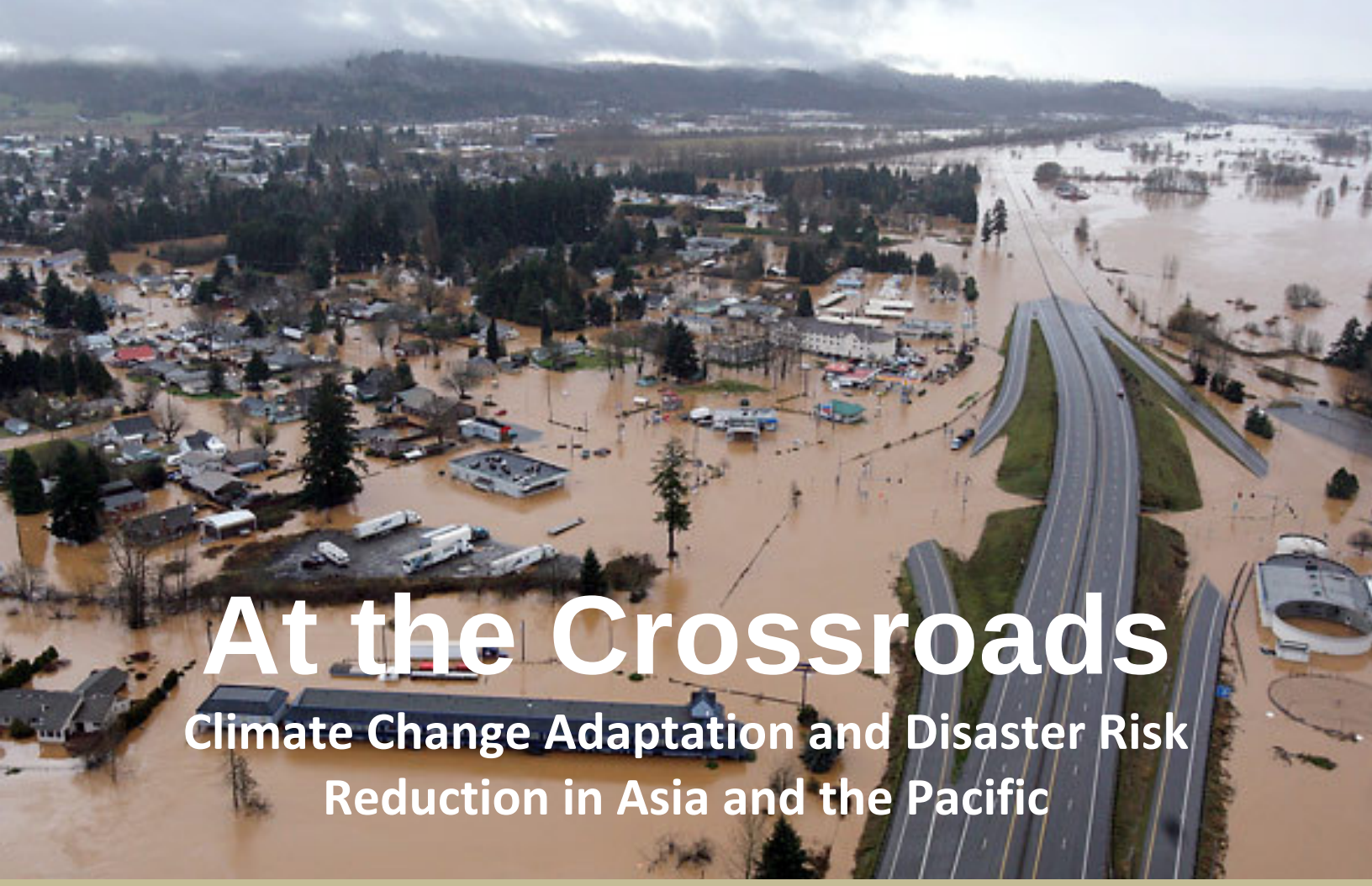

At the Crossroads

Climate Change Adaptation and Disaster Risk Reduction in Asia and the Pacific

A Review of the Region's Institutional and Policy Landscape

UNISDR Asia and Pacific

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1 DRR and CCA at the Crossroads

1.1 Introduction

Over the past decade, there has been a growing interest among policymakers, practitioners and researchers in finding synergies between DRR and CCA at the international, regional and local levels. Some have called for harnessing the convergence of these two areas of practice by capitalizing on their shared goals and approaches, while, at the same time, not losing sight of their salient differences and respective agendas. Proponents of this view have pointed out that the overlapping objectives of DRR and CCA are now increasingly reflected in international agreements, government statements and policies, as well as in joint and on-the-ground activities.[1]

On the other hand, others look at the intersection of DRR and CCA as a matter of thematic hierarchy. It has been suggested that DRR should be seen as

[1] Mitchell et al. 2010. See also Tearfund 2008, Mitchell and van Aalst 2008, Few et al. 2006, and Sperling and Szekely 2005.

"a crucial part of adaptation,"[2] while others have argued that it is CCA that should be embedded within DRR as one of the many factors affecting vulnerability.[3] The perceived relative ineffectiveness of DRR and CCA in addressing vulnerability and its underlying causes adds another wrinkle to the debate, prompting the question of whether or not linking is desirable at this time, given that much is still needed to effect paradigm shifts in both climate change and disaster communities.[4]

Nevertheless, while there are disagreements conceptually and in practice on how best to integrate DRR and CCA, the need for doing so has been generally recognized as paramount to protect and sustain development gains.[5] The Hyogo Framework for Action (HFA) adopted by 156 countries at the World Conference on Disaster Reduction in 2005 explicitly calls for "the integration of risk reduction associated with existing climate variability and future climate change into strategies for the reduction of disaster risk and adaptation to climate change, which would include the clear identification of climate-related disaster risks, the design of specific risk reduction measures and an improved and routine use of climate risk information by planners, engineers and other decision-makers."[6] It is expected that a synergistic linking of DRR and CCA could result in (a) reduction of climate-related losses through more widespread implementation of DRR measures linked with adaptation; (b) more efficient use of financial, human and natural resources; and (c) increased effectiveness and sustainability of both adaptation and DRR approaches.[7]

1.2 Similarities and differences

DRR is the concept and practice of reducing disaster risks through systematic efforts to analyze and manage the causal factors of disasters, including through reduced exposure to hazards, lessened vulnerability of people and property, wise management of land and the environment, and the improved preparedness for adverse events (UNISDR, 2009). CCA, on the other hand, refers to the adjustment in natural or human systems in response to actual or expected climatic stimuli or their effects, which moderates harm or exploits beneficial opportunities (United Nations Framework Convention on Climate Change-UNFCCC).

Both DRR and CCA represent policy goals, one concerned with a widely known problem (disasters) and the other with an emerging issue (climate change). While these concerns have different origins, they overlap a great deal through the common factor of weather and climate and the similar tools used to monitor, analyze and address adverse consequences. It makes sense, therefore, to consider them and implement them in a systematic and integrated manner.

Risk reduction is a common converging goal for CCA and DRR. Both CCA and DRR have an objective of reducing factors that contribute to climate-related risk. Both approaches envisage pro-active anticipatory actions to reduce climate risk of different time scales. The notion of possible emer-

[2] DFID 2006, p. 68.
[3] Mercer 2010, Kelman and Gaillard 2008.
[4] Schipper 2009.
[5] Adaptation Knowledge Platform 2010.
[6] UNISDR, 2005.
[7] Venton and LaTrobe 2008.

gence of historically not experienced climate risks due to climate change could entail disaster risk management to deal with uncertainty and new pattern of risks. Disaster risk management has a history of evolving, adapting and applying new tools and practices to deal with new information and emerging social and economic demands. IPCC Fourth Assessment Report emphasizes the importance of iterative risk management approach.

DRR and CCA share a common feature. They are not sectors in themselves but must be implemented through the policies of other sectors, in particular, those of agriculture, water resources, health, land use, environment, finance and planning. There are also linkages with other policies, most notably poverty eradication and planning for sustainable development, and education and science.

The long historical experience in implementing DRR can contribute greatly to adaptation, in terms of policy and institutional approaches as well as technical methods and tools. These include the Hyogo Framework for Action, legislation development, multi-stakeholder national platforms, technical networks, and approaches to community capacity building, along with hazard and vulnerability assessment, land use planning and environmental protection, construction of dams, dykes and seawalls, early warning systems, and community education and resilience programs. It is vital for adaptation policy-makers and managers to use and build upon these existing capacities and resources rather than starting afresh. Equally, many of the approaches being developed for CCA, such as vulnerability assessments, sectoral and national planning, capacity building and response strategies, are directly supportive of DRR.

However, in most countries, the two policy fields have operated largely in isolation from each other. In many ways, we may say that DRR and CCA are different only because of the different political history that shaped current institutional structures. Environment authorities usually have responsibility for CCA, whereas authorities for disaster management, civil defense, and home affairs typically have responsibility for DRR. Interactions between these institutions are usually *ad hoc*, for example through meetings for report preparation, and there are only very limited efforts to sustain and institutionalize these interactions. This creates a knowledge and practice gap that most DRR actions can contribute to CCA, but there is often no mechanism to transfer this knowledge, tools and practices for climate change adaptation. There are still very limited efforts to sustain and institutionalize these interactions. The real limitation to adaptation is the political dimension associated with issues of compensation forcing policy makers to isolate climate risks attributable to anthropogenic causes from natural climate variability.

1.3 Purpose and structure of the report

There has been little information about how regional DRR and CCA are carried out in Asia and the Pacific, whether separately or as embedded components of each other. Without such knowledge, it would be difficult to develop an enabling environment and a roadmap for the practical integration of these two areas of practice.

This report has been prepared as an initial step to shed light on this lacuna. It provides a snapshot of how DRR and CCA are undertaken and integrated, if at all, in the region. It does so by taking stock of past and ongoing regional initiatives (Chapter 2) and by looking into the role of certain organizations in the implementation process (Chapter 3). It also discusses key developments in three areas—political, policy and institutional—which are instrumental in facilitating the integration of DRR and CCA agendas in the region (Chapter 4). Concluding remarks and next steps to push the integration forward are presented in the last section (Chapter 5).

The report hopes to contribute to improved regional planning and programming for DRR and CCA, and highlights areas for cooperation among regional and sub-regional organizations. It also aims to support both national and regional stakeholders in DRR and CCA, such as governments, UN agencies, intergovernmental organizations, research and technical organizations, nongovernment organizations, and especially the ISDR Asia Partnership on Disaster Reduction (IAP) members, in order to enhance regional planning, programming, and cooperation.

Moreover, it is hoped that donor agencies and decision makers will find the findings and insights presented here useful, as they channel resources and efforts to meet their own policy and program imperatives while implementing DRR and CCA. Lastly, this report is intended to inform periodic progress reviews and reporting processes at regional and sub-regional levels, such as the biennial HFA progress reviews and preparation of the 2011 UN Global Assessment Report.

2 Taking Stock of Regional Initiatives

2.1 Introduction

This report takes stock of regional and sub-regional projects or programs implemented in the Asia-Pacific region. The criteria for selecting the initiatives were pretty straightforward: for an initiative to be classified as regional or sub-regional, it must involve at least two countries and carried out over a period of not less than a month. This left out several single-country projects in the region that may have major contributions in the overall progress of DRR or CCA or both in the region. As the main sources of data were mostly regional institutions, the screening may have also excluded significant community-based projects undertaken by local actors or the civil society.

Data was first compiled from the responses of a survey undertaken through the IAP. This yielded a total of 181 initiatives. However, a close scrutiny of the reported programs and projects revealed multiple reporting by the respondent organizations, which was understandable considering the

multi-partnership nature of many of the activities. In such cases, the project's lead organization was decided on the basis of the focal person listed in the DRR Portal[8] database. Some were too general and had no supporting documentation either through Internet search or through the DRR portal developed by UNISDR-AP. Programs that were delivered in successive phases or regularly over a certain period also had to be double-checked and counted as one, as their objectives were mostly essentially the same. After this verification process, the number of initiatives went down to 137.

The initial inventory was updated with data from the DRR portal and GFDRR projects database, accessed on 25 April and 05 June 2011, respectively. This brought the final number of programs and projects included in the study to 233. The study included only those that have been implemented over two decades, that is, from 1991 to 2010. The review focused on three aspects, namely, geographical coverage, HFA priorities, and fundamental objective (i.e. vulnerability or impacts). The last aspect referred to the adaptation continuum proposed by the World Resources Institute (WRI, 2007).

In the report, regional initiatives were classified whether they are purely DRR, CCA or a combination of the two (DRR/CCA). A regional initiative or activity can be in the form of a program, project, plan, or policy. While acknowledging the technical differences among these terms, the words "programs", "projects", "initiatives", "undertakings" and "activities" have been interchangeably referred to in the document as one and the same.

2.2 Geographical coverage

At the outset, it must be pointed out that many of the initiatives actually covered more than just one sub-region. Out of 233 cases examined, only 146 (63%) were conducted in one sub-region; while the rest (37%) included at least two. Ten percent of the regional activities reported involved at least four sub-regions; nine percent covered three; and 18 percent included at least two. Of the projects that involved three areas, almost half (10) targeted South East Asia, North East Asia, and Pacific; while about one-third (6) covered South Asia, South East Asia and North East Asia. Among regional undertakings that focus on two sub-regions, majority (58%) involved South Asia and South East Asia (Figure 1).

In any case, the stocktaking revealed the distribution of DRR and CCA programs in Asia and the Pacific. Regional initiatives were found to be most concentrated in South East Asia and least in Central Asia. Of the 233 total cases examined, the largest grouping was found in South East Asia (54%), followed by the Pacific (40%) and South Asia (39%). West and Central Asia registered the least number of regional initiatives among the sub-regions accounting for 13 percent and 9 percent of the projects, respectively. On the other hand, North East Asia was part of 21 percent (48) of the total regional activities (Figure 2).

By type of initiative, a significant majority of the regional undertakings were predominantly DRR in nature. It is thrice the number of purely CCA activities, and twice

[8] www.drrprojects.net

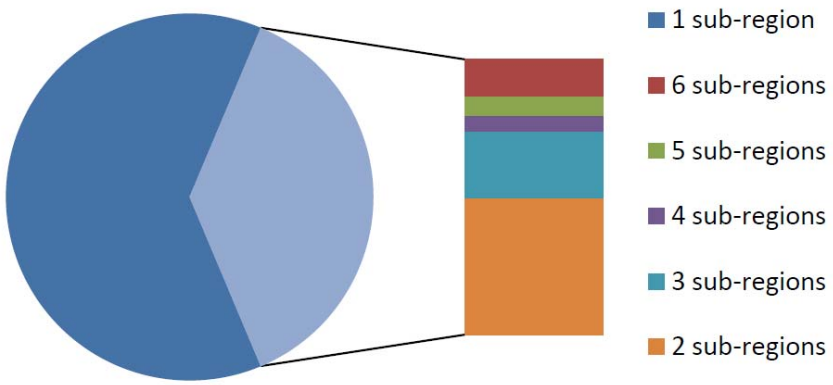

Figure 1: Sub-regional coverage of regional initiatives

that of projects with DRR and CCA elements. This can be seen as reflective of the relative advancement of DRR and CCA in the region. It must be noted, nevertheless, that the stocktaking may have been biased towards DRR in the first place as the DRR portal database and IAP survey, the main sources of data for this inventory, were initiated by the DRR community.

The dominance of DRR is a common trend across all sub-regions. In South Asia and South East Asia, these accounted for about 60 percent of the initiatives. The proportion of DRR projects with respect to the sub-regional total is lowest in Central Asia at 50 percent. On the other hand, CCA comprised about one-third of the programs in North East Asia, while it is one-fifth in South East Asia and Pacific. The share of CCA within the sub-regions is lowest in South Asia and West Asia at 16 percent each (Figure 3).

While purely CCA projects are noticeably small in some sub-regions, it does not mean that CCA is altogether low in said areas. For example, in West Asia, a good number of initiatives (29%, 9 of 31) have both CCA and DRR components. The same is true for the Pacific where 26 percent (25 of 95) of the projects have elements of DRR and CCA. The number of regional initiatives which address both DRR and CCA in North East Asia, South Asia, and South East Asia were found to be identical, comprising one-fifth of the undertakings in each sub-region.

