborate with CCA to design DRM strategies responsive to volatile extreme events.

Venton and La Trobe (2008) stated that 'under a DRR initiative based upon present and historical experiences, there is a greater likelihood that design limits for structural measures, such as flood embankments, will not be adequate in the face of climate change.' This is one of the limitations of current DRM practices. Because the strategies were created to address a certain magnitude of hazards that were not expected to change, the increased variability of extreme events due to climate change may undermine pre-existing strategies. However, it should be noted that the environmental science basis for CCA is emerging and adaptation is largely focused on shifting environmental conditions. CCA is focused on changes in the climate and its effect on the local population and is thus less likely to consider and address socioeconomic factors that also influence vulnerability as DRM would.

4. What and Where Are the Converging Opportunities?

At the international level, there are two major frameworks that oversee DRM and CCA: the HFA and the United Nations Framework Convention on Climate Change (UNFCCC), respectively. Although the disciplines have common objectives, each framework rarely mentions the other which has made it politically challenging to intertwine the two disciplines. This is unfortunate since DRM has significantly less political prominence than CCA due to its nature as a local issue and would significantly benefit from converging with CCA.

4.1. Disaster Risk Management in the Framework Conventions/Conference of the Parties Meetings on Climate Change

There is limited mention of DRM in international frameworks on CCA. The UNFCCC itself mentions the need for special attention for developing countries prone to natural disasters but has no references to the concept of hazard or disaster risk. Climate change, as framed by the UNFCCC, has tended to concentrate on long-term climatic changes rather than extremes and shocks associated with current climate

variability. This has made it politically challenging to integrate substantial text tying CCA to DRM in the UNFCCC since DRM is perceived as only being concerned with current climate variability rather than more gradual, long-term changes. In recent years, however, the attention for climate risk management has grown substantially as governments recognise the importance of linking CCA and DRR and as more disasters associated with hydro-meteorological hazards have occurred.

DRM, however, is prominently featured in the 2007 Bali Plan of Action, the 2010 Copenhagen Accord, and the 2013 Durban Platform, which highlights DRM as a critical tool for CCA, opening up a range of possibilities for integration of CCA in DRM strategies. The Durban document is a crucial landmark for the 'convergence agenda,' recognising the need for enhanced action on adaptation including '…disaster reduction strategies and means to address loss and damage associated with climate change impacts in developing countries that are particularly vulnerable to the adverse effects of climate change' (UNFCCC, 2006). More recently, the Subsidiary Body for Science and Technological Advice of the UNFCCC, in preparation for the 14th COP produced a series of background papers on issues at the interface of DRR and CCA. These papers informed a session of the UNFCCC Ad Hoc Working Group on Long-term Collaborative Action, the main forum for discussions on the post-2012 agreement. The session on risk management and risk reduction strategies, including risk sharing and transfer mechanisms, focused on the value of DRM and the HFA in supporting CCA in a post-2012 agreement, and parties formally recognised the need for a 'common framework' between DRM and adaptation.

4.2. Climate Change in the Hyogo Framework for Action

International frameworks on DRM are better at converging DRM with CCA but possess insufficient political clout to alter perceptions on development. The HFA provides an international framework for action on DRR. It is signed by 168 countries, is endorsed by the UN General Assembly, and is supported by the UN International Strategy for Disaster Reduction (UNISDR) Secretariat. Unlike the UNFCCC, the HFA does not contain an inherent financial mechanism and is not legally binding. The HFA explicitly integrates the need to anticipate changing risks due to global climate change (even though at the time of the negotiations on the HFA, which took place before the

IPCC Fourth Assessment Report came out, certain states objected to using strong language on climate change). The HFA also specifically states that regional and international organisations and other actors commit to promoting 'the integration of risk reduction associated with existing climate variability and future climate change into strategies for DRM and CCA to climate change, which would include the clear identification of climate-related disaster risks' (HFA, 2005). For the last two years, the UNISDR has strongly advocated for the integration of DRM and CCA as a critical component of the HFA's implementation agenda. The UNISDR has published and widely circulated integration approaches and a collection of national-level good practices. It has also become involved in a range of activities designed to enhance convergence, including a mapping of DRR and CCA policies and frameworks at the regional and subregional levels, and has been a key initiator and supporter of the IPCC's special report. However, early indications from the midterm review of the HFA suggest that the UNISDR should be doing more to support convergence. Consequently, the UNISDR launched a series of consultations in 2010 on how CCA can be better integrated into the HFA.

4.3. Convergence in Financial Mechanisms

One of the major issues for DRM that would be addressed through better convergence with CCA is inadequate funding. DRM is funded through humanitarian aid and is ad hoc and insufficient. CCA has sizeable and increasing funding streams due to its political clout and widespread recognition. At the national level, the division of roles between the national and local governments with regard to funding DRM and CCA reduce funding potential. At the international level, funding for CCA and DRM is driven by two actors: international donors and international funds from development banks. Integrating DRM with CCA would give DRM increased access to funding to implement DRM projects that would, with collaboration from CCA, adequately address future disaster risks.

(a) National- and subnational-level budgetary process

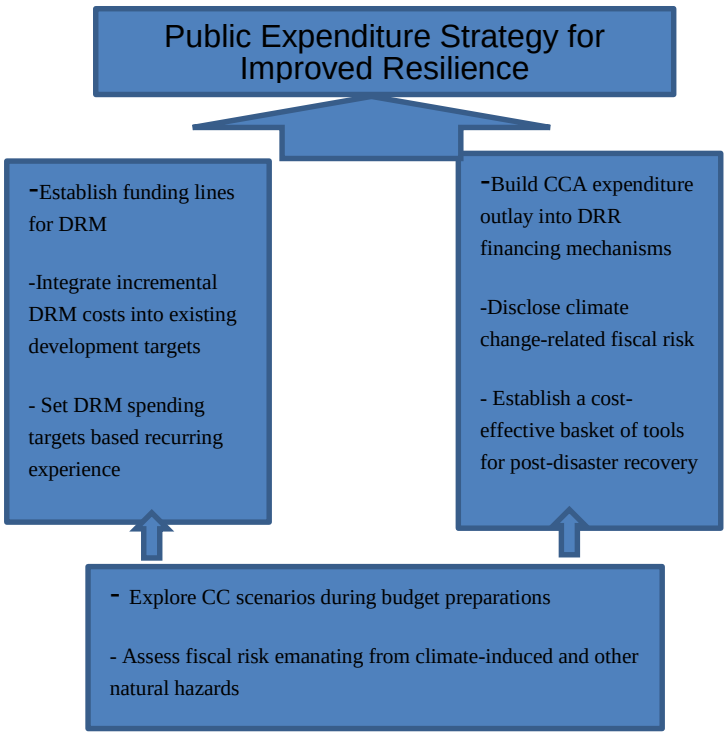
At the national level, DRM and CCA projects are often implemented by the local government while being funded by the national government. Unfortunately, due to

DRM's low political presence, it is often not valued by the state as a critical aspect of development. The 2009 Global Assessment Report shows of the 60 reporting countries assessed on their progress towards meeting HFA priorities on a scale of 1 to 5 (with 1 denoting minor progress and 5 for comprehensive achievement), only five countries achieved a level 5 in the indicator measuring plans and policies. Of these five countries, only two managed a 5 in financing disaster risk reduction. Jackson (2011) notes that 'whilst there is evidence of increased international cooperation on DRM, the (relative) scarcity of national resources allocated to DRM remains a common concern in Yokohama (1994), Hyogo (2005), the GAR (2009), and its midterm review (2010).'

Jackson (2011) also notes that there are three options to fund DRM projects: create a department, enhance the weight given to the function, or create a project. One way to finance DRM is to create a department for project financing. Although it would have presentational advantages, its overlapping mandates and unclear lines of command and accountability with existing departments would breed inefficiencies by duplicating activities, which would ultimately result in inefficient resource allocation. The second option would be to increase the resources provided for DRM across departments. Unfortunately, this is dependent on the department's awareness of DRM and can result in the mandate being ignored in favour of other objectives. The third option is to create a project or programme to specifically address DRM. Although projects have administrative simplicity for the government system and can open up possibilities for collaboration with nongovernment actors, the project can fail to integrate with mainstream activities and become marginalised. These permanent institutions are essential for adequate DRM funding because DRM is often conceptualised as a short-term strategy. DRM activities are often undertaken by local actors with support from national and international humanitarian actors. DRM is thus often funded by humanitarian actors that provide short-term funding for disaster response, and many countries only issue permission for aid agencies to work on short-term basis. Unfortunately, humanitarian actors provide insufficient aid due to their limited budget. Mechler (2013) notes that the brunt of expenses on disasters is dispensed for post-disaster spending. Only US$91 billion, or 2 percent of total official development assistance (ODA) from 1980 to 2009, was allocated to disaster-related activities and of which only 4 percent was allocated to pre-event risk management (Mechler, 2013).

In contrast, CCA has significant funding even at the national level. As climate change is viewed as an ongoing problem, states that are focused on mainstreaming CCA into development have created funds specifically targeting CCA projects.