The earliest reported regional DRR project was in South Asia, with the introduction of UNDP's Disaster Inventory System (DesInventar) in 1993. In Southeast Asia, ADPC's Asian Urban Disaster Mitigation Program (AUDMP) and JICA's Japan-Singapore Partnership Programme for the 21st Century (JSPP21) were among the pioneering programs that addressed DRR at the sub-regional level in early 1990s. For CCA, only two regional initiatives were reported between 1990 and 1999, both involving Pacific countries. These were the Australian Bureau of Meteorology's (BOM) South Pacific Sea Level and Climate Monitoring Project (SPSLCMP) and SPREP's Pacific Island Climate Change Assistance (PICCAP) implemented in 1991 and 1997, respectively. Programs that partly addressed both DRR and CCA were introduced only in 2001 through ICIMOD's HKH-HYCOS Project and USGS' Asian Flood Network (AFN). The review further revealed that regional DRR and CCA initiatives began to increase significantly starting in 2005 across all sub- re-

gions (Figure 3). Prior to 2005, there were only a total of 25 projects; since then, 208 projects have been carried out indicating a growth of over 800 percent. Sub-regionally, South East Asia has registered the most number of initiatives, which jumped from 16 in 2004 to 217 by 2010. It is followed by the Pacific and South Asia, where an average of 14-15 regional undertakings have been initiated each year from 2005 to 2010. Thematically, it can also be observed that there is a clear and steady increase of regional DRR-CCA programs in the Pacific, which was non-existent prior to 2005.

This overall trend can be interpreted as reflective of the growing interest and commitment of national governments, regional organizations and the international community operating in the region. This increase in investment in DRR and CCA can be directly attributed to the adoption of the HFA at the World Conference on Disaster Reduction in 2005 and the intensification of adaptation discussions at UNFCCC Conference of Parties after that same period. It was also around this time when the region has witnessed the succession of major disasters from earthquakes to extreme climatic events, pointing to the urgency of DRR and CCA at all scales.

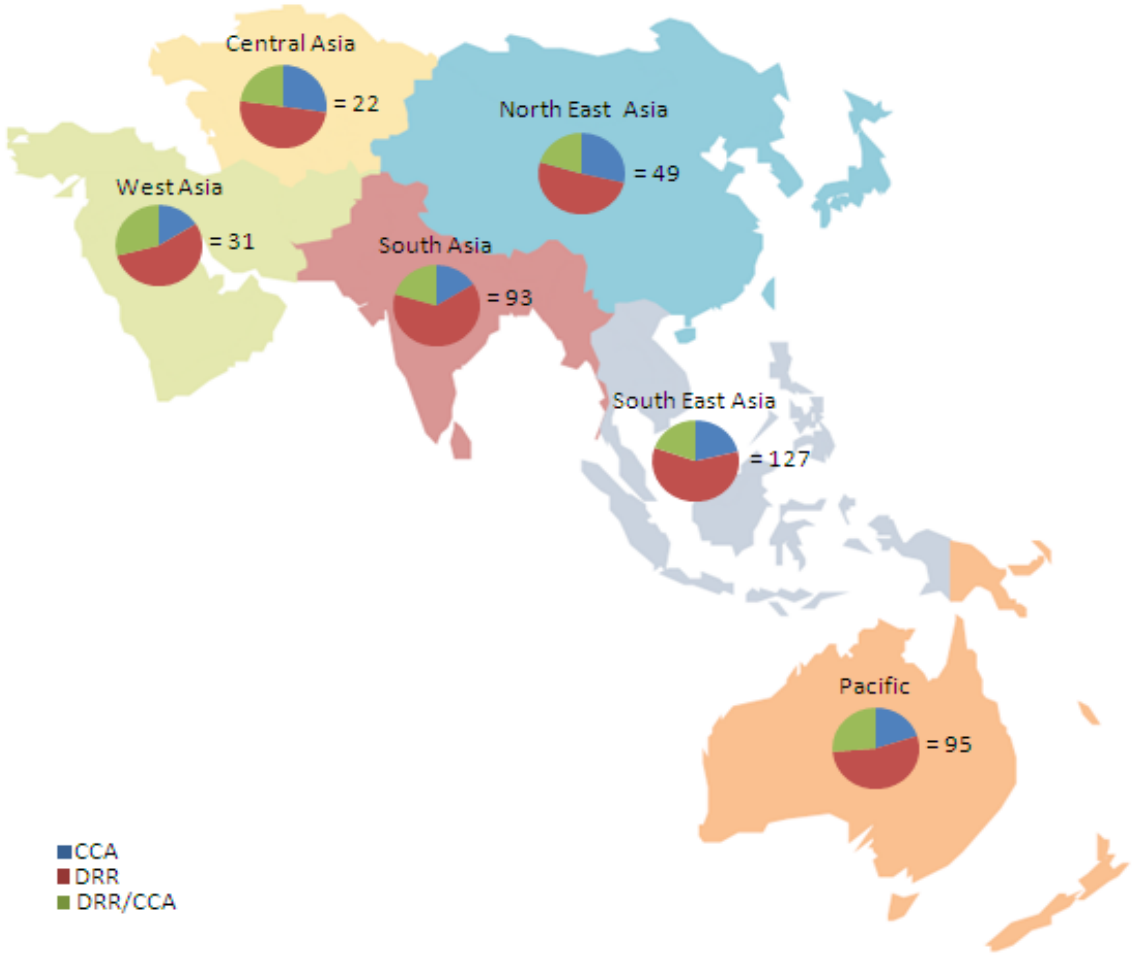

Figure 2: No of regional Initiatives by sub-region

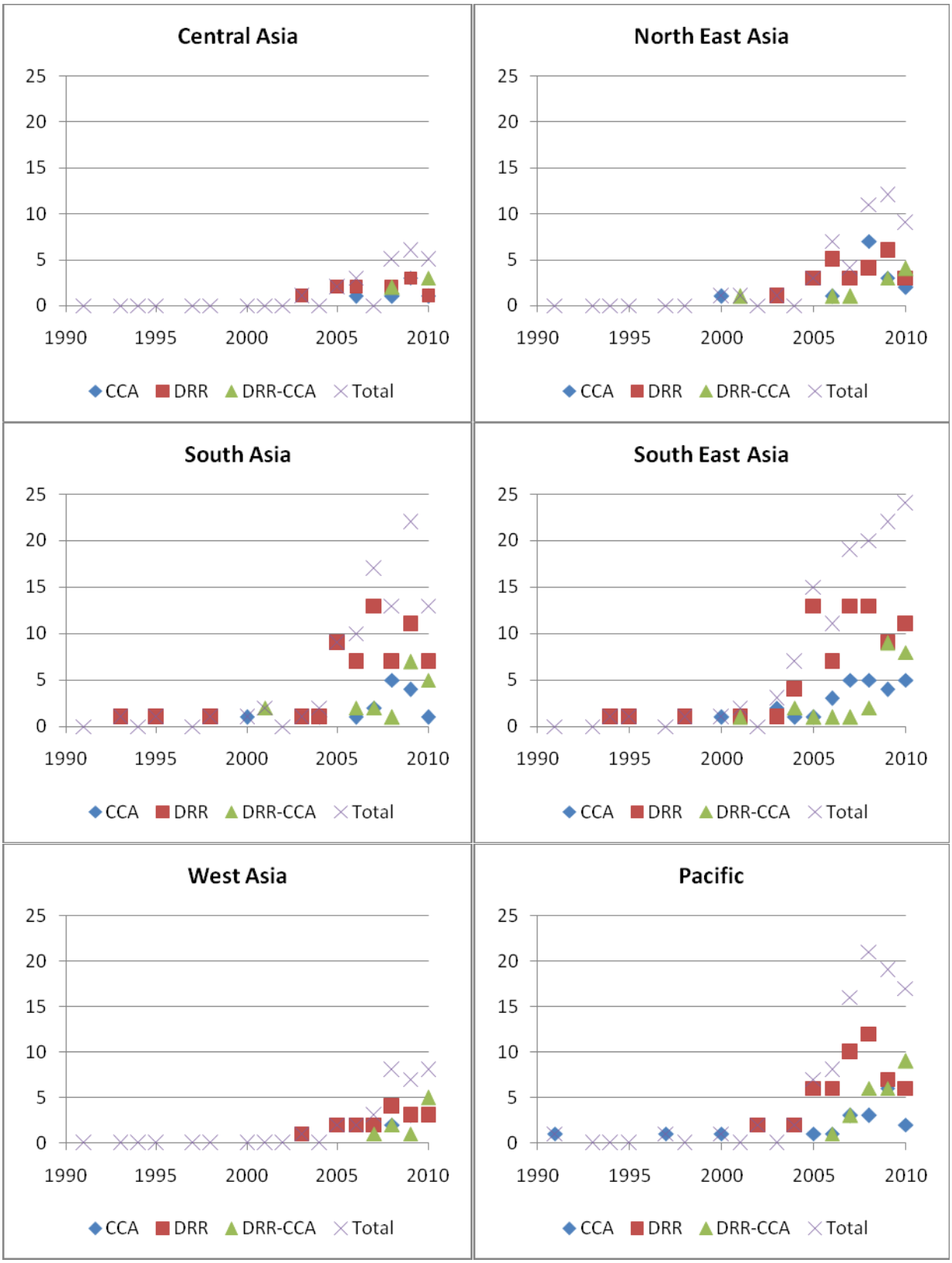

Figure 3: Growth of DRR and CCA initiatives per sub-region, 1990-2010

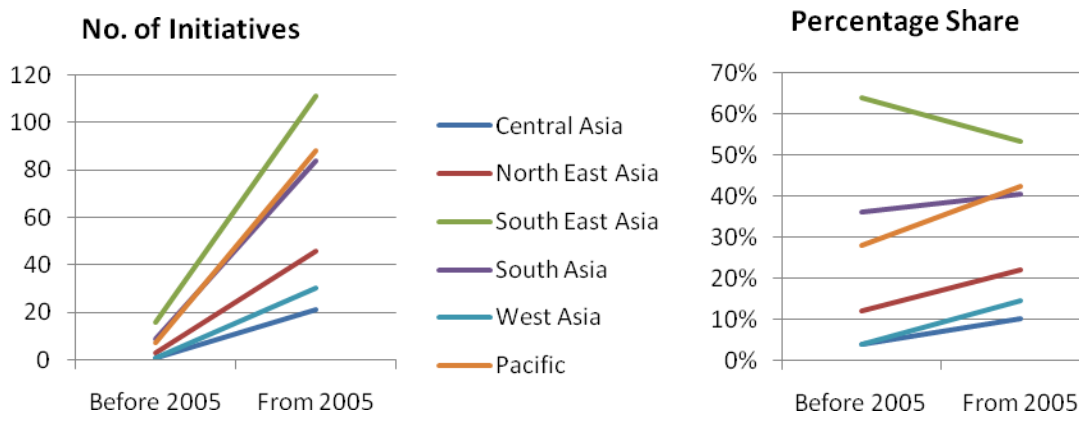

Figure 4: Growth of regional initiatives before and after the adoption of HFA

It is interesting to note that while South East leads the growth of regional projects in absolute terms, it actually lags behind the other sub-regions if viewed from its percentage of the total number of initiatives in the Asia-Pacific. Prior to the adoption of HFA in 2005, it accounted for 64 percent of the total number of DRR and CCA programs in the region; but by 2010, its share dropped to 53 percent indicating a decrease of 11 percentage points (Figure 4). This can be attributed to the relative growth of regional undertakings in other sub-regions, particularly the Pacific, North East Asia and West Asia whose share has increased by at least 10 percentage points. The case of the Pacific is most stark as its percentage share almost doubled from 28 percent before 2005 to 42 percent by 2010. South Asia's share of the total number of projects has increased slightly by 4 percentage points, although it still benefits from two-fifths of the projects in the region.

2.3 Addressing the HFA priorities

Classifying the reported regional initiatives according to their HFA focus is a bit tricky as most of them normally involve activities that cut across the different priority actions of the HFA. For instance, information exchange and management is cited as a relevant component of risk assessment and early warning (HFA 2) as it is to building a culture of safety and resilience (HFA 3) and strengthening disaster preparedness (HFA 5). Capacity building programs also need to be double-checked whether they involve institutional strengthening (HFA 1 and 5), technical and scientific capacity enhancement (HFA 3 and 5), empowerment of specific vulnerable sectors (HFA 3 and 5), human resources development in general (HFA 1 and 5), or simply the preparation of capacity building plans (HFA 1). The classification of CCA undertakings was not as easy especially since many of them were developed outside the context of the HFA. In some cases, the differentiation is not clear-cut. The development of information systems, tools and technologies (HFA 2 and 3) is directly related to information exchange and management (HFA 2, 3 and 5), which in turn facilitates networking and partnerships (HFA 1 and 3), and sharing of experiences, lessons learned, and knowledge (HFA 3 and 4). Table 1

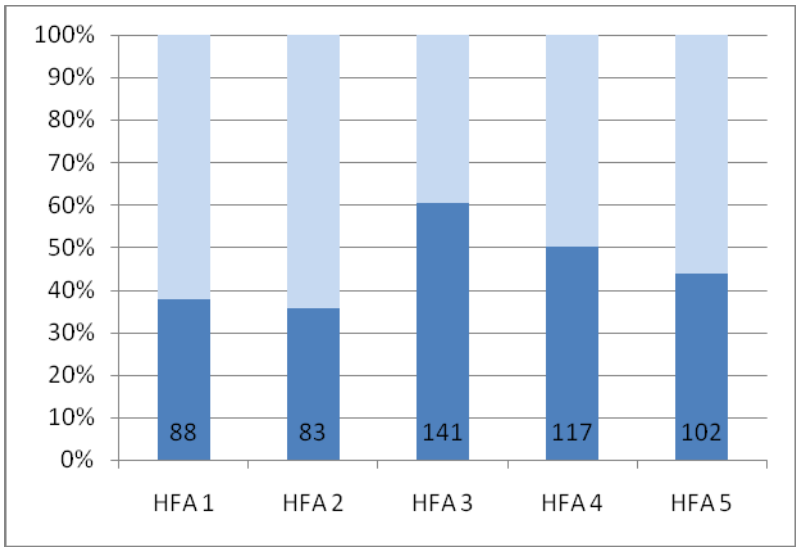

Figure 5: HFA coverage of regional initiatives

summarizes the functional overlap of key activities explicitly identified in the HFA.

A quick tabulation of the regional initiatives revealed that about 60 percent of them (141 out of 233) were aimed at building a culture of safety and resilience through the use of knowledge, innovation and education (HFA 3). Activities under this priority include information management and exchange, education and training, research, and public awareness campaigns. On the other hand, about half of the initiatives (117 out 233) were designed to address the underlying drivers of risk, mainly through mainstreaming of DRR and CCA in the development process. HFA 2 received the least attention with only 83 projects addressing it (36%), followed by HFA 1 with 88 projects (38%), and HFA 5 with 102 projects (44%) (Figure 5).

Within the six sub-regions, the same trend can be observed: majority of the initiatives addressed HFA 3. In South Asia, 71 percent of the programs and projects correspond to HFA 3; in North East Asia, 63 percent; South East Asia, 61 percent; West Asia, 58 percent; Pacific, 58 percent; and Central Asia, 50 percent. HFA 4 was also represented in majority of the initiatives in North East Asia, South Asia, and South East Asia. Interestingly, programs and projects pertaining to disaster preparedness (HFA 5) have the least share in Central Asia, North East Asia, and West Asia, although they ranked third in the other sub-regions (Figure 6).