Figure 4: Resilience through the National Budget Process



Source: Author

Successful resilience performance relative to levels of public expenditure operates on three principles:

(i) Public expenditure on risk reduction is sufficient and relative to the level and nature of risk (DRM/CCA) faced.
(ii) Adequate financing arrangements in place to manage the residual risks – manifested in the form of post-disaster recovery, thereby limiting indirect impacts
(iii) Using the fiscal instruments effectively to encourage the private sector and households in investing on resilience, reducing the contingent liability borne by the government.

Figure 4 typifies the budget planning process for improved resilience as practiced in Viet Nam and Bangladesh. After the Bangladeshi government established the Climate Change Strategy and Action Plan in 2009, it also established two funds to

finance climate change activities: the Bangladesh Climate Change Trust Fund and the Bangladesh Climate Change Resilience Fund. The Bangladesh Climate Change Trust Fund is endowed with a budgetary allocation from revenue flows and has been endowed with US$350 million from 2009 to 2013. The Bangladesh Climate Change Resilience Fund was launched in 2008 with the government of the United Kingdom pledging US$114 million. Other development partners also joined in to support the United Kingdom and said fund currently has US$170 million to implement the Bangladesh Climate Change Strategy and Action Plan (Shamsuddoha et al., 2013). Although the action plan also identifies comprehensive disaster management as a thematic area of climate change, funding for DRR in Bangladesh is still focused on short-term results.

(b) International financing

Similar to the national level, there is inadequate funding for DRM projects since the majority of DRM financiers are humanitarian actors. Unfortunately, the amount of funding invested in disaster risk reduction is minimal compared to total development and humanitarian aid. According to the World Humanitarian Data and Trends 2012 report, only 3 percent of total humanitarian aid was directed towards humanitarian disaster prevention and preparedness. Out of the total amount of development assistance, only 1 percent was invested in disaster risk reduction (OCHA, 2013). Under the World Bank's Global Facility for Disaster Reduction and Recovery (GFDRR) which supports DRM and risk transfer mechanisms, the funding available under Track II and the new initiative on South-South capacity building explicitly includes adaptation to climate change among their objectives. The Country Programmes for Disaster Risk Management and Climate Change Adaptation 2009--11 seek to increase the impact of their operations by deepening engagement in selected priority countries that are highly prone to disasters and the likely impacts of climate change. Integrated approaches and comprehensive programs for DRM and CCA are being funded for each of the priority (and donor-earmarked) countries (GFDRR, 2009).

In the context of the 2011 GFDRR, selected AMS committed to (i) integrate delivery of support for adaptation and DRR, including incorporation of climate risk, into relevant operations and sectors and (ii) ensuring that policies, programmes, and

dialogues with partners facilitate action to address the challenges identified in the Stockholm Policy Forum.

This included: (a) working through existing regional institutions to foster transboundary and regional cooperation for adaptation efforts; (b) supporting local actors for sustainable action to reduce climate risks, with an appropriate balance between infrastructure and technical solutions and strengthening people's existing adaptive capacity and resilience; and (c) harnessing the resources, imagination, and mobilising power of the private sector to support innovative and widespread risk management in a changing climate, particularly among the most vulnerable sectors of the global population (World Bank, 2009).

In a more technical context, the GFDRR and UNISDR (2008) publication *Climate Resilient Cities: A Primer on Reducing Vulnerabilities to Climate Change Impacts and Strengthening Disaster Risk Management in East Asian Cities* is a practical tool for urban planners. It was helpful in designing and conducting the UNISDR global campaign on 'Safer Cities and Urban Risk' for 2010–11. The United Cities Local Governments worked with mayors to develop political momentum for investing in risk reduction as means for CCA.

International funds focused on climate change have shown increased discussions on the overlapping objectives of CCA and DRM. The Global Environmental Facility (GEF) is the financial mechanism for several important sustainability conventions such as the UNFCCC. The GEF was established as a US$1 billion pilot program in the World Bank with two financing mechanisms to fund development projects: the Least Developed Countries Fund and the Special Climate Change Fund. The Least Developed Countries Fund is tasked with financing the preparation and implementation of NAPA. The fund focuses on reducing the vulnerability of sectors and resources central to development and livelihoods. Based on its distribution of funds by October 2013, the Least Developed Countries Fund has allocated 9 percent of funding to DRM. The Special Climate Change Fund was established to support adaptation and technology transfer for all developing country parties to the UNFCCC. Although more focused on adaptation than the Least Developed Countries Fund, the Special Climate Change Fund was able to allocate only 7 percent of funding to DRM by October 2013.

(c) Bilateral and multilateral financing of disaster risk management and climate change adaptation

The 2009 policy guidelines of the Organisation for Economic Co-operation and Development's Development Assistance Committee on adaptation highlight the need for DRM and CCA convergence at the national level to integrate CCA into development cooperation. Similarly, the World Bank's Strategic Framework on Climate Change and Development includes a commitment to integrate the Bank's work on DRM and adaptation. Its main approaches to adaptation focus on financing initiatives on climate resilience and adaptation, expanding knowledge, and forging partnerships.

Despite guidance and policy objectives such as the Stockholm Forum communiqué, few bilateral or multilateral donors have integrated their support for DRM and CCA. Many DRM programs are funded from humanitarian budgets and coordinated from humanitarian aid departments. In most cases, this segmentation of the DRM agenda is making it more difficult to achieve integration with CCA, even with the broader development agenda. Funding DRM by allocating a standard percentage (often 5–10 percent) of humanitarian aid does help to raise budgets for DRM but may increase separation of DRR projects from regular sectoral development. Indeed, the World Bank Independent Evaluation Group's review of the World Bank's efforts in disaster management (Parker, 2006) noted that efforts towards vulnerability reduction were hampered by the fact that the bulk of those efforts were integrated in emergency recovery loans, which may not be the best vehicle for risk reduction (particularly as these loans need to be prepared quickly and have limited three-year life spans).

Similar risks may apply when coupling DRM financing to humanitarian response funding. Conversely, some donors are also concerned that conflating DRM funding with humanitarian assistance budgets means humanitarian assistance is complicated by the DRM/development imperative. However, at some points in the disaster cycle (mitigation, preparedness, response, and recovery), particularly around preparedness for humanitarian response, the conflation of DRM and humanitarian assistance is helpful. For example, where early warning signals a potential disaster (such as in the form of seasonal forecasts, long-run hurricane track predictions, or certainty in climate

change science), the best humanitarian response is likely to combine humanitarian preparedness to respond with community-based awareness raising and organisation and DRM integrated into development, including infrastructure design and spatial planning. Few bilateral donors have systematically explored how these different dimensions need to be coordinated and which funding channels would apply where. CCA, on the other hand, is typically funded by environmental departments within bilateral development agencies. Within their own agencies, they struggle in a similar way as humanitarian aid departments to integrate their efforts into regular development operations, be it other sectors (infrastructure, agriculture, health) or within budget support policy dialogues. Many of these departments are trying to make the case for integration of adaptation into development through a risk-based approach, screening development activities and portfolios for climate risk. By nature, this approach is closely linked to DRM perspectives (looking at risks to development, identifying opportunities for risk reduction within regular development, and at least avoiding contributing to disaster risk and maladaptation).

While highlighting risks to projects and sectors, it has not yet led to systematic mainstreaming of CCA into bilateral development assistance (OECD, 2009). Partly because it remains difficult to spend substantial CCA budgets through their own bilateral assistance and partly for political reasons, bilateral donors (again, through their environment departments) also channel quite a substantial amount of their CCA funding through multilateral channels, particularly the climate funds managed by the GEF and the Climate Investment Fund coordinated by the World Bank. However, there is some scepticism about the extent to which those modalities will achieve the integration everyone agrees is needed. Several bilateral donors are also investing directly in capacity building in developing countries as well as through science networks and non-government organisations as an effective means of supporting integration in regular policy and practice, particularly at the local level. For instance, the Danish International Development Agency is supporting the government of Bangladesh in improving the integration of DRR and climate change into development policies. The Danish International Development Agency CCA/DRM mission states that ‘there is potential for initiating several activities both as integrals of the sector programme support and as separate interventions’ (DANIDA, 2007:3).

Most activities are complementary to the suggestions put forward in NAPAs with respect to CCA and thereby support the implementation of the NAPA:

- Integrating CCA/DRM in the DANIDA-supported programmes within the agricultural
  and water and sanitation sectors
- Strengthening CCA/DRM data and forecasting
- Incorporating CCA/DRM into development planning and implementation activities
- Raising public awareness

The United Nations Environment Programme/United Nations Development Programme joint programme funded by the Danish government provides financial and technical support to 15 sub-Saharan countries in Africa to remove barriers and create opportunities for integrating CCA into national development planning and decision-making frameworks. The programme is designed to complement and strengthen ongoing and planned nationally based CCA and risk management in the region.

In recent years the European Community has also taken significant steps to try to reduce the impact of disasters on vulnerable populations by integrating DRR into their aid policies and practice. The 2009 DRM strategy framework of the European Community, which outlines the European Union strategy for supporting DRM in developing countries and the European Union strategy for minimising, and adapting to, climate change, represents further achievements in mainstreaming these issues in European policies.

4.4. Caching the benefits by ecosystem-based approaches

In the Asia-Pacific, there is a growing recognition that ecosystems can play an important role in making the communities resilient to disasters. Both DRM and CCA can be categorised into two approaches. Soft approaches focus on capacity building and information, such as early warning systems and educating at-risk communities. Hard approaches use specific technologies and actions, such as sea walls or levees. An ecosystem-based approach shares features from both and involves management, conservation, and restoration activities to protect and enhance ecosystem services (e.g. wetlands providing flood protection).

Coastal ecosystems such as mangroves and marshes are highly effective in protecting coastal lines against the impacts of climate and cyclones. Results from a study in India indicate that, without mangroves, a cyclone that struck in 1999 would have caused an additional 1.72 deaths per coastal village. The prevention of economic damage is also significant: the loss of 1 square km mangrove forest in Thailand was estimated to cost an average of US$187,898 per square km in subsequent storm damage (Gedan et al., 2011).

There are three ways by which the ecosystem-based approach can complement other DRM and CCA approaches. First, it can increase their overall capacity in response to climate-induced disasters. For example, on the Yongtz River in China, the hard infrastructure of dams and dikes have been integrated with a seasonal opening of sluice gates to restore the connection between the natural features of the river, lakes, and wetlands. This increases flood water retention, water purification, and agricultural opportunities.

Second, the ecosystem-based approach may be more cost effective than hard interventions. For example, in the Maldives, building sea walls costs about US$1.6 billion to 2.7 billion compared to the preservation of natural reefs, which has an initial setup cost of US$34 million and a maintenance cost of US$47 million.

Lastly, in some areas, an ecosystem-based approach may the only possible option. For instance, in many small island states it is not possible to combat the death of coral reefs with hard measures so responses in the form of marine-protected areas are the only feasible solution. There seems to be several advantages and practices but firmer, evidence-based research is needed to support policy actions. There is a need for better quantification of the benefits of ecosystem-based approaches, the effects of disasters and climate change, and on ecosystem capacities as well as more detailed comparisons between ecosystem-based adaptation and other strategies in AMS. With more knowledge, this approach can be better applied to provide DRM and climate-smart solutions.

5. How to Harness Converging Opportunities: The Philippine Case

The Philippines is one of the most vulnerable states to natural disasters and is thus one of the states focused on mainstreaming both CCA and DRM into its development agenda. Due to its location in the tropics and the Pacific Ring of Fire, the Philippines is exposed to multiple natural hazards such as typhoons, floods, droughts, earthquakes, and volcanic eruptions. Unplanned urbanisation, environmental degradation, and global climate change have increased the impact of these hazards, with the Philippines suffering over 6,000 casualties, 23 million affected, and US$1.3 billion in economic damage over the last ten years (World Bank, 2013). However, the country recently passed legislation focusing on converging CCA and DRM institutions to promote synergy.

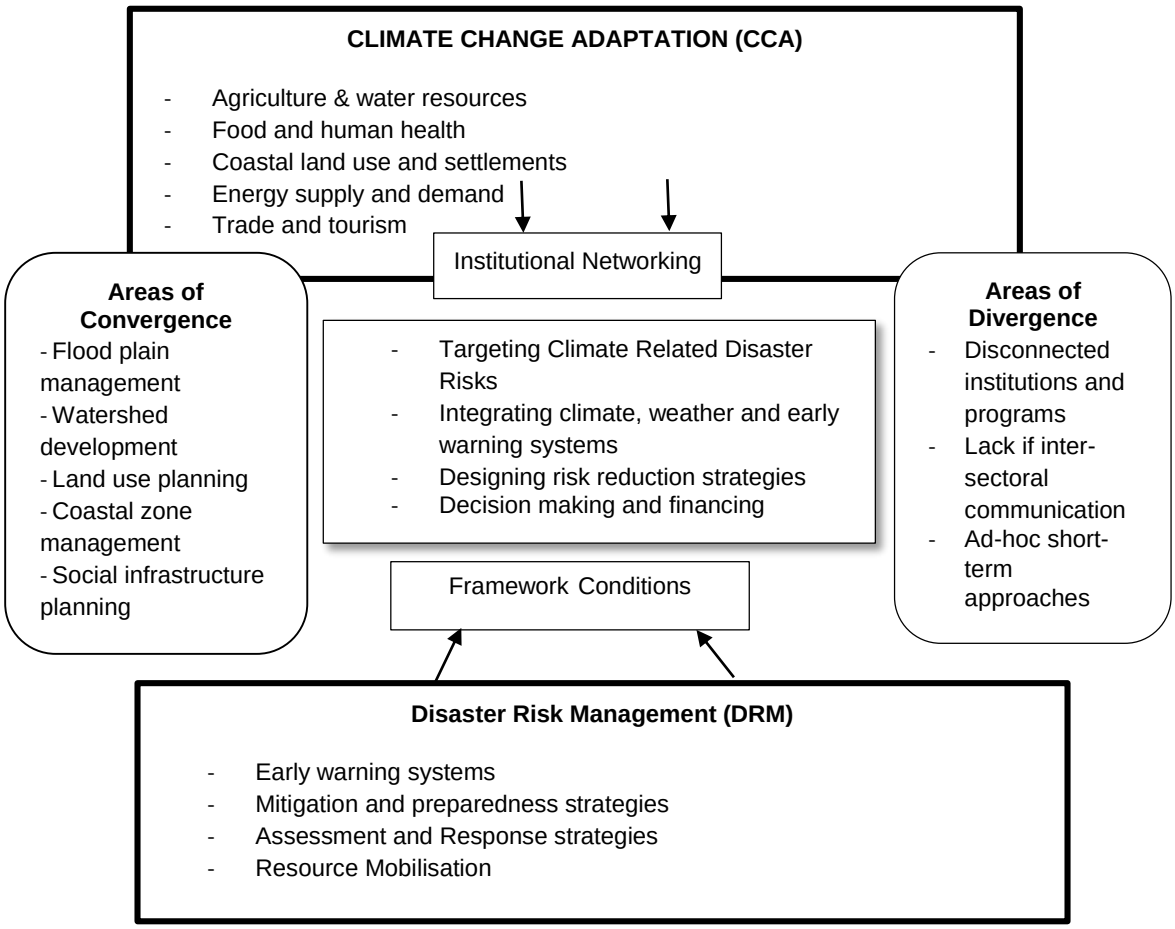
The Philippines recognises its high susceptibility to natural hazards. It established the National Disaster Coordinating Council in 1978 which determines priorities in the allocation of funds, services, and relief supplies. The National Disaster Coordinating Council is funded through national and local calamity funds, which come from 5 percent of the annual budget of the national or local governments. These funds are tied to aid, relief, rehabilitation, and reconstruction (Lasco and Delfino, 2010). The National Disaster Coordinating Council is a reactive institution, focusing on addressing disaster preparedness rather than the underlying socioeconomic factors that might help reduce risk in future disasters. Thus, it can be said that the Philippines has neither converged CCA with DRR within their institutions nor properly integrated CCA with DRR in the past.

The Philippine government's new legislation, the Climate Change Act of 2009, incorporates climate change concepts into policy and development plans. A review of major development plans and policies showed that CCA has not been mainstreamed in the Philippines with the focus being on mitigation where climate change is recognised. However, the 2009 law and the resulting Climate Change Commission has brought attention to the adaptation side of climate change at the local and national levels by promoting climate change risk-management initiatives (Lasco and Delfino, 2010). The newly crafted law considers disasters to be of primary relevance to the overall resilience of the country to climate change. In the overall effort to combat the

effects of climate change, DRM will be the primary focus and the framework will concentrate on expanding and upgrading the country's capacity to address and anticipate disasters. Although the 2009 Act is focused on addressing climate change, the Philippines will address climate change impacts through DRR measures.

Under the new Act, a Climate Change Commission headed by the Philippine president will be created as the sole government policymaking body on climate change. Its primary function is to 'ensure the mainstreaming of climate change, in synergy with disaster risk reduction, into national, sectoral, and local development plans and programmes.' The Act also gives local governments the primary responsibility for planning and implementing local climate-change action plans, which will be consistent with national frameworks. The Climate Change Act of 2009 also resulted in the development of the National Framework Strategy on Climate Change and the National Climate Change Action Plan, both of which serve as the bases for climate change planning, research and development, and harmonisation of related policies and institutions. The act explicitly recognises the overlapping objectives between CCA and DRM, declaring that 'further recognising that climate change and disaster risk reduction are closely interrelated and effective disaster risk reduction will enhance climate change adaptive capacity, the State shall integrate disaster risk reduction into climate change programs and initiatives.' However, the Act does not provide a fund for DRM initiatives due to the limited appreciation of the linkage between CCA and DRM, both in the Philippines and globally (ADPC, 2013).