A cross-sectional view reveals that South East Asia is involved in more than half of all regional initiatives, except those that address HFA 2 where it is only involved in 48 percent of the projects (40 out of 83). It is part of 61 percent of programs that address HFA 4; 57 percent of HFA 5 initiatives; and 55 percent of both HFA 1 and HFA 3 undertakings. South East Asia's predominance stands in stark contrast to Central Asia's small proportion in all areas of the HFA. South Asia and the Pacific have benefited from about the same number of projects related to HFA 1, HFA 2 and HFA 5; but the former exceeds the latter in projects corresponding to HFA 3 and HFA 4. North East Asia is involved in at least 20

Table 1: The overlapping of key activities under the HFA

Key Components	HFA 1	HFA 2	HFA 3	HFA 4	HFA 5
A. Mainstreaming in development					
Mainstreaming through national platforms, plans and policies	✓				
Mainstreaming through laws or legislation	✓				
Mainstreaming in land use planning				✓	
Mainstreaming in public works				✓	
Mainstreaming in rural development planning				✓	
Mainstreaming in health sector				✓	
Mainstreaming in education sector			✓		
Mainstreaming in recovery and rehabilitation				✓	
Integration of DRR and CCA				✓	
Structural and non-structural measures				✓	
Social safety net mechanisms, income options				✓	
Recovery schemes, including psychosocial programs				✓	
Financial risk-sharing, financial instruments				✓	
B. Knowledge management and sharing					
Information systems, tools, and technologies		✓	✓		
Information exchange and management		✓	✓		✓
Sharing of experience, lessons learned, knowledge			✓	✓	
Methods for risk, vulnerability and impact assessments			✓		
Risk mapping, indicators, disaster statistics		✓			
Media and public awareness campaigns			✓		
Early warning systems		✓			
C. Capacity building					
Institutional capacities for early warning, etc.		✓			✓
Human resource capacities	✓				✓
Training for professionals, communities, women, etc.			✓		✓
Technical and scientific capacity for risk assessment			✓		✓
Capacity-building plans	✓				
Allocation of responsibilities and resources	✓				✓
Disaster preparedness and contingency plans and drills					✓
D. Collaboration and cooperation					
Networking and partnerships	✓	✓			
Volunteerism, community participation, civil society	✓				✓
Regional cooperation and approaches	✓	✓			✓
Public-private partnership, private sector involvement				✓	

percent of initiatives that address HFA 2, HFA 3, and HFA 4; while West Asia's largest share is with HFA 1 projects at 17 percent (Figure 7).

When looking at how the regional initiatives match up with the priorities identified in the HFA, it is important to bear in mind that many of the activities actually correspond to more than one goal, whether directly or indirectly. The regional programs included in the review confirmed this reality. Majority of the initiatives (60%) corresponded to either two or three HFA priorities. Twelve

percent reportedly responded to at least four of HFA's goals; while only about 28 percent (65 out of 233) addressed a single goal (Figure 8).

The multiplicity of objectives is a good indication of the comprehensiveness of the programs in relation to meeting the goals of HFA. On average, one regional initiative was aimed at addressing about two of HFA's five priorities, implying the level of efficiency in the utilization of funds to address DRR and CCA at the regional level.

By HFA focus, it appeared that HFA 3 is most prominent among DRR and DRR/CCA initiatives; while HFA 4 has received the most attention among CCA activities. DRR/CCA projects appear to focus next on HFA 4 while for DRR activities, it is HFA 5. The share of projects related to HFA 1 and HFA 2 seemed even among CCA and DRR/CCA projects. Risk assessment and early warning activities (HFA 2) and disaster preparedness (HFA 5) received the least share among DRR and CCA initiatives, respectively (Figure 9).

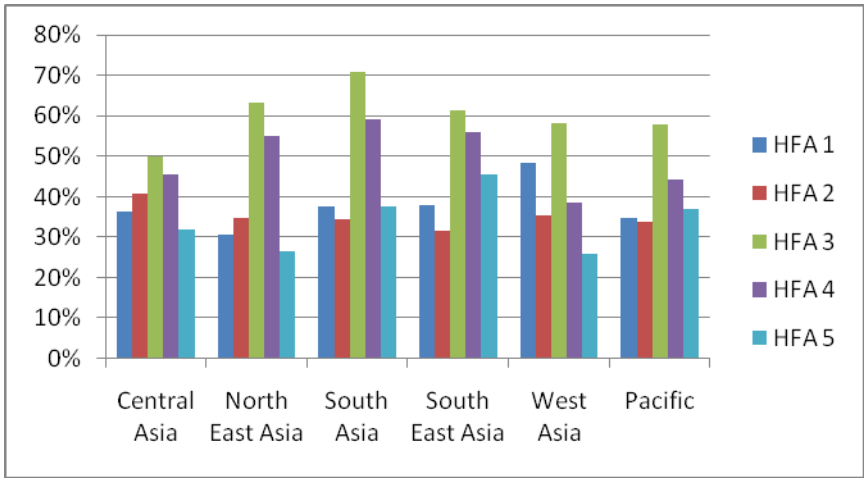

Figure 6: Percentage share of regional initiatives per sub-region, by HFA priority

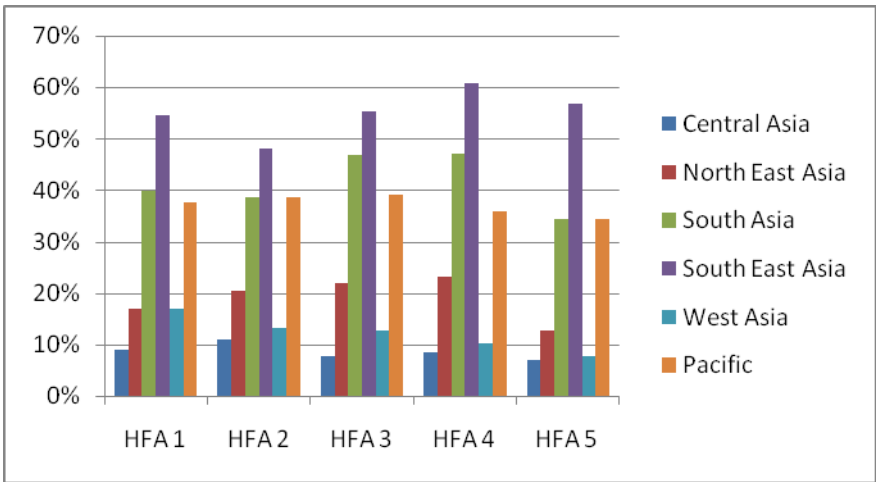

Figure 7: Percentage share of regional initiatives per HFA priority, by sub-region

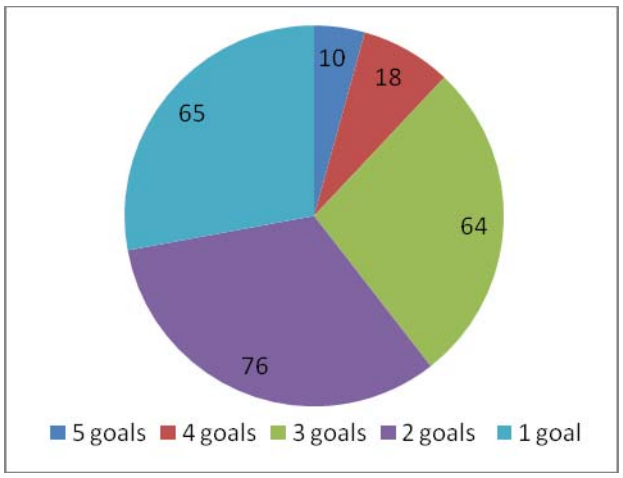

Figure 8: Distribution of regional initiatives, by number of HFA goals addressed

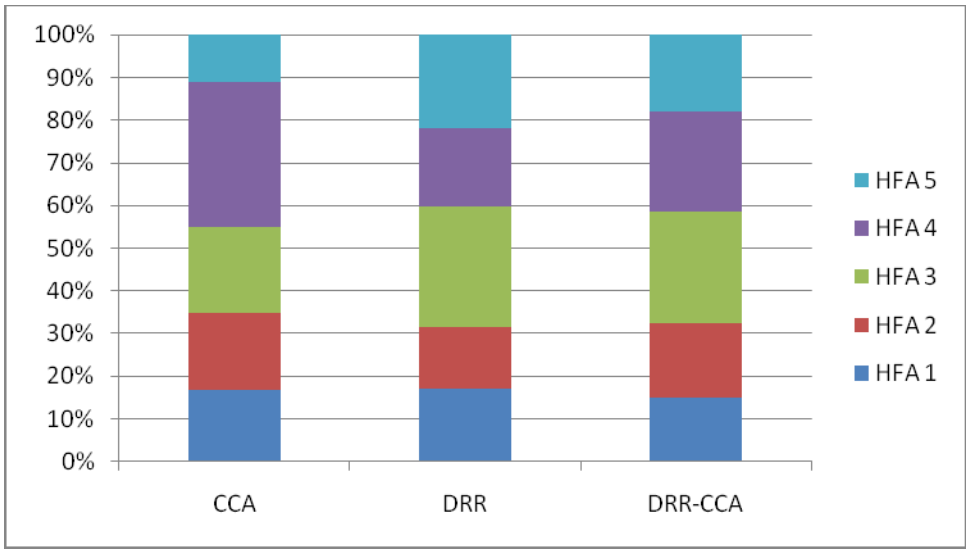

Figure 9: Percentage share of regional initiatives per thematic focus, by HFA priority

2.4 Closing in: vulnerability or impact?

In order to understand the regional landscape for DRR and CCA in Asia and the Pacific, it is not enough to just look into the geographical coverage and HFA focus of the initiatives. It is equally important to identify the fundamental objectives of the programs in order to balance the focus of future programs and projects in a way that will address both DRR and CCA from a more integrated perspective. For this purpose, the adaptation continuum proposed by WRI (2007) was adopted in this report.

In a mapping of adaptation efforts, WRI (2007) noted that there are roughly two perspectives on how adaptation has been approached by different institutions worldwide: one focuses on creating response mechanisms to specific impacts

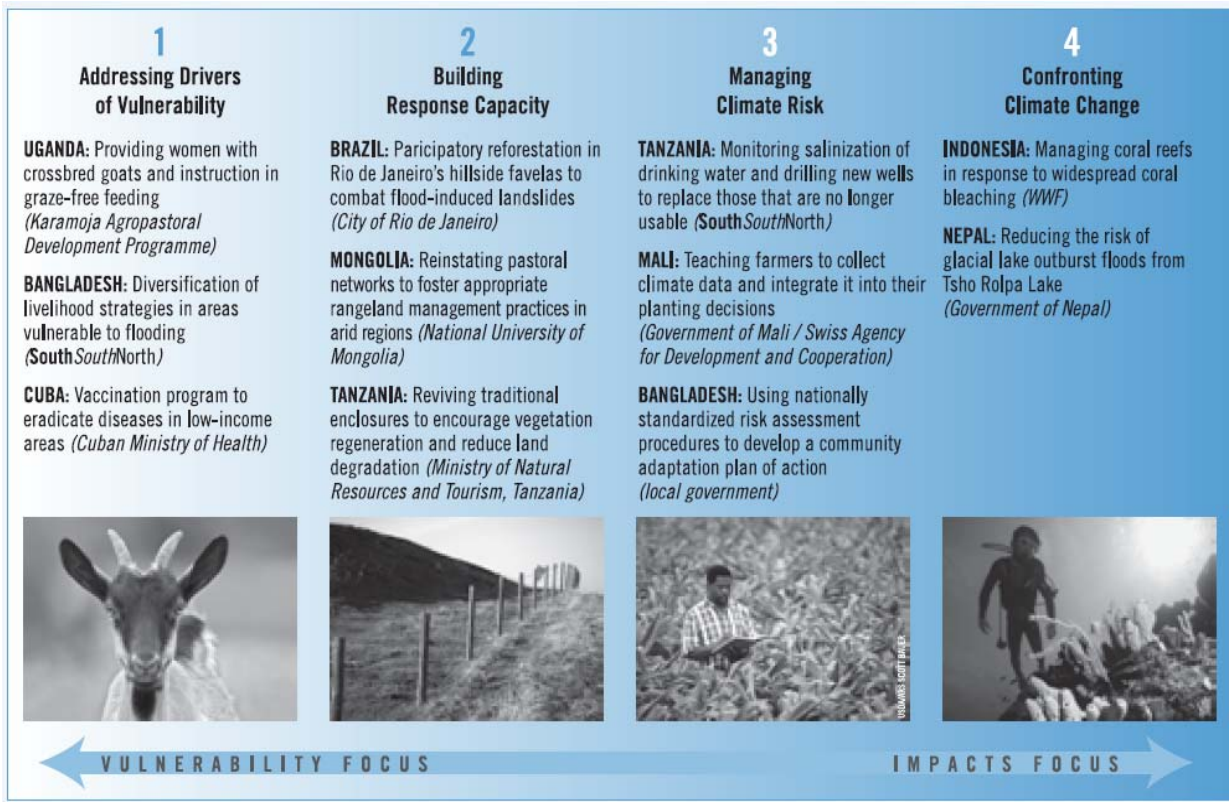

Figure 10: The adaptation continuum – from vulnerability to impacts (Source: Adapted from WRI (2007)

associated with climate change, and the other on reducing vulnerability to climate change through building capacities that can help deal with a range of impacts. As explained by WRI, the first approach uses understood impacts as a starting point for planning and implementation, while the second primarily targets the underlying factors that cause climate change to be harmful.

However, in actual practice the differentiation between these two types of adaptation is not simple and clear-cut, as many instances of adaptation fall between the extremes of vulnerability and impacts foci. Thus, WRI has proposed a continuum of adaptation activities that moves from "pure" development objectives (i.e. vulnerability-oriented) on the left of the spectrum to explicit climate change measures (i.e. impact-focused) on the right. Within this continuum, four major adaptation categories have been identified as shown in Figure 10.

In this report, the WRI typology has been extended to incorporate DRR. Conceptually, the integration is not difficult because reducing disaster risks is actually a form of adaptation. Or conversely, what is referred to as CCA in the climate change community is essentially DRR to disaster risk managers and professionals. Nevertheless, classifying the regional initiatives using the WRI framework remains challenging for many of the DRR programs and projects, as in the case of CCA, overlap between the vulnerability and impact zones. For example, FAO's vulnerability mapping projects were actually intended to alleviate the impact of the changing climate on food security.

Methodologically, CCA and DRR are not situated on opposite ends of the pole. CCA activities have been carried out using strategies that are not totally different from commonly known DRR interventions. Arguably, the only significant difference between DRR and CCA is in how problems are framed and priorities identified, not in how solutions—particularly those related to adaptive capacity and coping measures—are implemented.

Addressing the drivers of vulnerability

As noted by WRI, adaptation activities at the far left end of the spectrum are fundamentally intended to foster human development. Efforts may take little or no account of climate change; the ultimate goal is to protect development by addressing systemic vulnerabilities that compound disaster risks. As such, initiatives under this category tend to be wide and variegated, from poverty reduction programs to awareness-raising campaigns to retrofitting of structures against certain types of hazards. In the context of DRR, many of the mitigation and prevention activities that do not consider climate change fall under this zone. Benefits from these efforts can be felt in the long-run and even in the absence of disasters. With an approach that is typically multi-hazard, this is the realm of the "no-regrets" policy wherein DRR is packaged as more of a development strategy than a disaster management issue. However, in the absence of climate-related considerations, activities under this category may fall into the trap of maladaptation as forewarned by WRI.

Building response capacity

In this category, the focus is on reducing institutional weaknesses that inhibit society's capacity to effectively respond to disaster risks, whether or not the stressors are related to climate change. As pointed out by WRI, the overarching aim is to put into place "robust systems" for dealing with disaster risks. Activities include improvements in communications systems, planning processes, weather monitoring, networking and partnerships, among others. The primary concern is to build the capacity of institutions at various scales in such areas as risk communication, early warning, planning, response, and post-disaster recovery, to name a few. Here, the link between DRR and project objective is explicit and vulnerability-reducing activities are designed in view of anticipated disaster impacts. In this sense, activities tend to be difficult to classify as the focus can easily shift from vulnerability to impacts. WRI observed that the decision to zero in on either vulnerability or impacts is influenced either by the ability to predict expected impacts or by limitations on other capacities needed for highly targeted action. Efforts aimed at enhancing disaster preparedness, especially those that are aimed at institution-building, normally fall under this category.

Managing climate risk

This is where the concept of climate risk management (CRM) takes center stage. CRM refers to the process of incorporating climate information into decisions to reduce negative changes to resources and livelihoods.[9] Activities under this band start to focus more on current climate-related haz-

[9] Hellmuth et al. 2007, as cited in WRI 2007:21.

ards and their impacts. This is also the point where DRR and CCA begin to merge, where climate information becomes a major consideration in risk reduction planning. Initiatives that are aimed at climate-proofing development in general or DRR in particular, most often fall into this category. Examples include technological approaches to make crops resistant to drought and enforcement of structural measures to counter extreme hydro-meteorological events. Risk insurance mechanisms that aim to mitigate the effects of disaster risks, whether or not climate-related, can also be categorized under this zone.

Confronting climate change

This zone involves actions that focus almost exclusively on addressing impacts associated with anthropogenic climate change. As pointed by WRI, activities under this category target climate risks that are clearly outside of historic climate variability. A common example is the relocation of communities in response to sea level rise or glacial melting. This type of response is drastic and costly—both in economic and political terms—often employed as "last-ditch" effort only.