Figure 5: Converging and Diverging Factors of Climate Change Adaptation and Disaster Risk Management in the Philippines



Source: Author

The 2010 National Disaster Risk Reduction and Management Law was designed to 'mainstream disaster risk reduction and climate change in development processes' (Philippine Congress, 2010). It emphasises the Philippines' paradigm shift from reactive to proactive disaster risk reduction, mandating the need to 'develop and strengthen the capacities of vulnerable and marginalised groups to mitigate, prepare for, respond to, and recover from, the effects of disasters. It transforms the present National Disaster Coordinating Council into the National Disaster Risk Reduction and Management Council, an inter-ministerial body. The National Disaster Risk Reduction and Management Council is chaired by the secretary of the Department of National Defense with the secretary of the Department of Interior and Local Government as vice chairperson for disaster preparedness. The council's members also include several

ministries as well as the executive director of the Climate Change Office of the Climate Change Commission, thereby integrating several ministries to converge CCA and with DRR. In addition, the law established the Local Disaster Risk Reduction and Management Fund where no less than 5 percent of estimated revenue from regular sources will be set aside to support DRR activities (Philippine Congress, 2010).

Figure 5 shows the convergence between the CCA process and DRM in certain types of sectoral policies in Philippines, which needs to be recognised for scaling up and replication through regional cooperation. Some other sector-specific policy actions in Philippine framework include:

(i) Land-use planning in areas that are sensitive to climate change and disaster risks
(ii) River basin floodplain management
(iii) Coastal erosion control and management
(iv) Watershed management programs
(v) Integrated drought-management programs

The tools and techniques used for DRM such as early warning systems; hazard, risk, and vulnerability analysis; risk assessment and monitoring; risk mitigation; and response strategies need to be integrated with critical sectors such as food, water, environmental security, agriculture, and tourism. There are success stories and good practices demonstrating such integration, which should be replicated and further scaled up.

On the other hand, there are also many forces that create divergence between CCA and DRM. The institutional arrangements that exist are such that DRM and CCA experts and functionaries are usually different, respond to different needs and to different constituencies, and do not have the authority to implement policy decisions in the areas other than their specific responsibilities. Such structural barriers also exist at the regional and international levels. Furthermore, DRM and CCA policies, planning, and programmes often take place or exist in isolation without sharing their respective goals, methodologies, and objectives. CCA information is inherently complex. For most DRM projects, risks to investments are not considered for the full

lifetime of the project, thus ignoring climate-change risks, impacts, and adaptation factors.

Although the Philippines still faces challenges in integrating CCA with DRR, it has successfully established an inter-ministerial body and fund to promote their convergence. Philippine laws on CCA and DRR have been lauded as the 'best in the world,' by the United Nations special DRR representative Margareta Wahlstrom (Ubac, 2012). There are enabling mechanisms for converging DRM and CCA through the integration of appropriate technologies such as information and communications technology (ICT), automatic weather stations, weather radars, and the like. Similarly, the networking of DRM and CCA institutions at the national, ASEAN, and international levels coupled with multi-stakeholder communication and dialogues as well as exchange of information and expertise may catalyse such integration.

6. What is at Stake if Disaster Risk Management and Climate Change Adaptation Agendas do not Fully Converge in ASEAN member states?

Although CACA and DRM have distinct core differences and convergences, their shared objectives include protecting development gains; maintaining effective resilience planning and programming; and managing risks and uncertainties for all kinds of shocks. On the other hand, as experiences in the ASEAN and elsewhere is showing, neither government-led DRM nor CCA will happen automatically. There is often little political will or financial incentive to invest human and financial resources in government led DRM or CCA, compared to investing in visible and popular infrastructure or social programs. Whatever incentives are given are even more skewed given the fact that external donors and the international community provide generous humanitarian assistance after disasters such as tsunamis and floods but largely fail to provide similar support for reducing the risk in the first place. Attention to incentives, institutions, and instruments to promote good, risk-aware development is urgently needed. Both the DRM and CCA agendas have suffered from lack of political influence and human capacity to raise the profile of risk management and

mainstream development planning and practice. Nevertheless, the higher international political profile of CCA and the conduct of the Sendai summit meeting may generate additional momentum for innovations and institutional structure, which may potentially bring DRM and CCA closer together.

The overall goal to mitigate disaster risk is the same, providing collaborative perspectives on addressing future risk. By virtue of it being studied for a much longer period of time than CCA and the availability of past cases for analysis, DRM has developed sufficient tools and strategies to adapt to future disaster risks, assuming that the variability of those extreme events remain the same. Unfortunately, climate change is altering that variability, increasing the magnitude and severity of future disasters analysed under CCA. The lack of coordination between CCA and DRM can increase administrative burdens; prevent the efficient use of financial, human, and natural resources; and decrease the overall effectiveness of efforts to reduce risk. DRM and CCA need greater integration institutionally and through funding to benefit from their synergy.

It has been observed that one of the major reasons for the lack of coordination between DRR and CCA is the lack of clarity in how integration is to be achieved. Although experts have recognised the synergies between CCA and DRR, it is unclear when, at what level, and to what extent coordination is required. CCA and DRR are institutionally segregated, resulting in parallel efforts in developing new tools to address future risk. Institutional integration would require greater coordination, possibly an inter-ministerial body at the national level, and more treaties recognising the integration between CCA and DRR at the international level.

In most countries, CCA and DRM typically have separate institutional 'homes,' often the Ministry of Environment for CCA and the Ministry of Interior or similar agencies for DRM (Table 3).

Table 3: National Platform for Disaster Risk Management and Climate Change in the ASEAN

Country	DRM platform	CCA platform	Related act
Brunei Darussalam	National Disaster Management Centre, Ministry of Home Affairs	Department of Environment, Parks and Recreation, Ministry of Development	-
Cambodia	National Committee for Disaster Management - General Secretariat	Climate Change, Department of the Ministry of Environment	Sub decree No.35 ANK
Indonesia	National Agency for Disaster Management (BNBP)		Presidential regulation
Lao PDR	Ministry of Labour and Social Welfare	Ministry of Natural Resources and Environment	-
Malaysia	National Security Division, Prime Minister's Office (PMO)	Ministry of Natural Resources and Environment	National Security Council directive
Myanmar	Ministry of Social Welfare	Ministry of Natural Resources and Environment	Rehabilitation Board Act
Philippines	Department of National Defence	Climate Change Commission, Office of the President	Disaster Risk Reduction, Management, and Recovery Act
Singapore	Ministry of Home Affairs	Ministry of Natural Resources and Environment	Civil Defence Act
Thailand	Ministry of Interior	Ministry of Natural Resources and Environment	Disaster Prevention and Mitigation Act
Viet Nam	Ministry of Agriculture and Rural Development	Ministry of Natural Resources and Environment, Climate Change	Decree No. 168

Source: Compiled by the author

These sectoral institutions, CCA and DRM, often possess their own administrative (i.e., technical and financial) groups, their own channels of funding, and have separate entry points in different international agreements (UNFCCC and HFA, respectively). While sharing similar objectives and similar challenges in raising the profile of their agendas, they typically fail to coordinate for better delivery. Such duplication of efforts and even competition among various groups not only hamper DRM and CCA objectives but compromises the overall effective use of resources. Hence,

opportunities for joint work towards the common objective of reducing the risk to development must be seized wherever feasible.

One case of institutional segregation despite significant progress towards DRM and CCA is Bangladesh. Bangladesh is one of the most disaster-prone countries in the world due to its geophysical location, land characteristics, multiplicity of rivers, and monsoon climate variability. In response, Bangladesh has made significant progress in both DRR and CCA to manage these disaster risks. In 2010, the government of Bangladesh developed the National Plan for Disaster Management which articulates specific DRM responsibilities and roles for all relevant stakeholders at different levels of government with punitive measures for non-compliance (Shamsuddoha et al., 2013).

At a more technical level, the rapid expansion of climate change-related efforts may waste time and risk reinventing older approaches if they neglect learning from the experiences, methods, and tools already developed for DRM. On the other hand, efforts related to addressing the frequency and magnitude of hazards, exposure, and vulnerability may not only fail to achieve their objectives but even increase vulnerability. For instance, flood defences may give a false sense of security but actually fail to provide lasting protection against rising flood risks.

Hence, each country should create a platform to coordinate various organisations at different levels. They are needed to properly design and implement DRM, CCA, and SDG strategies. UNISDR defines ‘national platform’ as a nationally led forum or committee of multi-stakeholders. A national platform needs some critical elements such as (i) political, (ii) technical, (iii) participatory, and (iv) resource mobilisation components.

7. How can AMS Governments and Agencies at the National and Regional Levels Coordinate?

A wide range of stakeholders must be coordinated because resilience is everybody’s business. DRM, CCA, and SD require a multi-sectoral approach, which covers agriculture, water, urban development, infrastructure, education, health, and

many other sectors. Single-sector development planning cannot address the complexity of challenges and opportunities available nor can such plans build resilient societies. For example, DRM plans and CCA agendas should be linked to urban planning and to the teaching of urban and development planning in school. The idea that DRM and CCA are effective measures to increase resilience and reduce casualties should be promoted. Since no single organisation can have the ultimate responsibility for managing risks, various stakeholders and sectors should share the risks.

A thematic vision of a resilient future viewed through a sector lens is illustrated in Figure 6.

Figure 6: Integrated Policies for Improving the Disaster Resilience.