Using the above framework, the stocktaking exercise revealed a strong vulnerability focus in the region. An overwhelming majority of the initiatives (79 percent) were aimed at strengthening the capacities of individuals and institutions to deal with disaster risks, including those that are climate-related. Only 21 percent (49 out of 233 activities) were directed at impacts. Among vulnerability-oriented programs and projects, 91 percent pertain to building capacities for response (167), while among impact-oriented initiatives, 90 percent (44 out of 49) involved some aspects of climate risk management (Figure 11). The concentration of results in the "messy middle" is similar to what WRI has found in its mapping of adaptation efforts.

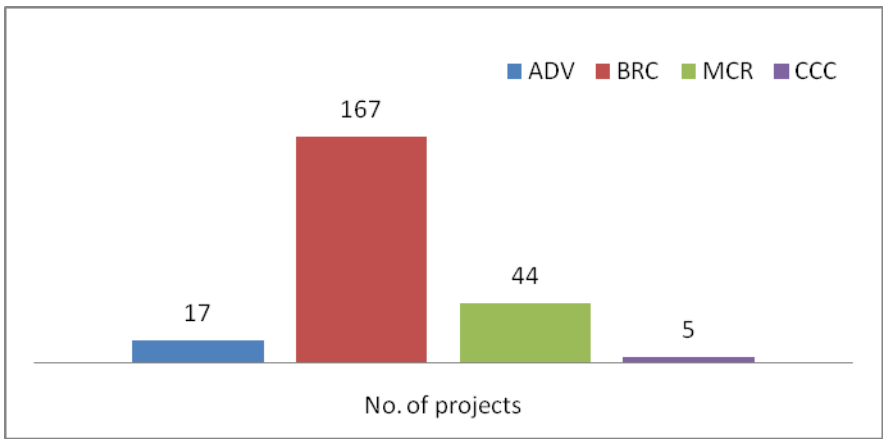

Figure 11: No. of regional initiatives by fundamental objective
(Note: ADV = Addressing drivers of vulnerability, BRC = Building response capacity, MCR = Managing climate risk, CCC = Confronting climate change)

The primacy of initiatives that build response capacity is common across all sub-regions. In absolute terms, it is most prevalent in South East Asia; but in terms of percentage share sub-regionally, it is largest in West Asia comprising 84 percent of all the projects in the sub-region. The Pacific has the most number of projects related to managing climate risk with 20 initiatives; followed by South East Asia, 18; South East Asia, 12; and North East Asia, 7. But of the projects that confront climate change, only one (out of five) included the Pacific; while four covered South East Asia (Table 2).

Most of the purely DRR initiatives (124 out of 130) were oriented towards vulnerability. This is consistent with results presented in the previous section indicating the prevalence of HFA 3 and HFA 4, two of HFA's goals that are closely related to reducing the underlying drivers of risk. This is to be expected as DRR is essentially about addressing disaster risks at its root, that is, the vulnerability of human society (Figure 12).

On the other hand, majority of CCA projects (24 out of 42) involved managing climate risk. Four of the five projects that directly confront the effects of climate change were predominantly CCA initiatives. Taken together, majority of both CCA and DRR/CCA initiatives were concentrated in the middle of the spectrum, indicating convergence of efforts towards a more integrated approach, one that addresses vulnerability but not without consideration of the impacts of disaster risks, especially climate-related risks (Figure 12).

2.5 Summing up

The stocktaking exercise revealed a number of interesting trends that could inform the future direction of regional DRR and CCA initiatives in Asia and the Pacific. First, it confirms the affirmative impact of the HFA in the region. It is clear that since its adoption in 2005, the number of regional initiatives have increased significantly in all six sub-regions. The number of regional CCA activities has also grown substantially in the last five years and there are promising signs of DRR and CCA integration in some sub-regions (e.g. Pacific). There appears to be a growing momentum that concerned organizations in the region must be able to take advantage of in order to pursue DRR and CCA at the regional level.

Second, it is apparent that the growth of DRR and CCA has been more advanced in some areas than in others. In terms of the number of projects carried out, there is a wide gap between the top three sub-regions (i.e. South East Asia, South Asia and Pacific) and the bottom three (i.e.

Table 2: Distribution of regional initiatives by fundamental objective

Fundamental Objective	Central Asia	North East Asia	South Asia	South East Asia	West Asia	Pacific
ADV	1 (5%)	2 (6%)	9 (9%)	14 (10%)	1 (3%)	4 (4%)
BRC	16 (68%)	38 (73%)	76 (77%)	91 (69%)	26 (81%)	70 (71%)
MCR	4 (23%)	7 (16%	12 (11%)	18 (18%)	3 (13%	20 (24%)
CCC	1 (5%)	2 (4%)	3 (3%)	4 (3%)	1 (3%)	1 (1%)
Total	22 (100%)	49 (100%)	93 (100%)	127 (100%)	31 (100%)	95 (100%)

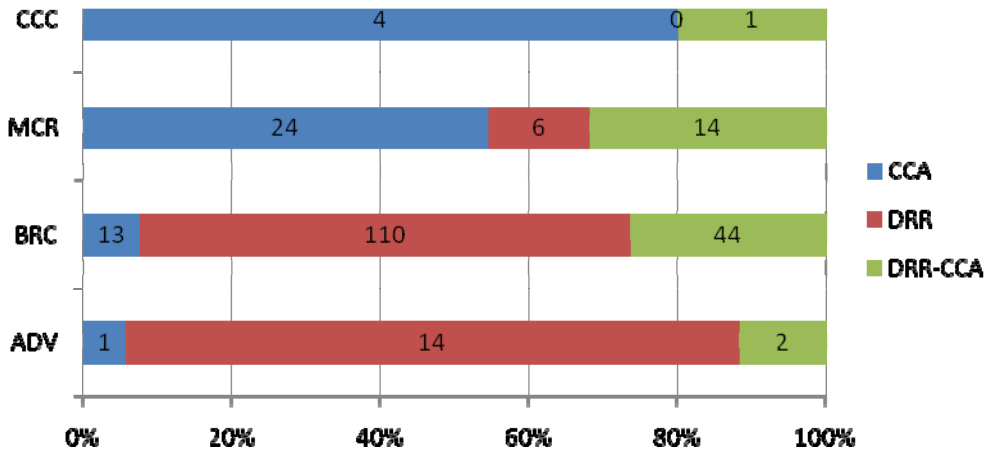

Figure 12: Fundamental objectives of regional initiatives, by project type

North East Asia, West Asia and Central Asia). While there appears to be a strong tie between South East Asia, South Asia, Pacific, and to some extent, North East Asia, many of the initiatives that involved multiple sub-regions excluded West Asia and Central Asia. This can be attributed to the presence and relationship of major regional organizations that cater to two or three sub-regions close to the Pacific. The geographical proximity, as well as the similarity of DRR and CCA contexts, can also explain the natural grouping of some areas and relative isolation of others.

Third, it appears that the pursuit of HFA's priorities in the region has been uneven. Whether taking the region as a whole or viewing it sub-regionally, HFA 3 has received the most attention among the five goals. This is particularly true for projects that either have DRR and CCA components or were purely DRR in nature. This could be related to the fact that most of the activities listed under HFA 3 are cross-cutting. An initiative that primarily aims to address HFA 1 or HFA 2 would almost always involve some elements of information sharing, awareness-raising, training and research—the key activities of HFA 3. HFA 3 is also the least resource-constraining among the goals, politically and otherwise. Pursuing it does not require as much political cost as targeting HFA 1 or as much reliance on technical expertise as HFA 2.

This is not to say that the focus on HFA 3 is not desirable. After all, education and knowledge-building—the core components of HFA 3—serve as the basic foundation for any DRR or CCA strategy. Nevertheless, this information may help organizations re-evaluate and refocus their future direction in meeting the goals of the HFA before its culmination in 2015. Within the Asia-Pacific region, this can inform the strategic allocation of resources—and efforts—among and within institutions dealing with DRR, CCA or both.

The fourth and last point relates to the fundamental objectives of the regional undertakings. Overall, majority of the projects leaned more toward addressing vulnerabil-

ity over impacts; although efforts are substantially larger on building capacity for response than actually targeting the drivers of vulnerability. It was also observed that as expected, most DRR projects focused on vulnerability, while majority of the CCA initiatives tried to deal with the effects climate-related risks. Lastly, it was discovered that most of the initiatives fall within the "messy middle" of WRI's impact-vulnerability continuum, an area where projects DRR and CCA tend to integrate. This is a good indication given that activities at both extremes of the spectrum are susceptible to maladaptation.

3 The Regional Institutional Landscape

3.1 Introduction

In order to understand the institutional landscape for DRR and CCA in the Asia-Pacific, it is important to identify the leading organizations and view the regional initiatives from an institutional perspective. This can help regional stakeholders determine opportunities for enhancing synergistic approaches at the regional scale and at the same time pinpoint gaps that need to be addressed in one way or another.

In this report, regional initiatives were mapped vis-à-vis the lead organizations that implemented them. There is an inherent weakness to this approach as many of the activities actually involve multiple partners of varying degrees of responsibility and accountability. In fact, some organizations may be actively involved in particular regional undertakings but do not necessarily take the driver's seat in the implementation of such initiatives. Hence, their actual contribution to regional DRR and CCA efforts may well be under-represented in this report. This is particularly true for UN organizations like UNISDR and UNESCAP that func-

tion primarily as a facilitating partner in many of the programs.

There is also the case of multilateral and bilateral funding institutions. While some of them take the lead throughout the course of a project, others are contented with just providing financial support from the background. Hence, by virtue of their mandates and nature of operations, the actual contributions of these organizations are certainly much more than can be reflected in a stock-taking exercise that is limited to documenting the role of leading institutions. Due to data limitations, the report also does not take into account the equally important inputs of national and community-based partners in several of the reported projects.

3.2 Typology of regional actors

Like in other regions, regional initiatives on DRR and CCA in the Asia-Pacific have been advanced through different institutions. These organizations differ not only in their fundamental mandates and historical evolution, but also in their level of resources, sphere of influence, scope of authority, and nature of operations. As such, their approach to DRR and CCA

In the Asia-Pacific, Chakrabati (2010) cited four major groupings of institutions involved in DRR and CCA. These are inter-governmental organizations, regional organizations, regional alliances and networks, and UN organizations. In this report, two more types have been identified and added, namely, multilateral and bilateral financing institutions and other regional actors (Figure 13). The succeeding section provides a quick overview of this organizational typology, including a brief profile of the major actors in each group.

3.2.1 Inter-Governmental Organizations

Regional inter-governmental organizations (IGO), such as the ASEAN, SAARC, and SOPAC, are legally established institutions through which sovereign states cooperate. They have been created usually through regional treaties or charters signed by the sovereign states of the region, which define the mission and objectives, the broad areas and functions of cooperation, the institutional mechanisms, the decision making system, funding arrangements etc. The areas of regional cooperation in such a generic arrangement usually cover a wide range of issues such as security, trade, immigration, customs, environment, science and technology and so on. DRR and CCA do not usually find specific mention in regional charters, but it is covered within the broad objectives and missions of 'sustainable development', 'welfare of people' or 'protection of environment'. The growing concerns about the increasing incidence of disasters and the need for enhanced regional cooperation to address to the trans-border issues of such disasters and climate change have encouraged many regions to make special legal and institutional arrangements for strengthening regional cooperation for reducing the risks of disasters and for responding to disasters in a coordinated manner.

Some sub-regions in the Asia-Pacific have made significant progress in regional cooperation on DRR and CCA, while for others the subject is still not a very high priority area for collaboration. The relative

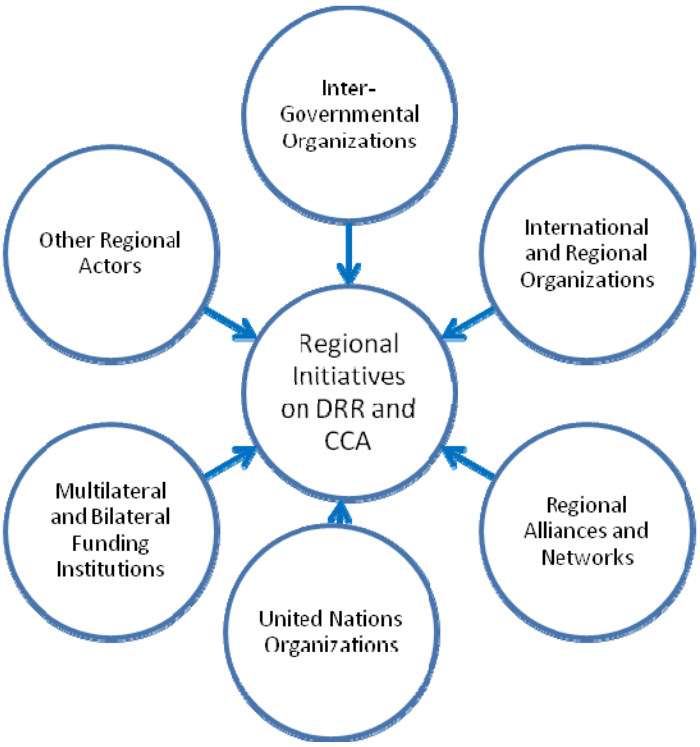

Figure 13: Regional DRR and CCA actors in the Asia- Pacific region

importance given by the regions on the issues of DRR and CCA and the progress achieved have been influenced by a multiplicity of factors such as vulnerability of the region to disasters, recent mega disasters and the general level of cooperation among the countries of the region, which again are conditioned by various strategic economic and political interests of the countries, legacies of past conflicts and differences and the vision of political leadership in the region. Sometimes asymmetrical relationship of countries in the region in terms of area, population, military strength or economic power have created deposits of trusts or mistrust that have either facilitated or hindered the process of regional cooperation. Sometimes the dynamics of intra-regional conflicts and collaborations have pushed bilateral or sub-regional cooperation ahead of regional collaboration. In some cases the specific issues of collaborations remained relevant only for a few countries of the region, thereby encouraging the growth of focused sub-regional collaboration.

The trajectory of regional cooperation among the countries in the region has followed a general pattern. Such cooperation usually begins with a phase of declarations and resolutions followed by the stage of building of systems and institutions, which create the foundation for more concrete collaborations in terms of regional action plans and programs. Some regions of the Asia-Pacific have remained locked in the phase of declarations while a few regions have graduated to the phase of active

Table 3: Inter-government organizations in Asia-Pacific working on DRR and CCA

No.	Name	Coverage	Institutional arrangement for DRR and CCA
1	Association of South East Asian Nations (ASEAN)	South East Asia	Separate people and department dealing with DRR and CCA
2	Asia-Pacific Economic Cooperation (APEC)	North East Asia, South East Asia, Pacific	DRR and CCA are an emerging concern. There is one focal point for DRR and CCA but no specific department dealing with this issue
3	The Mekong River Commission Secretariat (MRC)	South East Asia	Separate people and department dealing with DRR and CCA
4	Southeast Asian Fisheries Development Center (SEAFDEC)	South East Asia	CCA is an emerging concern; DRR is not the main focus of the organization
5	South Asian Association for Regional Cooperation (SAARC)	South Asia	One center focusing on DRR with specific attention to the impacts of climate change. Same focal point for DRR and CCA
6	South Asia Cooperative Environment Program (SACEP)	South Asia	DRR is not included in the work program; CCA is one of three priorities of the organization
7	The Pacific Islands Applied Geoscience Commission (SOPAC)	Pacific	CCA and DRR are well integrated in the institution
8	Secretariat of the Pacific Community (SPC)	Pacific	Only deals with CCA
9	The Pacific Regional Environment Program (SPREP)	Pacific	Only deals with CCA

collaborations with varying degrees of success. The following organizations are the key inter-governmental organizations in Asia-Pacific. Table 3 shows the major IGOs in the region that deal with DRR and CCA at various levels of maturity. It indicates that while some have taken on DRR and CCA regionally, others have yet to make one or the other an institutional priority. It also shows the different levels of integration between DRR and CCA in each of the institution, as well as the absence of IGOs in certain sub-regions, particularly West Asia and Central Asia.

In the stocktaking exercise conducted for this report, only six IGOs have participated either by replying to the IAP survey or directly uploading its activities to the DRR portal. These are APEC, ASEAN, MRC, SAARC, SOPAC and SPREP. Taken together, they are responsible for 54 of the 233 regional DRR and CCA initiatives in the Asia-Pacific.

3.2.2 Regional Organizations

Many of these regional organizations are based in capital cities. Table 4 shows the regional organizations that were covered in this report. Together, these 12 institutions combine for 41 regional initiatives on DRR and CCA. An organizational overview of some of them is presented below.

Table 4: Selected regional organizations in Asia-Pacific by sub-type

I – Nationally-supported regional organizations	II – Regional scientific and technical institutions	III – Regional associations of media, private sector, etc.	IV - Regional humanitarian organizations
• **Asian Disaster Preparedness Centre (ADPC)** • **Asian Disaster Reduction Centre (ADRC)** • **International Centre for Integrated Mountain Development (ICIMOD)**	• Stockholm Environment Institute (SEI) • The World Conservation Union (IUCN) • World Wide Fund for Nature (WWF) • International Water Management Institute (IWMI) • Pacific Disaster Center (PDC) • Practical Action	• Asian Broadcasting Union (ABU)	• CARE International • International Federation of Red Cross and Red Crescent Societies (IFRC) • Oxfam

ADPC was established in 1986 as an outreach activity of the Asian Institute of Technology in Bangkok, with support from the Government of Thailand, on the recommendation of UN Disaster Relief Organization, with the aim of strengthening the national disaster risk management systems in the region. In 1999, ADPC became an independent entity, governed and guided by a Board of Trustees (21 members representing 15 countries) and advised by a Regional Consultative Committee (32 members from 26 countries) and an Advisory Council (55 members from a wide range of agencies). The focus of the ADPC has also shifted from disaster response and preparedness to risk reduction and mitigation.

ADPC envisions the creation of "safer communities and sustainable development through disaster risk reduction."In line with the Hyogo Framework of Action, its mission is to mainstream disaster reduction in development, build and strengthen capacity and facilitate partnerships and exchange of experiences. In accomplishing its mission, ADPC has developed and implemented cross-sectoral programs and projects in different thematic areas disaster risk management, such as (a) Climate Risk Management, (b) Community-Based Disaster Risk Management, (c) Disaster Risk Management Systems, (d) Public Health in Emergencies, (e)Training Resources and (f) Urban Disaster Risk Management. The contributions made by ADPC in development of capacities, systems and processes in different regions of the Asia-Pacific, particularly in South East Asia and South Asia are widely acknowledged.

The mechanism of Regional Consultative Committee that involves high level policy makers of the national governments of 26 countries (10 South East, 8 South, 3 East, 2 each from Central and West Asia and 1 from the Pacific) in annual meetings on specific themes, hosted by the national governments, has played significant role in promoting regional and sub-regional cooperation for disasters risk mitigation and preparedness. Since 2000 eight such meetings

have taken place in the region, each contributing to better understandings of the current and future disaster risk management challenges and issues. The accumulated operational experience and expertise of ADPC has been useful in providing valuable technical support to the national governments and regional organizations towards their efforts for disaster risk management.

The ADRC was set up in 1998 by the Government of Japan with a mission to enhance disaster resilience of the Asian countries and communities and to establish networks among countries through various programs including exchange of personnel working in the field of disaster risk management. So far 28 countries of the Asia-Pacific (9 South East, 6 South, 4 East, 7 Central and 1 each from West Asia and the Pacific) have joined this network.

The most significant contribution made by the ADRC is the Sentinel Asia project, which is an initiative for establishing a disaster management support system for the Asia-Pacific region utilizing the data from earth observation satellites. The project involves 51 organisations including 44 agencies from 18 countries and 7 international organisations for emergency observation of major disasters through remote sensing data received from the satellites, interpretation of the data and their conversion into digital maps easily accessible and understandable to disaster risk managers in the region.

ADRC maintains a repository of data and good practices on disaster management in the Asia-Pacific region, conducts studies for the promotion of disaster reduction, develops education and training materials for dissemination of knowledge and capacity building and organizes various conferences and workshops on various general and specialized themes. The annual Asian Conference on Disaster Reduction convened by the ADRC in January every year, coinciding with the anniversary of Kobe earthquake, is participated by disaster management officials from the member countries and experts from international organizations to promote information sharing, exchange opinions, and enhance partnerships among participating countries and organizations.

ICIMOD is a regional centre of eight member countries– Afghanistan, Bangladesh, Bhutan, China, India, Myanmar, Nepal, and Pakistan – that seeks to study the dynamics of mountain ecosystems and livelihoods in the Hindu Kush-Himalaya region in the contexts of climate change and globalization. Set up in 1983 the Centre has passed through its formative years of documentation and information sharing and implemented Regional Collaborative Program Phase I (1995-98) and Phase II (1998-2002) which significantly enhanced the knowledge and capacity of the mountain people in understanding the changes, adapt to them, and make the most of new opportunities. Three key strategic areas – water, environmental services, and livelihoods – have been identified through intensive consultations with the member countries, which enabled trans-disciplinary problem analysis, design, and implementation, and monitoring of the programs.

The IFRC has a strong presence in the Asia-Pacific region. Most of the countries of the region have National Societies with branches in the provinces and districts. The Asia-Pacific Zonal Office of the Federation based in Kuala Lumpur works with the national societies in issuing flash appeal for

humanitarian assistance and coordinating relief operations following catastrophic disasters. The regional office further provides guidance and technical assistance to the national societies for conducting disaster preparedness programmes, health and care activities, and the promotion of humanitarian values. It has produced excellent knowledge sharing materials highlighting the experiences and the lessons learned. The Asia-Pacific office has forged a partnership with the Asian Development Bank and the Association of South East Asian Nations in carrying out its operations in the region.

The Asia-Pacific region has a large number scientific, technical, academic and professional organizations that have been collaborating with each other through sharing of knowledge, research, fellowship exchange, publications, conferences etc that have significantly contributed to the understanding of the causes and consequences of natural disasters in the regions and the tools and techniques of their remediation. Although much of such collaboration have taken place under government patronage, both the history and range of such collaborations go far beyond the initiatives of national governments and have a momentum and potentiality of its own, which can strengthen the foundation for regional collaboration on DRR and CCA.

The six sub-regions of the Asia-Pacific have seen varying growth of local NGOs and civil society supplementing the efforts of the government and pushing for greater transparency and accountability in government-driven programs and initiatives. The profile and experiences of some of these organizations have gone beyond the countries of their origin and some of them have presence in a number of countries in the region and even beyond the regions. Coalitions and partnerships of such organizations are emerging as significant stakeholders of regional cooperation on DRR and CCA.

3.2.3 Regional alliances and networks

Regional alliances and networks formed by various actors—scientific and technical institutions, the academe, media, corporate sector, humanitarian agencies, international organizations and international financial institutions—who have pooled their resources together to pursue a common DRR and CCA agenda in the region. Examples are Duryog Nivaran and ADRRN, which have long been operating primarily in South East Asia and South Asia. The alliance can also be project-based, such as the Inter-agency Working Group (IWG) formed by several humanitarian organizations to carry out a capacity building project in Bangladesh and Indonesia.

There is a number of existing and emerging regional alliances and networks that offer innovative DRR and CCA solutions with the aim to improve adaptive capacity of developing countries and to reduce the impacts of climate change and climate induced disasters. The Asian Cities Climate Change Resilience Network (ACCCRN) and Regional Climate Change Adaptation Knowledge Platform for Asia are emerging networks that seek to mobilise resources of relevant regional centres and ground networks to enhance key scientific, technical and most importantly institutional capacity for adaptation in a synergic and coherent manner. The Asia Pacific Network for Global Change Research (APN) supports assessment of potential vulnerability of natural and human systems with the view of contributing to the development of policy options for appropri-

ate adaptation responses to global change that will also foster sustainable development. There are also academic-driven network that aims to provide innovative adaptation expertise on climate change adaptation and disaster risk reduction. These networks include, among others, the Asian University Network for Environment and Disaster Management (AUEDM) and University Network for Climate and Ecosystems Change Adaptation (UN-CECAR).

There are several existing coalitions that originated from DRR community in the region. Among those which reported their regional initiatives for this stocktaking were ADRRN and Duryog Nivaran. Together, they account for four of the five projects under this particular institutional grouping. The only other activity under this group was spearheaded by the aforementioned IWG.

The ADRRN is a network of 34 national NGOs from 16 countries across the Asia-Pacific region, with its secretariat is based in Kuala Lumpur, Malaysia. The Mission of ADRRN is to promote coordination and collaboration among NGOs and other stakeholders for effective and efficient disaster reduction and response in the Asia-Pacific region and its objectives are to (a) develop an interactive network of NGOs committed to achieving excellence in the field of disaster reduction and response, (b) raise the relevant concerns of NGOs in the Asia-Pacific region to the larger community of NGOs globally, through various international forums and platforms, (c) promote best practices and standards in disaster reduction and response and (d) provide a mechanism for sharing reliable information and facilitating capacity building among network members and other stakeholders. Towards promotion of these objectives, the ADRRN has been making their presence felt in various regional and global conferences, workshops and platforms on humanitarian response and disaster risk reduction.

Duryog Nivaran, meaning disaster mitigation, was established in 1995 as a network of individuals and organizations from South Asia, who are committed to promoting the 'alternative perspective' on disasters and vulnerability as a basis for disaster mitigation in the region. The network undertook studies and research related to disaster preparedness and mitigation, regional cooperation, gender and risk and livelihoods and organized several policy discussions and debates on institutionalizing and mainstreaming disaster risk reduction in development in South Asia. The most important of these policy forums was the South Asia Policy Dialogue in New Delhi during August 2006, organized in collaboration with the National Institute of Disaster Management India and Practical Action Sri Lanka, which was attended by the policy makers, scientific and technical organizations, media, and civil society organizations from all the countries of South Asia region. The dialogue ended with the adoption of the Delhi Declaration, which provided a vision and a blueprint for disaster management in South Asia region, particularly for the SAARC Disaster Management Centre which was established in New Delhi soon thereafter. Duryog Nivaran took another pioneering initiative of bringing South Asia Disaster Report. The two editions of this report released in 2006 and 2009 added lot of value to the current understandings of disaster risk and vulnerabilities in South Asia region.

3.2.4 United Nations Organizations

Another group of actors in the Asia-Pacific region consists of United Nations organizations. Many of the DRR and CCA activities carried in this group were coursed through the coordinated efforts of UNESCAP, UNEP, and UNISDR.

In this stocktaking exercise, thirteen UN organizations reported their regional DRR and CCA efforts. These are as follows:

1. Food and Agriculture Organization (FAO)
2. International Labor Organization Regional Office for Asia and the Pacific (ILO)
3. United Nations Center for Regional Development (UNCRD)
4. United Nations Development Program (UNDP)
5. United Nations Environment Program (UNEP)
6. United Nations Economic and Social Commission for Asia and the Pacific (UNESCAP)
7. United Nations Educational, Scientific and Cultural Organization (UNESCO)
8. United Nations Human Settlements Programme (UNHABITAT)
9. United Nations Children's Fund (UNICEF)
10. United Nations International Strategy for Disaster Reduction (UNISDR)
11. United Nations Office for the Coordination of Humanitarian Affairs Regional Office for Asia and the Pacific (UNOCHA)
12. World Health Organization (WHO)
13. World Meteorological Organization (WMO)

All in all, they combine for 40 of the 233 (17%) regional initiatives in the Asia-Pacific. There are other important UN actors in the region whose activities were not reflected in the inventory. This includes the International Recovery Platform based in Kobe, Japan, among others.

3.2.5 Multilateral and bilateral financial institutions

The fifth circle consists of multi-lateral and bilateral financing institutions (MBFI) like the Global Environment Facility, the European Commission Development and Cooperation – EuropeAid, the World Bank and its financing arm—the Global Facility for Disaster Recovery and Reduction (GFDRR)—and the Asian Development Bank (ADB) which also supports national and regional initiatives for DRR and CCA in the region. This group also includes bilateral aid agencies such as the Danish International Development Agency (DANIDA), Australian Agency for International Development (AusAID), Japan International Cooperation Agency (JICA), and US Agency for International Aid (USAID).

The participation of MBFIs in DRR and CCA indicates the increasing recognition among multilateral and bilateral institutions that DRR and CCA will affect the ability of developing countries in the Asia Pacific to sustain economic growth. Financial and technical assistance have been provided to the countries in order to build capacity to assess their vulnerability to climate change and examine the climatic hazards and adaptations.

In this report, seven organizations were included, accounting for 72 regional projects (31%), the largest among organizational types. These were ADB, AusAID , Europe-Aid, GEF, GFDRR, JICA, and USAID.

3.2.6 Other regional actors

Other regional actors are made up of organizations that do not fit in any of the previously discussed groupings. This group consists mainly of scientific, technical, academic, professional and humanitarian organizations whose main mandate is at the national level but their activities have nonetheless included DRR and CCA at the regional level.

Many universities in the Asia-Pacific have set up centers on regional studies, which conduct research on a range of issues of regional cooperation and often advise the national and regional organizations on various issues or regional cooperation. In this context a special mention needs to be made of the Graduate School of Global Environment Studies of the Kyoto University Japan which has involved itself proactively with various initiatives on regional cooperation on DRR and CCA in the Asia-Pacific region.

Aside from Kyoto University, there were other scientific and technical institutions that have been active in the region such Australia's Bureau of Meteorology and Department of Foreign Affairs and Trade. In the inventory, a total of 17 organizations were categorized under this group, the largest among the organizational types. All together, they were responsible for 21 regional initiatives or about 9 percent of the region's total.

3.3 Who is doing what and where

Institutions play an important role in the implementation of DRR and CCA initiatives at the regional scale. In the Asia-Pacific region, the stocktaking exercise revealed that an overwhelming majority of the regional programs (83%) was actually carried out upon the initiative of organizations. Only about two percent were undertaken as a result of national government actions (Figure 14).

The inventory recorded a total of 233 regional initiatives from 58 lead organizations. As previously mentioned, 17 of these institutions were categorized as other regional actors, comprising 29 percent of the total. The second largest group is UN organizations with 13 agencies (22%), followed by regional organizations with 12 (21%); MBFIs, 7 (12%); IGOs, 6 (10%); and regional networks, 3 (5%) (Table 5).

However, while other regional actors have the most number of institutions involved, they have not been the most dominant in terms of number of regional projects carried out. Between 1991 and 2010, they have been responsible only for 21 (9%) of the 233 reported regional programs in the Asia-Pacific. This is because majority of the organizations under this group have

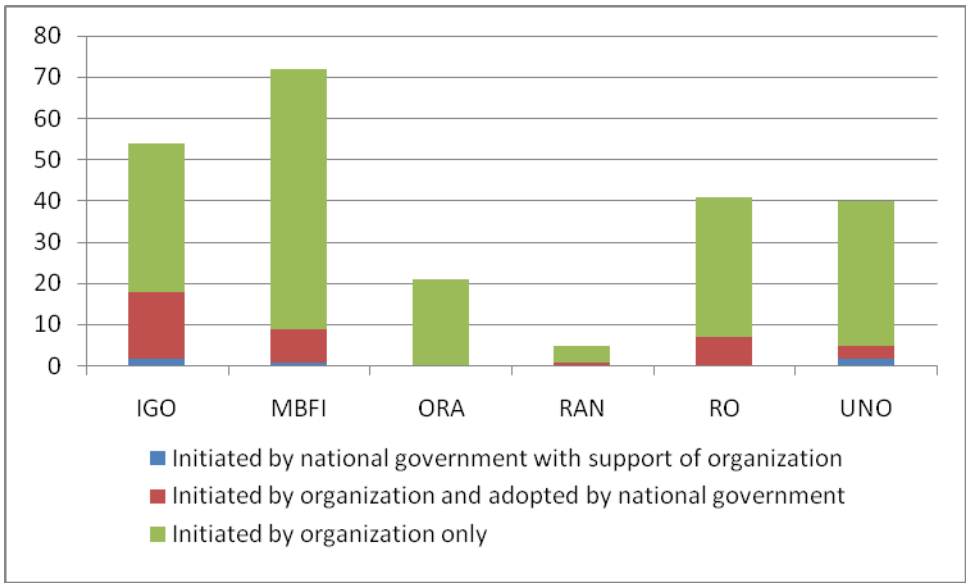

Figure 14: Regional DRR and CCA actors in the Asia-Pacific region

undertaken not more than one DRR or CCA initiative. On the other hand, seven multilateral and bilateral financing institutions in the region have combined for 72 of the total regional initiatives (31%), the most among organizational groupings. The ADB and GFDRR alone, the two most active organizations under this group, were responsible for 62 of the activities. Within GFDRR, 22 were carried out by GFDRR-East Asia and Pacific covering East Asia, South East Asia and Pacific; 12 by GFDRR-Middle East and North Africa covering West Asia; 9 by GFDRR-South Asia; and 2 by GFDRR-Europe and Central Asia.