Supportive thematic/sectoral vision

Resilience is integrated into thematic and sectoral strategies; policies; plans; legal, regulatory, and institutional arrangements; projects; budgets; and monitoring and evaluation frameworks

Livelihood	Land use	Transport	Education	Housing
- Routine risk assessment informing livelihood policies, plans, programs, and individual interventions - Strengthened resilience of assets - Access to microcredit and microinsurance - Diversification of livelihood opportunities	- Risk-sensitive land-use planning, policies, laws, and regulations - Coherent supporting institutional arrangements - Strong capacity and public-private incentives for compliance	- Risk-sensitive transport policy, investment decisions - Strict construction and maintenance of quality control - Adequate capacity and funding for routine maintenance - Post-disaster institutional arrangements	- Risk-sensitive school site planning and construction - Strict control with compliance to building codes - Retrofitting of existing schools - University catastrophe insurance pool - Adequate capacity and funding for safe school construction and routine maintenance	- Strong public, private, and community risk assessment - Training of local builders and crafts people trained in safe building techniques - Incentives for the construction of safe new homes and retrofitting old ones - Regularised tenure for illegal and informal settlements

Source: Author.

Sectoral ministries should strengthen the linkages with local governments to guide and support the latter in the promotion of DRM, CCA, and SDGs in an integrated way by creating appropriate coordination mechanisms.

There are six ways by which coordination could be achieved. Based on the regional analysis, these efforts are identified and briefly explained.

(i) National platform – This is the highest decision-making body, usually chaired by the head of the state which gives it a high-profile leadership. This will decide specific policies, draft policies, and formulate long-term plans and medium-term actions (e.g., Philippines)

(ii) Subcommittees – Play important roles in coordinating specific issues. These technical committees consist of offices of government organisations, the academe, the private sector, and international organisations (e.g., Japan)

(iii) Political commitment – Facilitates the reporting of the resilience situation to the head of the state or parliament through the publication of white papers. Covers the status and issues of DRM, CCA, and SDGs and specifies budgetary allocations. (e.g., Indonesia)

(iv) Budget allocation – Agencies coordinate and lead integrated policies through budget allocation to line ministries. This is separate from the emergency budget allocated for post-disaster rehabilitation activities (e.g. Bangladesh)

(v) Drills and training – A wide range of organisations such as defence, civil society organisations (e.g. Japan), public work organisations, and education ministries conduct training and drills to strengthen communication and networks with other organisations

(vi) Local office secondee – Sending staff to, and receiving staff from, line ministries and local governments or recruiting staff from other ministries or from the private sector (e.g. Japan)

(vii) Decentralisation – Devolving powers and budgets for CCA, DRM, and SDGs from national governments to local governments while considering the limited capacity of local governments (e.g. India)

8. Barriers to Mainstreaming Disaster Risk Management and Climate Change Adaptation in Developmental Planning

DRM and CCA international frameworks, political processes, funding mechanisms, information exchange fora, and practitioner communities developed independently and generally continue to be separate (Thomalla et al., 2006). While the trajectory towards convergence has been reasonably rapid and evidence of integration is growing, a number of significant barriers to full convergence remain.

8.1. Barriers at the International Level

Despite the relevance and importance of DRM to CCA agreements, strategies, and approaches, the incorporation of DRM into UNFCCC decision texts on adaptation has been, on the whole, ad hoc and piecemeal. There are a number of reasons for this. Key donor governments and institutions are still struggling to ensure good communication and collaboration between their own disaster management and climate change departments and units, affecting their ability to influence UNFCCC processes.

DRM proponents use the HFA as the international justification and architecture for scaling up DRM efforts in the UNFCCC. However, the HFA is not legally binding and has little recognition outside the DRR community. Efforts to have more explicit linkages to the HFA in the UNFCCC may help engage the DRR community in the adaptation arena and would possibly ensure greater attention for DRM in climate change debates. Adopting a negotiating/advocacy position solely based on the strength of the HFA is unlikely to be successful. Instead, the case for DRR in the context of the UNFCCC should be made in terms that will engage the real stakeholders that need to come on board to implement adaptation in developing countries: sectoral stakeholders and the ministries of finance and planning.

Furthermore, anecdotal evidence suggests that key donor governments (and the major polluters) are opposed to further integrating DRM and humanitarian assistance language into UNFCCC text because the UNFCCC only talks about human-induced climate change while the IPCC also includes climate variability. In the view of some of the major polluters, commitments to link CCA with DRR and humanitarian

assistance more closely under the UNFCCC would create complex and potentially expensive overlaps associated with commitments to finance disaster relief. This leaves the unhelpful spectre of working out what proportion of disasters can be attributed to anthropogenic climate change and how much to existing climatic variability.

8.2. Barriers in Multilateral and Bilateral Institutions

Within major bilateral and multilateral institutions, CCA and DRM commonly reside in different parts of the organisation and may even be managed in different geographic locations although steps are being taken to address this. For instance, UNDP's Bureau for Crisis Prevention and Recovery is based in Geneva (closer to many humanitarian agencies) while the adaptation-oriented UNDP/GEF is administrated from the Bureau for Development Policy headquartered in New York. However, UNDP has expressed a clear intention to more closely align and even integrate its support on DRR and CCA with developing countries and is also taking concrete steps to ensure closer collaboration between BCPR and BDP at the headquarters as well as in the field. In the World Bank, the Climate Change team, the Hazard Management unit, and the GFDRR team are now located under the office of the vice president for sustainable development. These three teams were previously separated. However, there is limited day-to-day interaction, joint development of tools or analyses, or joint programming on climate risk management. This is also similar to the Asian Development Bank (ADB) where climate change and DRM units are under the Regional and Sustainable Development Department. A number of the author's consultations with policymakers pointed to the fact that the convergence of CCA and DRM should start with reorganisation within organisations.

Many felt that bringing DRM and CCA into the same organisational home would send a clear message to other multilateral, bilateral, and civil society organisations to do the same. Some expressed concern that the persistence of the close relationship between humanitarian assistance (mainly disaster response) and DRR in terms of organisational structures is damaging the profile of DRR as a development issue and is inhibiting the ability of DRM people to communicate effectively with their key counterparts in development and climate change. Seeing DRM primarily as a humanitarian concern was described as 'an anachronism that must be countered.'

8.3. Barriers in Financing Mechanisms

Multilateral adaptation financing mechanisms are closely tied to the UNFCCC which, in the past, has not paid much attention to extremes, partly due to the lack of scientific clarity on the attribution of changes in extremes to anthropogenic climate change. This has changed in recent years and many requests for funding from the GEF-managed adaptation funds include attention to the management of extremes.

Nevertheless, a remaining barrier preventing DRM-oriented actors to start using the adaptation funding is the need to demonstrate 'additionality.' This means that the project, or at least the portion of it for which financing is sought, needs to address the changes in climate rather than just variability and extremes in the current climate. In practice, the GEF has demonstrated substantial flexibility in its treatment of this requirement but some rationale must be included. This is often a challenge for DRR-oriented programs. DRR actors perceive these requirements as ineffective, forcing attention on climate change rather than the most urgent disaster risk.

Another challenge for integrating DRM in adaptation financing mechanisms is the strong role of the national climate change and GEF focal points, which have to approve the applications for funding from the adaptation funds. They are usually based in environment ministries and often prefer projects with a strong role for their own ministry. They also prefer that coordination be done through the climate change mechanisms in the country rather than leave the initiative to the DRM actors and/or their intersectoral coordination mechanisms.

The World Bank-managed Pilot Program for Climate Resilience, part of the Climate Investment Funds, is less constrained by UNFCCC guidance and more closely aimed at integrating into development and establishing useful examples of how integrated climate risk management can be mainstreamed into development, particularly through budgetary support modalities. Within DRR funding mechanisms, especially the GFDRR, the integration faces less formal obstacles although the GFDRR guidelines, for instance, emphasise the need for coordination through the national platforms for DRR rather than allowing more flexibility regarding the use of other coordination mechanisms (as long as these achieve integration of risk reduction into development). Within regular development financing, especially within budget support and policy dialogues, both CCA and DRR face the same obstacles: they lack

strong demand from recipient countries and are often perceived as donor interests. Both need to make a stronger case for the economic and planning dimensions of integrated risk management in order to focus policy attention at that level. This has worked, for instance, in the Pacific Islands region.

(a) Barriers at the national level

In practice, the implementation modality for the GFDRR and much of the HFA are the so- called 'national platforms for disaster risk reduction' promoted by the International Strategy for Disaster Reduction. The UNFCCC, on the other hand, has focal points in ministries of environment or sometimes the meteorological office. The preparation of national reports for the UNFCCC (such as National Communications and NAPAs) does require some form of inter-ministerial coordination process but the UNFCCC focal point has typically assumed the lead. In most countries, these coordination mechanisms exist largely in isolation from each other. Both coordination mechanisms struggle to influence planning and budgeting in major sectors. Climate change is very explicitly integrated in guidance for the GFDRR. However, there is no explicit role for climate change focal points or coordination mechanisms.