Next to multilateral and bilateral financing institutions, inter-governmental organizations took the lead in 54 (23%) of the total regional initiatives, followed by regional organizations with 41 (18%). UN agencies took charge in 40 (17%) of the 233 regional undertakings. Of the projects undertaken by IGOs, ASEAN and SOPAC were responsible in 78 percent (42) of them. Meanwhile, regional alliance and networks not only had the least number of organizations involved, but also reported the least number of projects. This probably implies their focus on country level and community-based activities.

By type of initiative, all organizational types have concentrated primarily on DRR activities, save for multilateral and bilateral financial institutions. Inter-governmental organizations had the most number of regional DRR programs with 32 (25%); followed by regional organizations with 28 (22%); MBFIs, 27 (21%); and UN organizations, 25 (19%). Regional alliances and other regional actors combine for 18 regional DRR activities (14%). Across all organizational types, DRR was covered in at least 60 percent of all projects, except in the case of MBFIs where there are more DRR/CCA projects than DRR. The same group also registered the highest number of CCA undertakings (13), in stark contrast to regional alliance and networks which had none.

Table 5: Involvement of regional actors in Asia and the Pacific

Type of Organization	No. of organizations	No. of initiatives			
		CCA	DRR	DRR/CCA	Total
Inter-governmental organization	6	12	32	10	54
Regional organization	12	7	28	6	42
Regional alliance and network	3	0	4	1	5
United Nations organization	13	8	25	7	39
Multilateral and bilateral financing institution	7	13	27	32	72
Other regional actors	17	2	14	5	21
Total	58	42	130	61	233

For all organizational types, involvement in regional DRR or CCA intensified only starting in 2005, the year when HFA was adopted by sovereign states in the region. Prior to that, regional programs were sporadic and few, with regional organizations and IGOs being the more prominent actors with eight projects each. The growth is biggest for multilateral and bilateral funding institutions, which jumped from having 2 projects over a period of 16 years (1991-2004) to 70 regional initiatives within a span of six years (2005-2010). This was largely due to the establishment of GFDRR through World Bank and the growing interest of regional financial institutions, such as ADB, in DRR and CCA.

IGOs, UN organizations, and regional organizations also registered significant increases; while the growth among regional alliances and networks and other regional actors have been relatively moderate (Figure 15). Among UN agencies, only two regional initiatives have been reported prior to 2005, namely, FAO's Food Insecurity and Vulnerability Information and Mapping for Asia which started in 2000 and UNDP's Desinventar initiated in 1993. Between 2005 and 2010, UN agencies have taken the lead in 38 regional programs covering the Asia-Pacific, 24 of which were purely DRR in nature and 13 had elements of CCA. UNISDR was the prime mover in this resurgence, responsible for 8 regional activities, followed by UNDP with 7, and UNCRD, 5.

At the sub-regional level, the three most active sub-regions, namely, South East Asia, South Asia and Pacific, have benefited from the participation of all six institutional types. There are, however, some differences as to the composition of actors in each sub-region. In the Pacific, multilateral and bilateral funding institutions were the top performers, leading in 34 percent of the projects (32 out of 95); followed by inter-governmental organizations covering 27 percent of the projects (26) (Figure 16). Other regional actors were also found to be most active in the Pacific compared to the other sub-regions, owing to the direct involvement of certain scientific, technical and governmental organizations from Australia and New Zealand.

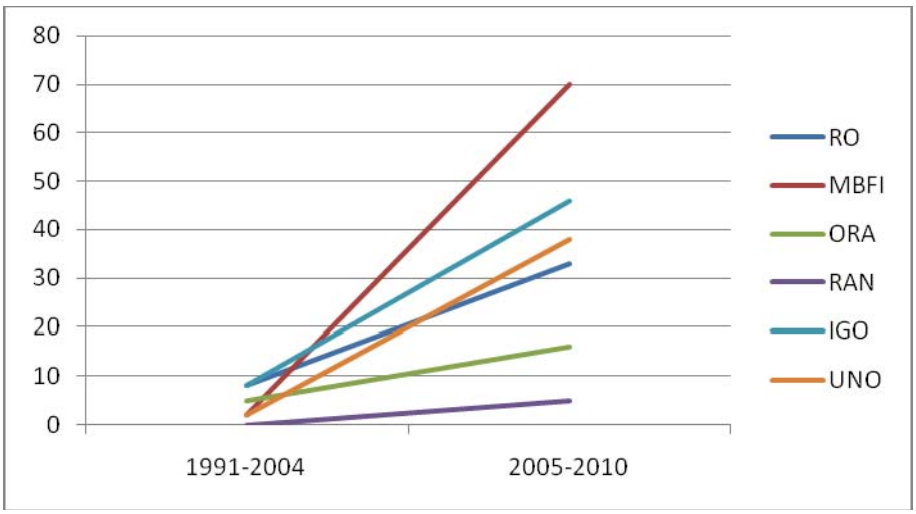

Figure 15: Growth of regional initiatives by organizational type, before and after the HFA

In South Asia, regional organizations were most dominant, taking the lead in 29 of the sub-region's 93 initiatives (31%), followed by UN organizations with 27 projects (29%). South Asia was also the only sub-region included in all five projects initiated by regional alliances and networks. In South East Asia, MBFIs accounted for the most number of initiatives. UN organizations also contributed as lead agency in 20 percent of the projects in the said sub-region (20 initiatives) (Figure 16).

On the other hand, IGOs and regional alliances and networks are noticeably missing in Central Asia and West Asia. In Central Asia, UN organizations and MBFIs took the lead in almost the same number of projects; while in Central Asia, the number of undertakings by MBFIs is almost twice than that of UN organizations. In North East Asia, where all organizational types have made their present felt except regional alliance and networks, the biggest contributors are MBFIs (17 projects), UN organizations (15 projects), and regional organizations (12 projects).

Among HFA priorities, HFA 3 received the most attention in the projects initiated by all organizational types, except other regional actors whose focus seem to be more on HFA 5, with 76 percent (16 of 31) of their projects related to improving disaster preparedness at various scales. MBFIs and UN organizations have impacted the HFA in almost the same way, with HFA 3 being the focus of 60 percent of their respective projects, followed by HFA 4, then HFA 1. They differ only in the sense that HFA 5 received the least attention among MBFIs, while it is HFA 2 in the case of UN agencies (Figure 17).

It can also be observed that HFA 5 was addressed in about the same number of projects (24-25) among MBFIs and IGOs, which have undertaken 25 and 24 initiatives, respectively. Among regional organizations, it accounts for 48 percent the initiatives, and 41 percent in the case of UN agencies. Compared to the other HFA priorities, it figured the most among other regional actors and least among MBFIs and regional alliances and networks.

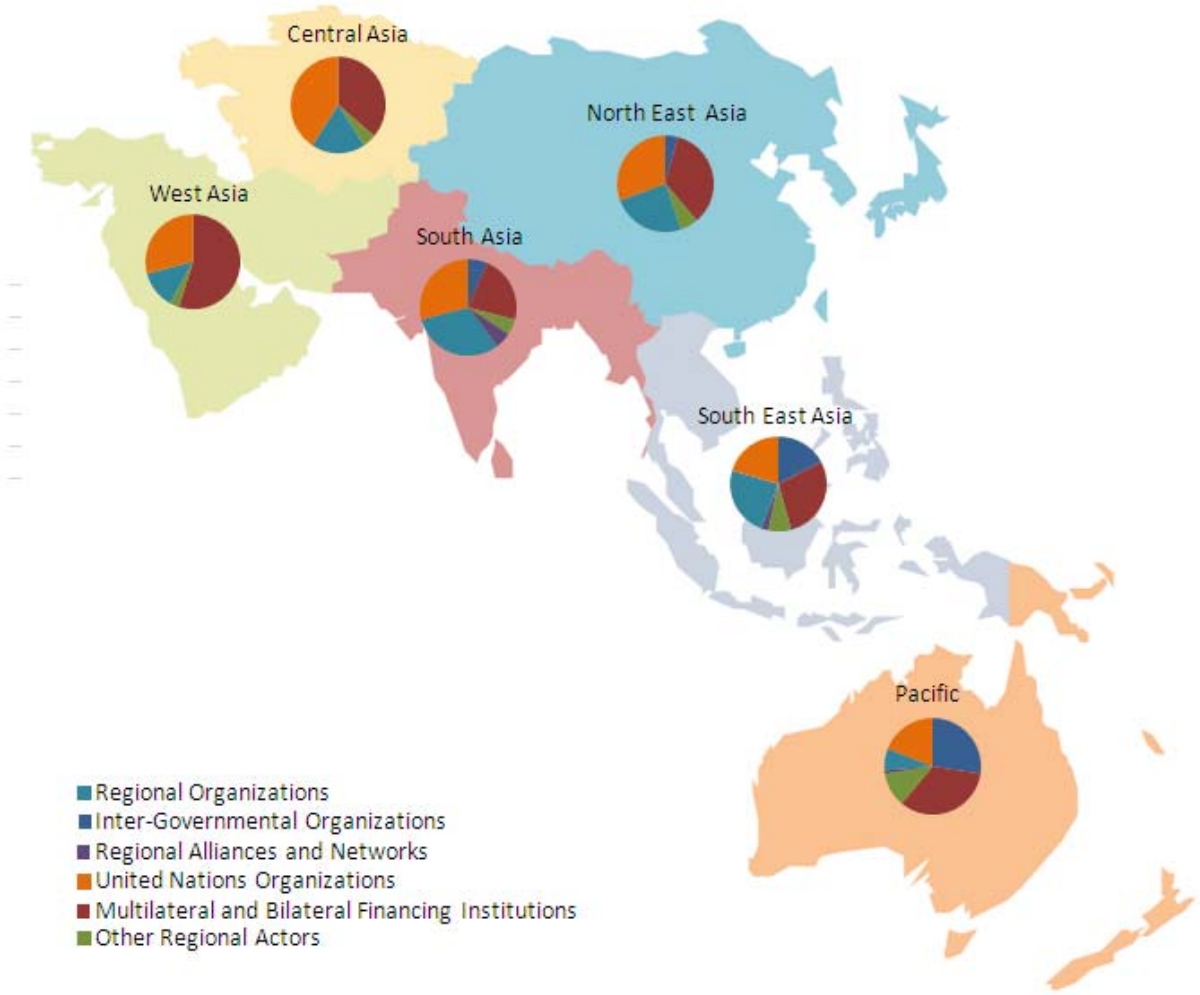

Figure 16: Regional actors in each sub-region

Noticeably, the underlying drivers of risk (HFA 4) were not explicitly or directly addressed in the five reported initiatives led by regional alliances and networks. HFA 4 also received lesser attention than HFA 2, HFA 3 and HFA 5 among other regional actors. In the four other organizational groups, HFA 4 came either second or third. It is highest among MBFIs with 40 related projects, followed by UN agencies with 24; and IGOs and regional organizations with 22 each. Proportionally, it shares the second biggest chunk of projects handled by UN organizations (62%), MBFIs (56%), and regional organizations (52%).

HFA 1 received the most number of projects from MBFIs (29) although it only ranked third in that particular group. It was addressed in the same number of projects (18 each) initiated by IGOs and UN agencies. Relative to the number of projects in each group, its percentage share was higher among UN organizations at 46 percent compared to IGOs at 33 percent. Among HFA priorities, it received the least proportion in the case of regional

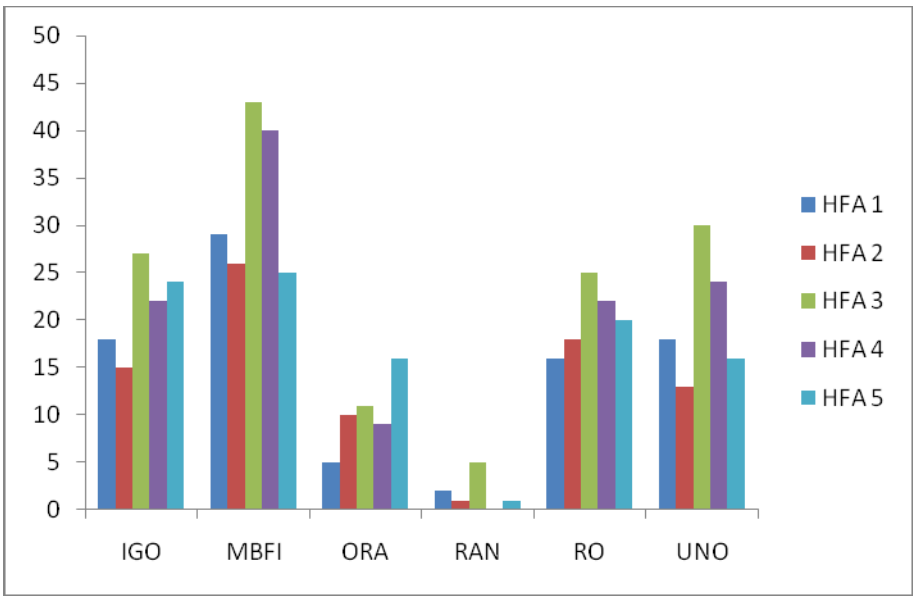

Figure 17: HFA focus of regional actors

organizations and other regional actors at 38 percent and 24 percent, respectively. It must be noted though that other regional actors and regional alliances and networks combine only for a measly eight percent of the initiatives (7 of 88) that addressed HFA 1.

Viewed from the lens of WRI's vulnerability-impact continuum, it appears that vulnerability reduction is the dominant orientation of all organizational types. An overwhelming majority of the initiatives by organizational group were concentrated in the middle of the spectrum, characterized by projects that either aimed to build capacity for response or manage climate risk. This is not surprising, given the findings from the previous section.

Interest in vulnerability-oriented projects is most evident among regional alliances and networks where all five projects aimed at building the response capacity of institutions at the regional level. The dominance of vulnerability-focused initiatives is also very evident among UN organizations, where only four out of 39 projects were directed at directly dealing with the impacts of climate-related risks regionally (Figure 18).

By zone, initiatives related to building capacity for response have the biggest share across all organizational types. Interestingly, all groups, except UN agencies and other regional actors, have carried out more activities that aimed to manage climate risk than address underlying drivers of vulnerability. Impact-focused programs in the region, especially climate risk management, appear to have been driven strongly by MBFIs and IGOs, and to some extent, regional organizations. Taken together, they account for 44 of 49 (86%) such activities in the region.

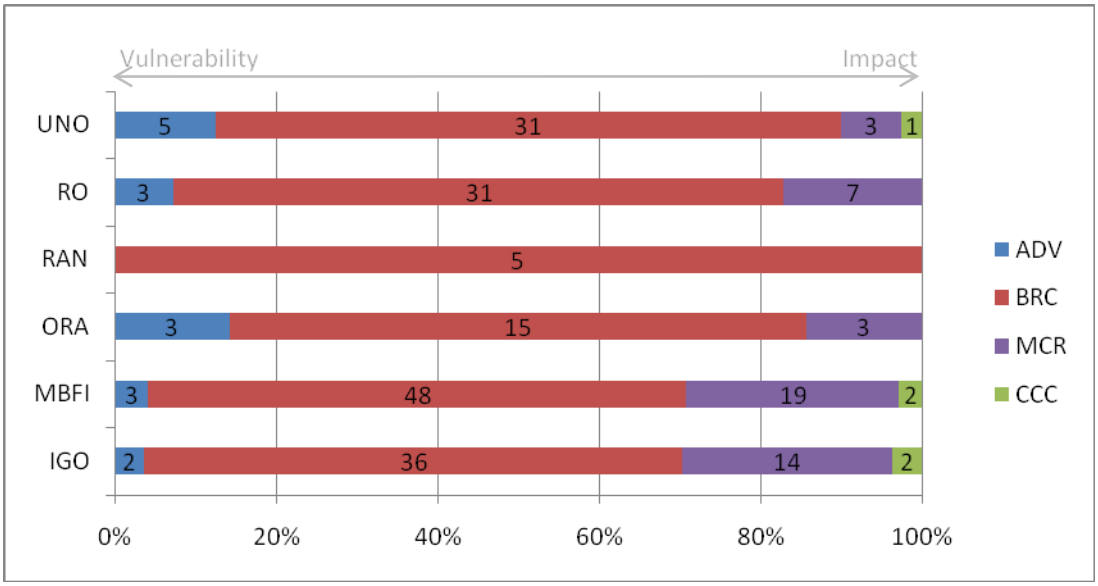

Figure 18: Fundamental objectives addressed by regional actors

It can also be seen that regional initiatives directly confronting climate change were very few. Only five were classified as such, roughly 2 percent of the regional total of 233. Two of these were spearheaded by the European Commission-EDC through its FLEGT-Asia and SWITCH-Asia programs. FAO, ASEAN and SAARC had one CCA initiative each. FAO's work focused, in particular, on the restructuring of livestock farming to mitigate the effects of climate change; while ASEAN and SAARC dealt with peatland forests and glacial lake outburst floods, respectively.

3.4 Summing up

The review showed the importance of institutions in advancing DRR and CCA at the regional level. Majority of the activities in the Asia-Pacific, whether focusing on DRR, CCA or both, were initiated by organizations themselves. At the very least, this suggests the proactive approach that many of these organizations have adopted in dealing with DRR and CCA.

However, the contributions of various institutions to the advancement of DRR and CCA have not been the same throughout the region, as can be expected. Some sub-regions, particularly South East Asia, South Asia and Pacific, have benefited from the participation of all actors in the region, while it has been limited in other areas.

Among the organizations, MBFIs reported the most number of projects led, followed by IGOs and regional organizations. In sub-regions where the presence of IGOs and regional alliances and networks that work on DRR and CCA has been limited, if not non-existent, MBFIs and UN organizations have taken up most of the slack. This is particularly true in the case of Central Asia, West Asia and North East Asia.

Among HFA priorities, HFA 3 has received the most attention from all institutions, except that fall under the "other regional actors" category whose seemed to focus more on HFA 5. MBFIs and UN organizations have impacted the HFA in almost the same way, with HFA 3 being the focus of more than

half of their respective projects, followed by HFA 4, then HFA 1. They differ only in the sense that HFA 5 received the least attention among MBFIs, while it is HFA 2 in the case of UN agencies.

It was further observed that UN organizations lean towards vulnerability-oriented projects. On the other hand, impact-focused programs in the region, especially climate risk management, appear to have been driven strongly by MBFIs and IGOs, and to some extent, regional organizations.

By and large, the strong presence of MBFIs, UN organizations, regional organizations and IGOs is a sign of good things to come, in as far as integrating DRR and CCA in the region is concerned. There appears to be a momentum, especially among MBFIs, that the other institutions must be able to tap and take advantage of.

4 Towards an Enabling Environment

4.1 Introduction

An enabling environment plays a critical role in the advancement of DRR and CCA in the Asia-Pacific region. Its importance in achieving a more integrated implementation of CCA and DDR is illustrated in Figure 19, which adopts a risk-based approach to adaptation in order to harmonize DRR and CCA as much as is practicable and desirable. This is regardless of whether the initiatives are at community of national level. But at national level, governments in particular have the important responsibility of ensuring a strong enabling environment, as well as benefiting from that enabling environment when undertaking CCA and DDR measures themselves.

As indicated below, a critical aspect of the enabling environment and a foundation for knowledgeable decision making is to have access to relevant hazard information. Thus national meteorological and hydrological services have an important role to play ensuring access to reliable and long-term natural resource data.

Figure 19. Policy framework for CCA and DRR, made possible though a risk-based approach to adaptation. (Source: Adapted from Hay 2010)

The responsibility of government to ensure a strong enabling environment is of critical importance to communities since this is where most CCA and DRR activities are focused. Communities will see more value in pursuing an integrated approach if it is already reflected in national and sectoral development policies and plans. Communities will benefit from a more coordinated and harmonized approach that is consistent across all government agencies. Governments can help ensure that communities are equipped with the requisite knowledge and skills required to support decision making and implementation, and have access to proven technologies which are consistent with their needs and values.

Few et al. (2006) have used examples from Mexico, Kenya and Vietnam to provide insights into how a more integrated approach to DRM and CCA can contribute to sustainable poverty reduction and other development outcomes. The main emphasis in the analysis was placed on institutional capacity as well as on constraints and opportunities within the policy process.

Figure 20 summarizes their findings in terms of commonalities in enabling factors in the implementation of integrated DRM, CCA and poverty reduction. The findings highlight the importance of incorporating livelihood resilience, information packaging, communication, coordination, financing and supporting an enabling environment.

Few et al. (2006) also show that a key step in demonstrating through operational work that DRR addressing climate change is possible and beneficial is to find relevant entry points that can showcase how action is feasible and worthwhile, building on current capacity (Figure 9). These entry points can also be used to show how benefits can be linked to current vulnerabilities and to high-level policy goals such as poverty reduction strategy targets and the MDGs.

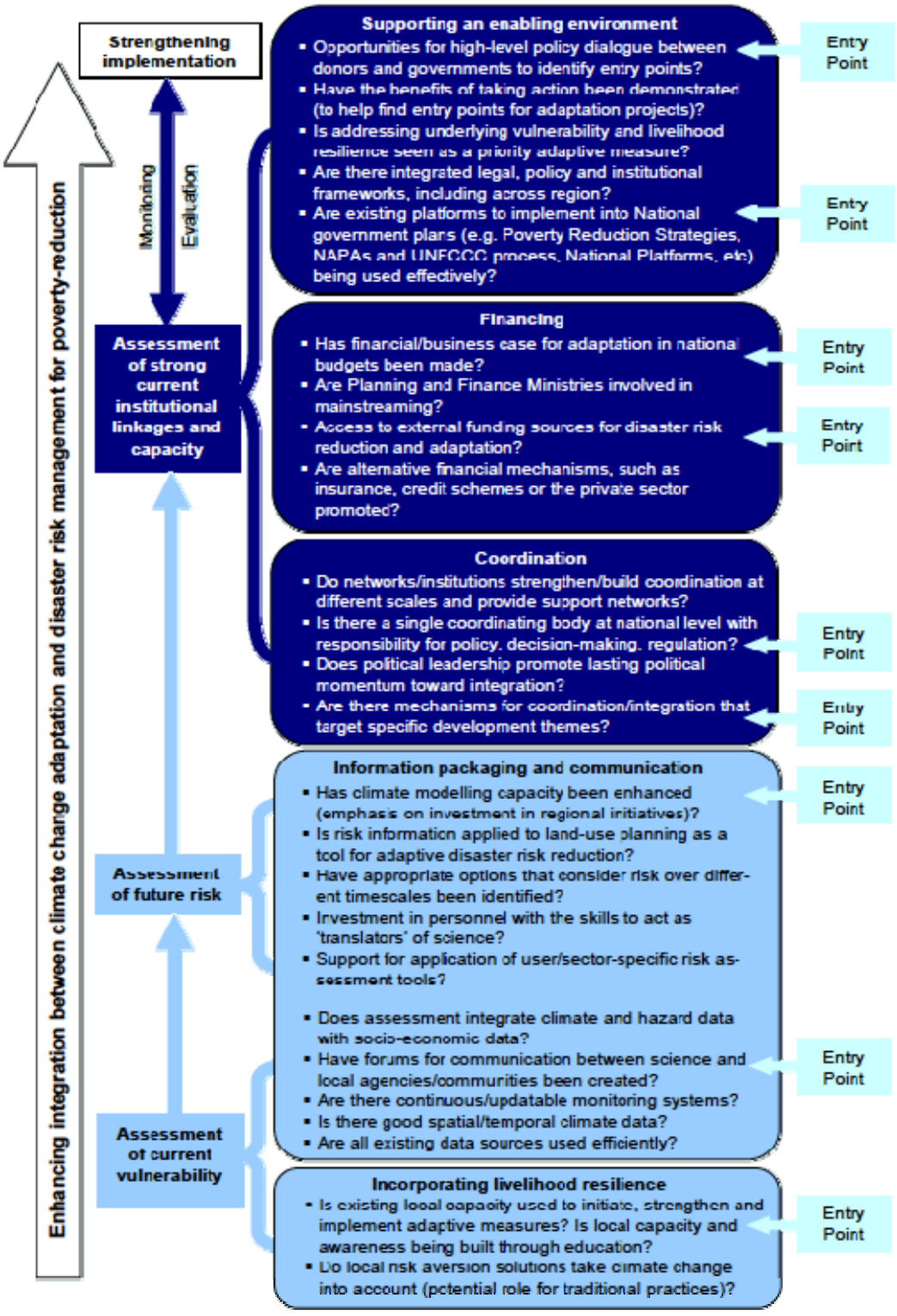

Figure 20. Commonalities in enabling factors in the integration of DRM, CCA and poverty reduction, and relevant entry points (Source: Adapted from Few et al, 2006).

Environmental and health impact assessments are effective entry points for intersectoral cooperation on DRR and CCA. As they are typically high policy priorities, assessments and activities designed to enhance food, water and human security also provide useful entry points as all are sensitive to climate change and are usually important dimensions of natural disasters. Holistic but practical and locally-focussed approaches, such as an ecosystem-based planning, also provide excellent opportunities to promote the integration of DRR and CCA.

Other relevant entry points include:

- Engineering design studies for infrastructure;
- Visioning activities, at community to national level;
- Multi-hazard risk assessments such as development of integrated coastal management plans;
- Local government strategic planning;
- Mid-term and final reviews of projects;
- Preparing work programmes of high-level national coordinating institutions;
- Preparation of integrated national policies, legislation or progressive development strategies;
- Development of capacity building strategies, including both top-down and bottom up strategies such as those designed to strengthen community capacity for promoting integration of DRR-CCA into development at the local level; and
- Sourcing funding (internal or external) for projects designed to reduce vulnerabilities and enhance resilience.

The World Bank's Mainstreaming Adaptation to Climate Change in Agriculture and Natural Resources Management Projects provide lessons learned, best practices, recommendations, and useful resources for integrating climate risk management and adaptation to climate change in development projects, with a focus on the agriculture and natural resources management sectors. They are organized around a typical project cycle, starting from project identification, followed by project preparation, implementation, monitoring and evaluation. Each note focuses on specific technical, institutional, economic, or social aspects of adaptation.

Guidance Note 5 of this framework focuses on furthering an enabling institutional environment, which is defined as composed of:

- participatory and community-based natural resource management;
- decentralized natural resource management; and
- institutional coordination.

These indicators were identified because while an enabling institutional environment is crucial in promoting efficient adaptation, the multifaceted nature of adaptation also exacerbates typical institutional challenges for at least three reasons (World Bank, 2009):

- adaptation is largely a context specific and locally driven process, requiring local communities to efficiently manage common resources;
- effective adaptation requires enabling policies and systems at the national level, as well as effective central–local coordinating mechanisms; and

- the multi-sectoral nature of impacts and adaptation to climate change calls for tackling impacts from different angles in a synergistic and coordinated way at various institutional levels.

CARE has also developed the Climate Vulnerability and Capacity Analysis (CVCA) methodology, based on a framework of "enabling factors" for CBA (Dazé et al., 2009). CARE's approach to CCA is grounded in the knowledge that people must be empowered to transform and secure their rights and livelihoods. It also recognizes the critical role that local and national institutions, as well as public policies, play in shaping people's adaptive capacity. By combining local knowledge with scientific data, the process builds people's understanding about climate risks and adaptation strategies. It provides a framework for dialogue within communities, as well as between communities and other stakeholders. The results provide a solid foundation for the identification of practical strategies to facilitate community-based adaptation to climate change.

Based on the foregoing, it appears that pinning down the required regional enabling environment for the practical integration of disaster risk reduction and climate change adaptation in Asia and the Pacific is very challenging. The succeeding section focuses on two enabling factors that could foster DRR and CCA integration at the regional level. These are (a) the political commitment and awareness of regional intergovernmental organizations and (b) the regional policy and institutional mechanisms related to DRR and CCA.

4.2 Political commitment and awareness of regional intergovernmental organizations

4.2.1 Central Asia

The Central Asia, comprising mainly of the five erstwhile Asiatic States of the USSR - Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan and Uzbekistan - is yet to find a solid regional mechanism for disaster risk reduction. Diverse political, security and economic interests encouraged these States to look towards the north in Commonwealth of Independent States (CIS), east in Shanghai Cooperation Organization (SCO) and South in Economic Cooperation Organization (ECO) for cooperation, but none of these organizations, baring the ECO to some extent, has any significant program or agenda on disaster management. Established in 1985 by Iran, Pakistan and Turkey, the ECO currently includes all the five central Asian States besides Afghanistan and Azerbaijan. ECO has made significant gains in the fields of economic, technical and cultural cooperation among the Member States, but disaster management is not yet in the active agenda of the organization even though the leaders have been emphasizing the need for such cooperation. The 9th Summit of ECO leaders held in Baku in May 2006 called for regional programs for early warning, and practical steps for disaster preparedness. Since 2006 ECO has been organizing annual International Conferences on Disaster Risk Management which provided a platform for the scientists and practitioners to come together to discuss the issues of common interests and importance.

The Government of the Islamic Republic of Iran set up a Regional Centre for Risk Management of Natural Disasters in Mashhad,

Iran in 2007 with the mandate to develop early warning mechanisms, monitor natural disasters, weather and environmental conditions and help member states in capacity building. The Centre received the status of an ad hoc body affiliated to the ECO, but it is yet to report any significant progress towards achieving the stated objectives, particularly for the Central Asian region.

4.2.2 North East Asia

The North East Asia is marked by the presence of the three towering economies of the world - China, Japan and South Korea - which together account for nearly 60% of the total wealth of the Asia-Pacific. Japan and South Korea in particular have made significant progress in disaster risk reduction, which is reflected in the fact that the recurrent hazards of nature no longer create huge disasters for the people and the economies of the two countries. China has proactively reduced the risks of recurrent flood and drought and is seriously engaged with the task of making the country safe from earthquakes and landslides. The principles and practices followed by Japan have set global standards of disaster risk reduction.

Regarding climate change adaptation, policies of China for adaptation to climate change are still at the initial stage, and a systematic strategy for adaptation to climate change has not yet taken form. However, some policies and measures that have been adopted have played a positive role in the adaptation to climate change. China will, in its own capacity, continue to adopt policies and measures in favor of the adaptation to climate change. Taking threats by climate change as an opportunity for the new growth initiatives, Korea promotes and fosters “Green Industries” as new growth power through low-carbon green growth. Korea operates Climate Change Task Force under the Office of the Prime Minister and establish comprehensive basic plans and countermeasures basic Act. In Japan, the Cabinet Office’s Council for Science and Technology Policy established a task force in March 2009 to plan the direction of technological development aimed at realizing a society adaptive to climate change.

In East Asia, each country has a significant commitment and well aware of the disaster risk reduction and climate change adaptation. However, there is no intergovernmental organization in the region to take lead in DRR and CCA issues.

4.2.3 Pacific

The Pacific Islands Applied Geoscience Commission (SOPAC) is the main vehicle for the promotion of regional cooperation on disaster risk reduction and management in the Pacific region. The SOPAC was established in 1972 under the Economic and Social Division of the UN as a project called the Committee for Coordination of Joint Prospecting for Mineral Resources in South Pacific Offshore Areas (CCOP/SOPAC). It became an autonomous intergovernmental organization in 1984 with the signing of an agreement, initially among the 12 island countries, Australia and New Zealand, which was subsequently expanded to 7 other island countries. The focus of its work was also broadened from marine mapping and geosciences to include hazard assessment and risk management for sustainable development.

The Pacific Regional Environment Program (SPREP) is an intergovernmental organiza-

tion comprising 25 States and Territories. It has the responsibility to build capacity within member States to manage their own environment. SPREP is the secretariat for regional environmental conventions and their protocols. These MEAs strengthen the regional legal frameworks for implementing global conventions.

To support SPREP Members, the Secretariat promotes coordination at the national level, provides technical and legal advice to States (for example in drafting national legislation), assists in preparing briefing papers for international negotiating conferences, coordinates pre-conference consultations to determine regional positions, and strengthens regional legal frameworks. SPREP builds capacity of Pacific Island States to develop, implement, and enforce MEAs in many ways. It conducts research, offers training courses, and develops materials. SPREP also promotes the placement of staff from other secretariats of Conventions and NGOs at its Headquarters.

SPREP's regional workshops promote implementation of MEAs in various ways. They build awareness and interest of Member States in MEAs. Workshops help to develop regional positions prior to COPs, particularly on issues of direct relevance to the region. SPREP also holds training workshops on specific aspects relating to implementation of MEAs. SPREP also advises Pacific delegates during COPs and other negotiations of global MEAs.