As a contribution to the interagency Vulnerability and Adaptation Resource Group, the European Community funded a research project to look at links between climate change and DRR in Viet Nam, the report for which was published in 2006 (Few et al., 2006). It found no concrete evidence of the systematic integration of DRM and CCA in terms of project activities, coordination, and fundraising. At the project's wrap-up workshop, participants stressed the need for national DRM and CCA budgets to enable joint programming. However, in order for this to be achieved, a clear cost-benefit, cost-effectiveness case needs to be made to convince finance ministries that public spending is justified. In stimulating better risk management, there is no one-size-fits-all solution such as the integration of the DRR agenda into climate change coordination structures or vice versa. Instead, donors should build on existing capacities. This may mean working with well-functioning DRR mechanisms where they exist, particularly when they are well integrated in sectoral planning. A review of the 2009 national HFA reports reveals that even countries with strong DRR mechanisms and political commitment towards integrated efforts are lacking financial

support, appropriate processes, frameworks, and programme guidelines for the integration of DRM in CCA at the policy level.

This can be seen in the segregated ministries of Bangladesh. Despite the significant awareness of both DRM and CCA, there is relatively minimal collaboration between the two ministries at present. Due to the more developed and robust DRR plans and institutions of Bangladesh, the country's Ministry of Disaster Management and Relief is focusing on managing and coordinating pre-disaster preparedness and post-disaster response measures. Rather than focus on planning and implementing CCA activities, the entities working on CCA are focused on mainstreaming policy and coordinating finance from various national and international sources.

This is accentuated by a lack of capacity to understand and implement climate risk management approaches. In other cases where DRR infrastructure is still weak, it may be better to focus on the institutions coordinating new adaptation funding, using them as entry points for better DRR through existing climate change coordination mechanisms.

Where political will for the joint agenda is strong, another solution may be the top-down integration of both agendas, for example, under the leadership of the prime minister or head of state.

(b) Barriers in sharing knowledge and experiences

Historically, there are separate communities of policymakers, practitioners, and researchers working on DRM and CCA with limited overlap in networks, meetings, methods, or tools. Some DRR specialists are skeptical of the sudden popular interest in adaptation and the adaptation community's perceived focus on a long-term agenda that only encompasses part of the entire array of hazards (excluding earthquakes, for instance). Some DRR experts feel that the adaptation community often focuses too much on climate as the main driver and fails to acknowledge the social factors behind vulnerability. Adaptation experts have tended to focus on longer-term issues, particularly on changing averages (which are easier to get from the use of a General Circulation Model) and feel that the DRR community fails to address these. An additional complication is that the two communities often use different words for similar issues.

The lack of coordination between the ministries has resulted in several lost opportunities in Bangladesh. Since CCA is focused on mainstreaming policy and coordinating finances, the DRR framework of the government of Bangladesh does not adequately account for how climate change processes will induce loss and damage and affect risks and vulnerability to extreme events. Although both DRR and CCA acknowledge the importance of mainstreaming both DRR and CCA into national planning efforts, their disparate bureaucratic bases make it difficult to coordinate on issues where mandates and interests overlap. This lack of coordination is a result of bureaucratic 'turf wars' between ministries who are unwilling to cede control to others (Shamsuddoha et al., 2013). One example of the negative effect of these turf wars is the Ministry of Environment and Forests' inhibiting the ability of the Ministry of Disaster Management and Relief to learn from an important network of researchers and practitioners on new tools to adapt to future risk. The Ministry of Environment and Forests serves as the focal point for all UNFCCC engagements.

It is clear that the driver for closer integration is the growing demand from the applications side where projects or plans want to address the full spectrum of risk at once (but currently fail to find proper guidance or documented experience). In recent years, there has indeed been an increase in mutual interest and a growing number of joint sessions at major events, knowledge portals, and guidance documents but there is still some way to go. Bilateral and multilateral donors can support the emerging initiatives for integrated knowledge, experience, and guidance, particularly by focusing on applications rather than theoretical explorations.

9. How to Remove the Barriers in DRM and CCA

9.1. Role of Knowledge Institutes

The knowledge community in AMS is primarily focusing efforts on DRM and CCA forecasting at the national level. Quantitative modelling is an essential tool to assess impacts, estimate systems sensitivity in response to climate change extremes, and reduce uncertainties concerning forecasts and the costs and benefits of integrating CCA and DRM measures (OECD, 2009). AMS with limited scientific capacity are

frequently compelled to apply generic and global methods that do not necessarily fulfil their needs (Box 1).

Box 1. An Assessment of the Current Status of Scientific Capacity for Climate Change Adaptation

The following have been reported as constraints to undertaking effective research on climate change adaptation in the ASEAN:

- Lack of programming skills: Most research and educational activities undertaken are on a short-term basis. There is very little long-term planning to continue the development of solutions.
- Inadequate monitoring and evaluation: Keen on activities but unenthusiastic in monitoring the impact of research and education
- Inadequate communication skills: For example, downscaling the climate forecast at the subregional level and communicating with decision makers
- Lack of effective networking, experience sharing, and dissemination skills
- Inadequate leadership, governance, and management capacities: Undefined roles of team members and lack of accountability
- Inadequate capacity to raise adequate international resources, mobilise local resources, manage finances, and report effectively

Therefore, global models need to be downscaled, taking into consideration regional data, the increasing participation of local research centres and scientists, and local community knowledge of local DRM (current and historical perspective). Inventory activities and field campaigns must be sponsored to fill knowledge gaps in observing networks and data collection methodologies. Although significant attempts have been made to develop methodologies and models to focus on ASEAN sociocultural and ecosystems, this field is still under investigation. To this end, multidisciplinary subregional knowledge platforms or networks must be formed. Scientists who measure physical impacts of climate change and DRM strategies should work with economists and social scientists, filling the need to include economic impacts and the perspectives of local communities. However, the lack of programming skills and the insufficient expertise in predicting events (due to the short-term basis of activities) result in unreliable surveys that do not support the decisions of policymakers.

There are also regional research networks such as the SysTem for Analysis Research and Training, the Asia-Pacific Network for Global Change Research, and the

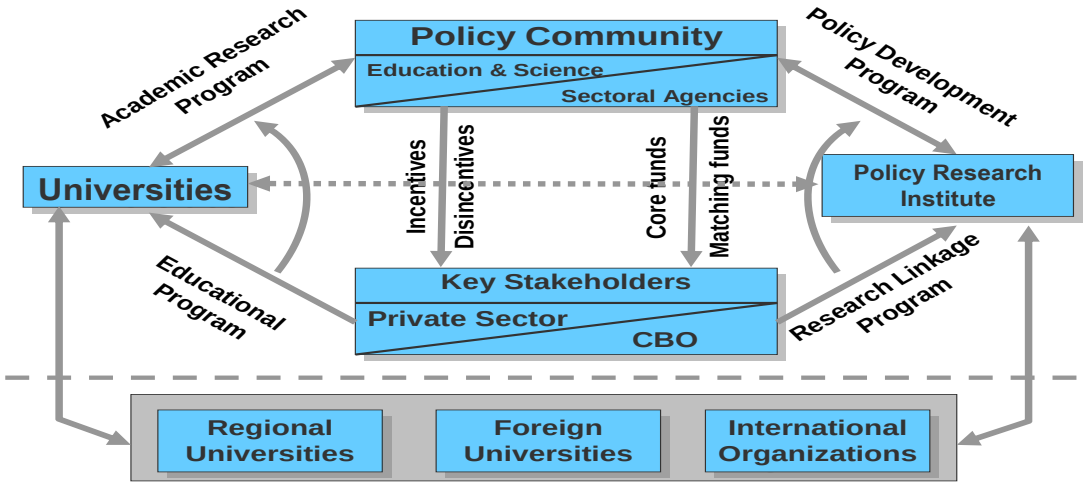
Economy and Environment Program for Southeast Asia as well as institutes like the Atmospheric Data Receiving & Processing Centre, the Economic Research Institute for ASEAN and East Asia (ERIA), and the Asian Development Bank Institute (ADBI) that support regional research. Organisations such as these will be among the most important in implementing any research and educational program. Building the capacity of knowledge institutions will be particularly important for those that are concerned with the current policy environment and for producing the 'graduates' who will ultimately populate government, national sector or policy organisations, and private business entities. Such organisations train future generations of sector-specific and integrated DRM and CCA planning and economic development experts (i.e., the individuals who will ultimately actualise systems). An indicative system of such capacity building programs is shown in Table 4.

Table 4: Capacity Building and Training Indicators towards Disaster Risk Management and Climate Change Adaptation

Indicators	International partnership	New knowledge	Integration	Stakeholders	Dissemination
Workshops and seminars	○	○	○	○	○
Books and websites	○	○	○	○	○
Decision support systems	○			○	
Joint cross-sector actions			○	○	○
Guidelines and handbooks		○	○	○	○
Joint studies	○	○	○	○	○
Graduate courses		○		○	○

Due to the wide array of issues involved and the actors that need to be influenced, partnerships that involve diverse combinations of academic, government, and private sector actors are likely to be particularly important in supporting national adaptation. Where such networks (as illustrated in Figure 7) do not currently exist, encouraging their formation will have greater impact than attempting to work on a one-to-one basis with individual organisations, however strong they may be.

Figure 7: Improving the Resilience of the ASEAN Socio-Cultural Community



Note: CBO = community-based organisation.

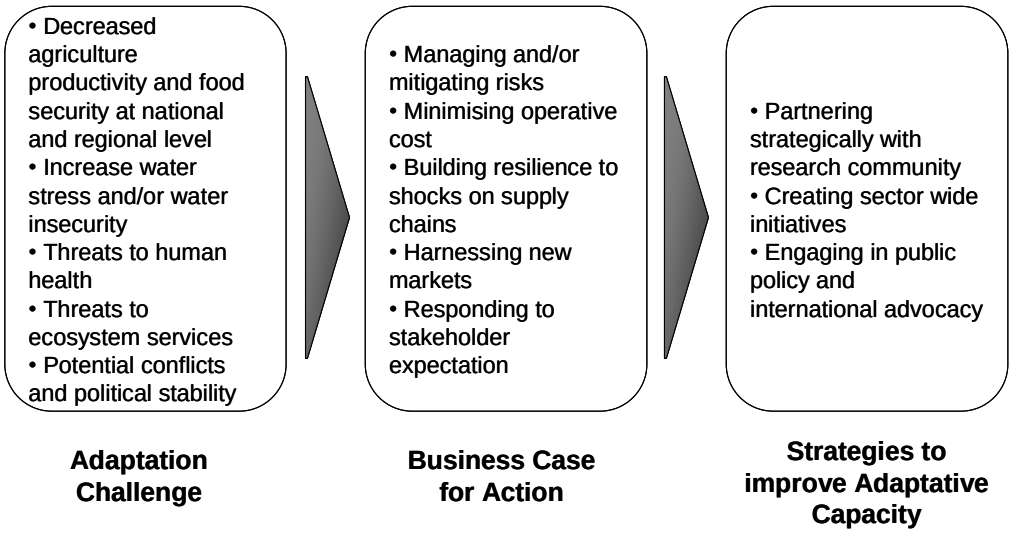
Open governance of these research and educational networks is essential. Networks that hew closely to national interests or demand consistency with regard to the messages they communicate on best practices or the issues and approaches they treat as legitimate will not have the intellectual dynamism required to generate the wide array of insights needed to catalyse effective strategies for integrated DRM and CCA. Such research and policy networks at the ASEAN level have unique regional and cross-sector engagement capacities; are often able to identify multiple points of entry or leverage; and are often capable of engaging in, and replicating the results from, learning strategies. Strengthening such networks and the institutions that actively engage with them is likely to have higher and more replicable returns than focusing on individual key organisations.

9.2. Role of the Private Sector

The role of the private sector in promoting innovative projects is to strengthen access to, and delivery of, climate-related information and DRM responses through communication strategies and insurance mechanisms that need to be further explored. The underlying systems that enable or constrain courses of action and the choices on CCA and DRM will rely heavily on activities that fall within the purview of the private sector. Involvement of the private sector is therefore essential. Such involvement will

flow most naturally from research processes that lead to courses of action reflecting the core business interests and models on which private sector activity is based (Figure 8).

Figure 8: The Role of the Private Sector in Promoting Resilience



Source: Author

Direct business interests are the core reasons why insurance industries are heavily involved in work on DRM and less in CCA. It has proven to be difficult to harness the involvement of other private sector actors. Identifying points of entry that respond to the inherent logic driving private sector actors represents the core avenue for encouraging their involvement. From this perspective, perhaps the most important private sector organisations to engage with are those involved in designing resilient infrastructure and financing CCA and DRM practices. Business incubator programs have specific experience in taking small, innovative initiatives and driving them to scale using appropriate operational models. They also have specific skills in innovation and the incubation of organisations so that their products and services can be marketed at scale.

9.3. Role of Finance

The ASEAN will require billions of dollars to adapt to the unavoidable impacts of climate change and DRM. On the other hand, the ASEAN is in a good position to enjoy, among other things, its opportunity to receive financing for climate change initiatives from a variety of sources. In particular, emerging middle-income economies

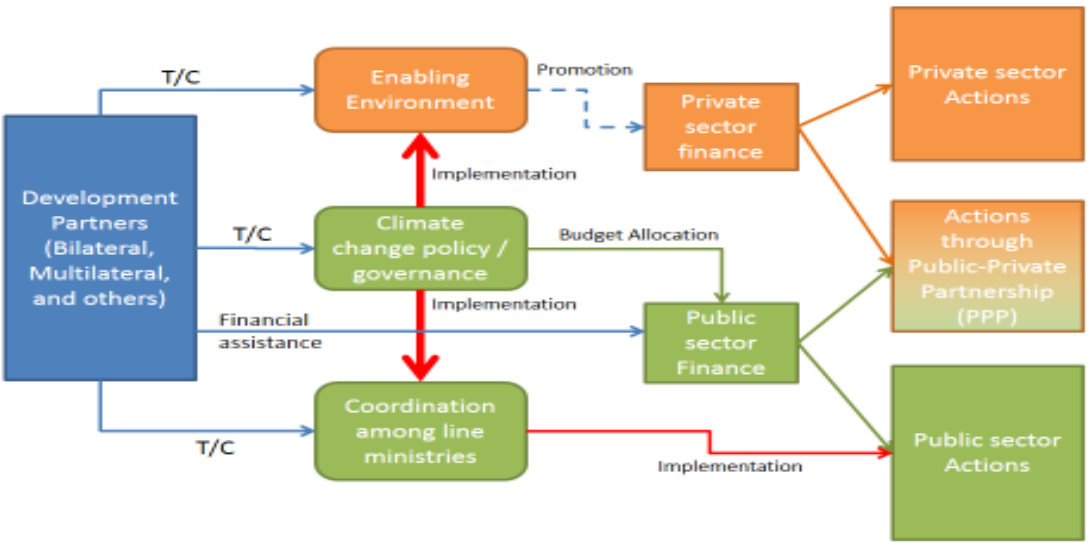
like Indonesia, Malaysia, and Thailand have a great opportunity to receive financing from several sources, including public and private sources and the market. However, Cambodia, Lao PDR, Myanmar, and Viet Nam (CLMV countries) still need to rely on public financial sources and international funds until they can develop an environment that enables or encourages private sector investment and finance. Regional cooperation, therefore, may be expected to play a role in providing an opportunity for CLMV to easily access climate change financing.

One of the options would be the creation of a new fund at the national level. This would reduce transaction cost and make it easy for users to access a variety of financial sources. However, it would not necessarily be the best solution. There are questions as to whether the establishment of a new fund would be efficient and effective. 'New fund' may just be an 'additional fund' to existing financial sources, and it may lead to further complexity and fragmentation if other, more established financial sources still exist and are available. If the new fund is the compilation of existing financial sources, it may cause a loss of opportunity for AMS to select 'appropriate financial solutions' from a variety of financial sources, including climate-related funds, since a single fund would not be able to deal with several types of financial terms in terms of fund management (i.e., risks and portfolio management). Figure 9 illustrates such an innovative financing scenario.

Another option may be to establish a new facility or platform such as a 'one-stop shop.' Once an AMS has access to this facility, it can obtain information on financial sources. If this facility can receive financing application from the ASEAN and the private sector on behalf of financial institutions, it can reduce cost for both the recipient and the donors.

In this new facility, existing regional institutions will work as facilitator for channelling climate change financing. For example, the ADB and the Japan International Cooperation Agency (JICA) established a co-financing facility named Accelerated Co-finance Facility with ADB in 2007. This was part of a joint initiative between ADB and Japan called Enhanced Sustainable Development for Asia, which was launched during the annual meeting of the ADB held in Kyoto in May 2006.

Figure 9: Leveraging Private Sector Finance and Climate Windows for Disaster Risk Management



Source: Author.

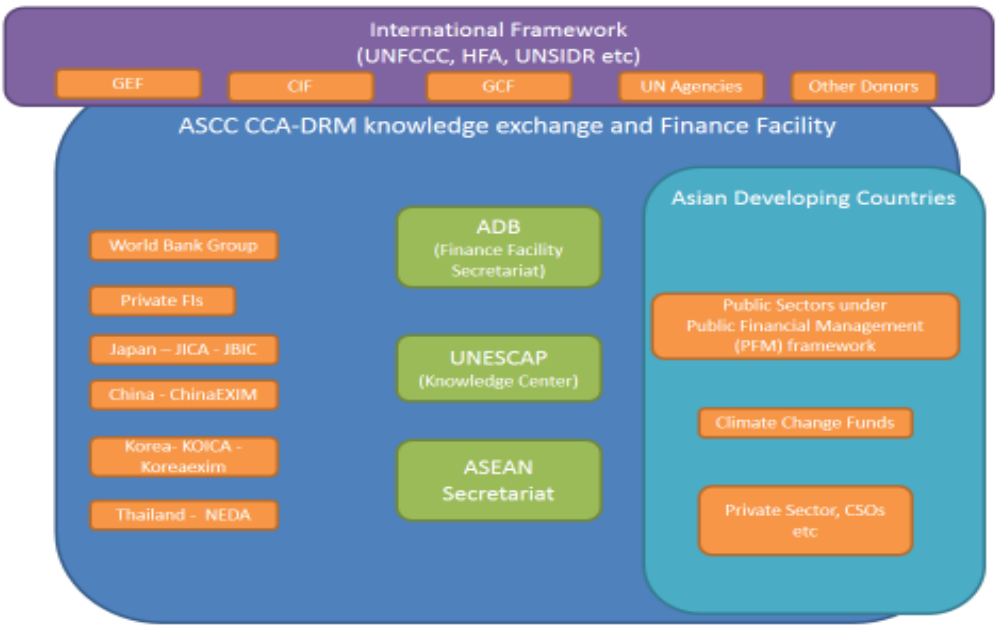
Five projects have so far been implemented under the Accelerated Co-finance Facility with ADB in Bangladesh, Samoa, Uzbekistan, Kazakhstan and Viet Nam. A co-financing scheme can reduce the risk burden for each financier because risks are shared. Financiers can then provide financing in a situation where the country risk-exposure level is limited. On the other hand, a co-financing scheme needs better coordination and harmonisation among financiers. In general, the lead arranger of the financing will also take the lead in coordinating among the participating financiers. Thus, the ability of the lead arranger (e.g. a DRM and CCA focal point) is key to the success of co-financing.

Although this is a bilateral facility between Japan and the ADB, a similar facility would be established as a multilateral facility for channelling climate change financing based on the experience of the Accelerated Co-finance Facility with ADB.

Figure 10 shows the potential framework of the facility. The main objective of this facility is to share information and knowledge on climate change financing and knowledge between donors and recipients. The facility will manage information on financial requirements from AMS and coordinate the participating donors, funds, and private financial institutions. Emerging donors such as the Republic of Korea, China,

India, and Thailand are also encouraged to participate in the facility as donors. Since the ADB is the executing agency for the GEF funds and the Climate Investment Fund, it may be able to serve as secretariat of the facility. As secretariat, the ADB is expected to develop a financial information platform by gathering information on financial terms and conditions and other information from each donor and financial demands from recipients. Thus, it will essentially be a 'matchmaker' between donors and recipients. In addition, the ASEAN Secretariat, when appropriate, is expected to work as financial arranger and lead and/or participate in the co-financing scheme.

Figure 10: Potential Framework for Leveraging a Climate Change Finance Facility for Disaster Risk Management Projects in ASEAN



Source: Author.

In addition, other regional institutions such as ERIA could serve as facilitator and knowledge provider. The ASEAN Secretariat, in particular, would be one of key institutions with its ASEAN Socio-Cultural Community blueprint. ERIA can provide best practices and knowledge of the region since it covers many of the countries participating in the East Asia Summit (EAS). This would maximise its experiences and knowledge of the existing architecture for channelling international financing for climate change and DRM initiatives.

10. Conclusion and the Way Forward

Substantial economic opportunities exist by integrating the concepts and shared goals of DRM, CCA, and SD. In the past, the ASEAN has seen some progress in the convergence of these three areas of practice, at least in terms of intentions and policy statements as well as in some on-the-ground activities. However, significant barriers to convergence in critical institutions remain and the risks of duplication of efforts and competing institutional structures are still significant. Nevertheless, the growing attention and funding for both areas and the clear local interest in a coordinated approach offer ample opportunities for the continued integration of DRM, CCA, and SDG agendas and shared learning. From the climate change perspective, after the hard landing of global policy efforts on climate change in Lima, Peru, many have realised the need to be pragmatic and focus on concrete, tangible outcomes and on mainstreaming DRM and CCA into regular development. In addition, the pressure on global aid budgets has increased the need to make the case for risk management as an effective development strategy and to integrate it into regular development policy and practice. From both perspectives, the convergence agenda is an obvious way forward, which is already reflected in the growing body of emerging plans and projects with promising prospects for better development outcomes over the coming years and decades. The ecosystem-based approach needs more studies at the regional level.

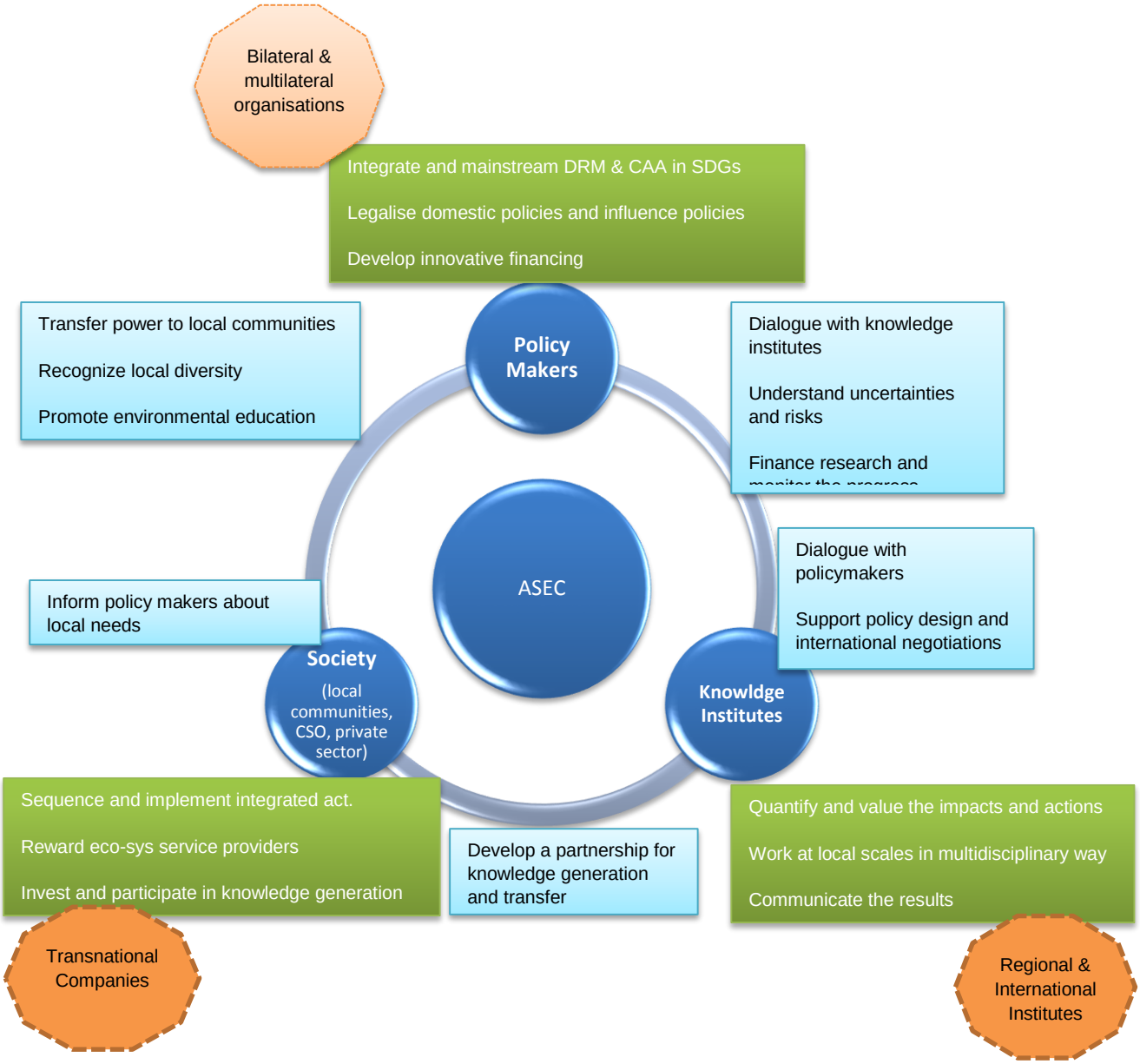
To achieve a broad vision of a resilient, inclusive, and competitive ASEAN, a wide range of steps should be taken at the regional, national, and local levels. There are five critical steps that can accelerate the community process of overcoming a number of barriers or gaps in convergence.

- Strengthened legal frameworks for improved coordination and to lead concerned subcommittees of line ministries. Devolution of power and finance to local governments is also needed to effectively respond to the needs of the people. Capacity of local government could further be improved by the legal framework, putting in place seconded-staff programs across the social development, environment, and economic ministries.

- Integrated risk assessment through the DRM and CCA lens for all new investments, whether financed by the government, by the private sector, or by the international community, in order to protect communities against hazards and economic risks
- Formulating a detailed framework to monitor and evaluate the progress of integrated resilience capacity, potentially covering a wide array of legislative, regulatory, policy planning, institutional, financial, and capacity-building instruments and mechanisms on regular basis
- The ASEAN Secretariat working with other bilateral and multilateral facilities and the international community to establish public programs of financial support for improving the resilience of communities in leveraging private financing
- AMS working with regional knowledge institutes like ERIA to establish a knowledge hub for facilitating, developing, exchanging, and disseminating DRM data, best practices, and climate modelling tools.

The key messages of this recommendation to the three groups of stakeholders (i) national policy makers; (ii) local communities, private sector, and other members of the civil society; and (ii) knowledge institutes are illustrated in Figure 11.

Figure 11: Key Messages to Stakeholders Related to Resilience



Source: Author.

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