Until recently there has been a substantial and counterproductive disconnect between SOPAC and SPREP in relation to assisting countries address their climate-related risks by implementing DRR and CCA. The two frameworks, and the associated differences in the mandates of these two regional intergovernmental organizations, mean that major opportunities to reduce risks and build resilience on the ground in the Pacific have been missed. The Pacific Plan has done little to help bridge the gap, and neither did the recent Regional Institutional Framework processes. Fortunately, new leadership at both SPREP and SOPAC is now providing a favorable environment for increased coordination and cooperation between the two agencies, especially with respect to DRR and CCA.

4.2.4 South Asia

The regional cooperation on disaster management among the countries of the region started on 8 December 1985 when the Heads of State or Government of the seven countries of the region, namely Bangladesh, Bhutan, India, Maldives, Nepal, Pakistan and Sri Lanka adopted the Charter of the South Asian Association for Regional Cooperation (SAARC). Afghanistan joined the SAARC in 2007. Although the Charter does not make any specific mention of disaster management, it is broadly covered under its generic objectives to (a) promote the welfare of the peoples and to improve their quality of life, (b) accelerate economic growth, social progress and cultural development of the region and to (c) promote active collaboration and mutual assistance among the countries of the region. The Charter provides for a hierarchy of decision-making structure with an annual Summit meeting of Heads of States or Governments, bi-annual meetings of Foreign Ministers, quarterly meeting of the Standing Committee of Foreign Secretaries, and the Technical Committees of experts and subject matter specialists on specific fields as may be constituted. The Charter specifically

provides that every decision at all levels shall be taken on the basis of unanimity. This provision has been designed to secure the sovereign equality of all the member States, particularly in the context of asymmetric power structures in the region.

Disaster management figured for the first time in the SAARC when the Third SAARC Summit in Kathmandu in 1987, deeply concerned at the fast and continuing degradation of the environment leading to natural disasters decided to commission a *Study for the Protection and Preservation of the Environment and the Causes and Consequences of Natural Disasters.* Accordingly, a Group of Experts with members from all the SAARC Countries was constituted to prepare the Study. The study report finalized in 1991, recommended various measures for the protection and management of the environment, strengthening of the disaster management capabilities of the state and non-state actors and suggested mechanisms for the implementation of the recommendations of the study. The recommendations were endorsed by Heads of State or Government at their Sixth Summit (Colombo 1991) and as follow up measures the SAARC Meteorological Research Centre were established in Dhaka in 1995 and a SAARC Coastal Zone Management Centre came up in Male in 2004.

4.2.5 South East Asia

Association of South East Asian Nations (ASEAN) was set up in August 1967, which makes it the oldest regional organization of the Asia-Pacific, the ASEAN started with four countries – Indonesia, Malaysia, Philippines, Singapore and Thailand – and gradually expanded its membership to ten with the inclusions of Brunei in 1984, Viet Nam in 1995, Lao and Myanmar in 1997 and Cambodia in 1999. The ASEAN grew through the phase of declarations (Bangkok 1967, Kuala Lumpur 1976), concords (Bali 1976, 2003), Treaty of Amity and Cooperation (1976), Vision 2020 (Kuala Lumpur 1997), Plan of Action (Hanoi 1998), culminating with the adoption of the Charter of the ASEAN in November 2007, on the occasion of its fortieth anniversary.

The Declaration of the ASEAN Concord I identified disaster management as one of the eight principles and objectives for ASEAN cooperation. The ASEAN Declaration on Mutual Assistance on Natural Disasters of 1976 recognized the serious consequences of natural disasters on the economic and social development of countries of the region and called for mutual assistance in mitigation, rescue and relief of victims of natural disasters. The experience gained in the implementation of Regional Haze Action Plan 1998 was institutionalized with the signing of the ASEAN Agreement on Trans-boundary Haze Pollution in June 2002. The importance of disaster management was further emphasized in the Declaration of Concord II, which resolved to establish an ASEAN Community by 2020 based on three pillars, namely political and security community, economic community, and socio-cultural community that are closely intertwined and mutually reinforcing for the purpose of ensuring durable peace, stability, and shared prosperity in the region.

For over three decades, ASEAN's disaster reduction efforts were coordinated by the ASEAN Experts Group on Disaster Management (AEGDM), which was one of the seven subsidiary bodies under the ASEAN Committee on Social Development. The Expert Group was elevated as the ASEAN Commit-

tee on Disaster Management (ACDM) in 2003. The ACDM consists of heads of national agencies responsible for disaster management in the ASEAN Member Countries and has the overall responsibility for coordinating and implementing the regional activities on disaster management.

The 1990's were the international decade for disaster risk reduction. ASEAN governments recognized the importance of disaster risk reduction and climate change adaptation and their role in development. Each country and indeed sub-region varies according to its needs and progress in attaining a paradigm shift from response and preparedness towards disaster risk management and reduction. All countries having ratified the HFA recognize and have committed to the importance of partnership in risk reduction.

4.2.6 West Asia

Prolonged conflicts in the region have not encouraged the creation of a single regional organization that binds all the countries of the region together. The countries of the region have looked towards organizations beyond their neighborhood for finding solutions to the regional problems of disaster risk management and climate change. Two such organizations that have made some headway in this direction are the League of the Arab States and the Gulf Cooperation Council. The Arab League, which was set up in Cairo in 1945 'to draw closer the relations among the member States' has 22 member States of which 12 are from the West Asia. The League does not yet have any proposal to set up any specialized regional agency for addressing the issues of disaster risk reduction and climate change adaptation.

4.3 Regional policy and institutional mechanisms related to DRR and CCA

4.3.1 Central Asia

The five core Central Asian States have been striving for developing mechanisms for strengthening cooperation among themselves. They had entered into a Treaty of Eternal Friendship in January 1997 and guided by the goals and principles of this treaty, they signed in July 1998 a Cooperation Agreement for Prevention and Liquidation of Emergencies, which would include 'a range of activities carried out well in advance aimed at reducing to the maximum possible extent the risk of an emergency as well as at preserving human health, reducing extent of environmental damage and material losses in case an emergency occurs'. However such cooperation did not significantly extend to reducing the risks of natural disasters.

The three Central Asian States of Kyrgyzstan, Tajikistan and Uzbekistan met in Osh in Kyrgyzstan in March 2008 and again in June 2009 to reach common understanding and cooperation on the following:

- Establishment of early warning systems.
- Elaboration and/or revision of interstate agreements between the Customs Office, Ministries of Internal Affairs, and border-security forces;
- Training of professional search and rescue teams;
- Exchange of information, including hydro-meteorological data;
- Establishment of a working group for disaster risk management for Ferghana Valley.

Meanwhile efforts are under way for developing a full-scale regional cooperation among all the five central Asian States. Meeting with the representatives of all the five Sates had taken place on the sidelines of the Asian Ministerial Conferences in Delhi in 2007 and Kuala Lumpur in 2008 and more recently in the regional meetings in Almaty and Geneva in 2009. Broad agreements on the legal and institutional arrangements, principles and objectives and a framework of activities on the first eighteen months have been reached and it is expected that the much awaited Central Asian Centre for Disaster Response and Risk Reduction would be set up in 2010.

4.3.2 North East Asia

The North East Asia region as a whole has not been able to develop even a rudimentary general or specialized organization for regional cooperation on disaster management. However efforts have been made in the recent past to develop sub-regional cooperation at least among the three countries of China, Japan and South Korea. The First Japan-China-Korea Trilateral Summit held in Kukupa in December 2008 agreed to hold tri-lateral heads of government agency and expert level meetings on rotation. Following the expert level meeting in Seoul in 2009 and Ministerial level meeting in Kobe in October 2009 a Tri-lateral Joint Statement on Disaster Management Cooperation was adopted, which identified three broad areas of cooperation among the three countries of the region, namely (a) countermeasures to the disasters which are expected to increase due to climate change, (b) promoting earthquake-proofing of buildings and (c) utilizing satellite technologies for disaster management. The next meeting will be held in China in 2011.

4.3.3 Pacific

The Pacific Islands Framework for Action on Climate Change (2006-2015) (PIFACC) was endorsed by Pacific leaders at the 36th Pacific Islands Forum held in 2005. They recognized the importance of Pacific island countries and territories taking action to address climate change through their national development strategies, which are linked to national budgetary and planning processes. The Framework builds on The Pacific Islands Framework for Action on Climate Change, Climate Variability and Sea Level Rise 2000-2004. The 2006-2015 timeframe of the Framework is consistent with the timeframes of the Millennium Declaration, the Johannesburg Plan of Implementation and the subsequent work of the UN Commission on Sustainable Development.

In 2005 a Pacific Islands Climate Change Roundtable (PCCR) meeting was convened to review the Framework. One outcome was a proposal to develop an action plan for implementation of the Framework. The Action Plan for the Implementation of the Framework for Action on Climate Change was subsequently prepared. In the Plan, regional programming complements national activities. The Plan also provides an indicative menu of options for action on climate change. In order to ensure appropriate coordination of activities under the Framework, the PCCR was reconstituted in 2008, with SPREP being called upon to convene regular meetings of the PCCR inclusive of all regional and international organizations and civil society organizations with active programmes on climate change in the Pacific region. This was a timely and appropriate development. It went some way to addressing the identified need for improved donor coordination and harmonization of

efforts. Development Partners for Climate Change (DPCC), comprising governmental and related agencies located in Suva, meet regularly to facilitate coordination of development partner activities in the Pacific related to climate change.

The Pacific Regional DRM Framework reflects the increased national and regional commitment to DRR and disaster management on an 'all hazards' basis and in support of sustainable development. These commitments derive from the Pacific Forum Leaders decision in Madang 1995 and the Auckland Declaration in 2004. The Framework contributes to the implementation of the Mauritius Strategy and the global Hyogo Framework.

There is significant complementarily and congruence between the two regional frameworks. Many of the key players (e.g. donors, NGOs, regional organizations) are involved in implementing both DRM and CCA. The two frameworks have common linkages with the Pacific Plan for Strengthening Regional Cooperation and Integration. On the other hand, at the level of implementation there is considerable separation. This has its origins at the highest levels. The Hyogo Framework, which has been endorsed by 168 governments, is promoted especially by the ISDR system of partners. The objectives and work programs of many DRM initiatives in the Pacific are strongly guided by the Hyogo Framework and the Pacific Regional DRM Framework, as are the supporting institutional structures. A similar situation exists for climate change initiatives in the Pacific, with these being influenced by UNFCCC processes and funding (through the GEF) and to a lesser extent by the PIFACC. All PICs are Parties to the UNFCCC.

4.3.4 South Asia

On the aftermath of Indian Ocean Tsunami of December 2004, a Special Session of the SAARC Environment Ministers was held at Male on 25 June 2005. The Ministers had concluded the meeting by adopting the Male Declaration, which decided inter alia that an Expert Group of the member countries shall meet at Dhaka, Bangladesh to formulate a Comprehensive Framework on Early Warning, Disaster Management and Disaster Prevention, prior to the Seventh Ministerial Meeting on Environment in Bangladesh.

The Expert Group met on 7-9 February 2006 in Dhaka and developed a comprehensive framework on disaster management in South Asia. The framework is aligned with the implementation of the Hyogo Framework of Action (HFA) 2005-2015: Building the Resilience of Nations and Communities to Disasters. The SAARC Council of Ministers approved the Framework on 30 July 2006 and by the Fourteenth SAARC Summit in New Delhi in 3-4 April 2007.

The Framework provides a platform for South Asian countries to:

- Establish and strengthen the regional disaster management system to reduce risks and to improve response and recovery management at all levels
- Identify and elaborate country and regional priorities for action
- Share best practices and lessons learnt from disaster risk reduction efforts at national levels
- Establish a regional system to develop and implement regional pro-

grammes and projects for early warning

- Establish a regional system of exchanging information on prevention, preparedness and management of natural disasters
- Create a regional response mechanism dedicated to disaster preparedness, emergency relief and rehabilitation to ensure immediate response
- Create a regional mechanism to facilitate monitoring and evaluation of achievements towards goals and strategies

The Fourteenth SAARC Summit held in New Delhi in 2007 expressed 'deep concern' over the global climate change and called for pursuing a climate resilient development in South Asia. The member countries pledged for immediate collective action and stronger regional co-operation for the conservation and utilization of SAARC shared resources towards addressing the negatives of climate change. Further, the SAARC Council of Ministers, at their Twenty ninth Session held in New Delhi in December 2007, adopted the SAARC Declaration on Climate Change which reflects the collective vision of South Asia.

The SAARC Ministerial Meeting on Climate Change held on July 3, 2008 in Dhaka adopted the SAARC Action Plan on Climate Change. H.E. Dr Sheel Kant Sharma, the SAARC Secretary General, in his inaugural speech laid emphasis on intensifying the regional cooperation on climate change adaptation. He also highlighted that the emphasis of SAARC is to move from a declaratory to implementation phase and highlighted the roles that SAARC Regional Centers could play therein. He called upon the SAARC Meteorological Research Centre, the SAARC Coastal Zone Management Centre, SAARC Disaster Management Centre and SAARC Forestry Centre to contribute synergistically with their respective mandates in enhancing the SAARC climate change resilience by pursuing SAARC Action Plan on Climate Change.

The 15th Summit Meeting of Heads of States or Governments of SAARC countries held in Colombo on 2-3 August, 2008 has endorsed the SAARC Action Plan and Declaration on Climate Change adopted by the Environment Ministers at Dhaka on 3rd July, 2008.

The SAARC Action Plan on Climate Change stresses that the primary responsibility of implementing the Action Plan, proposed for an initial period of three years, rests with the National Governments. With regard to the regional cooperation, the Action Plan envisages that a mechanism should be agreed upon to effectively use the existing institutional arrangements of SAARC by giving clear directions and guidance.

In April 2010, Leaders at the 16th SAARC Summit, expressing deep concern over dual challenge of addressing the negative impacts of climate change and pursuing socio-economic development, called for the commissioning of a SAARC Inter-governmental Climate-related Disasters Initiative, on the integration of Climate Change Adaptation with Disaster Risk Reduction. (SAARC 2010)

SAARC Disaster Management Centre

Considering the regional dimensions of natural disasters the 3rd SAARC Summit had commissioned a comprehensive Regional Study on the Causes and Consequences of

Natural Disasters. A SAARC Meteorological Research Centre was established in Dhaka in 1995 and a SAARC Coastal Zone Management Centre was set up at Male in 2004. The 13th SAARC Summit at Dhaka in November 2005 considered the issues of regional cooperation for preparedness and mitigation of national disasters and approved the offer of India to set up SAARC Disaster Management Centre Management in New Delhi.

The Centre is functional since October 2006 with the mandates from SAARC summits. Recently, the 15th SAARC Summit in August 2008 at Colombo entrusted to the SAARC Disaster Management Centre to develop a Natural Disaster Rapid Response Mechanism (NDRRM) for coordinated and planned approach to meet emergencies and recommended that the Charter of the SAARC Disaster Management Centre shall be modified to incorporate its role in Natural Disaster Response.

4.3.5 South East Asia

Member States signed the ASEAN Agreement on Disaster Management and Emergency Response (AADMER) on 26 July 2005. The Agreement came into force on 24 December 2009 after being ratified by all the ten Member States of the ASEAN. It is the first and the only HFA-related binding instrument in the world and is a unique contribution of the ASEAN to the global disaster risk reduction aims.

The AADMER has in all 36 Articles, divided in 11 Parts that deal in a comprehensive manner the whole cycle of disaster management starting with risk identification, assessment and monitoring, and continuing with disaster prevention and mitigation, disaster preparedness, emergency response, rehabilitation, technical cooperation and scientific research and institutional arrangements and procedures. The Agreement provides that the ASEAN Coordinating Centre for Humanitarian Assistance (AHA Centre) shall be established for the purpose of facilitating co-operation and co-ordination among the Parties, and with relevant United Nations and international organizations, in promoting regional collaboration. As a first step for the implementation of the Agreement Dr. Surin Pitsuwan Secretary General of the ASEAN was appointed as ASEAN's Humanitarian Assistance Coordinator.

Each of the strategic components has a number of sub-components with clearly defined objectives and expected outputs. The activities to be taken up for achieving the outputs, the responsible parties for implementation, the shepherd country to lead the process, the timeline and the milestones are clearly defined in the work program. The program is intended to be a dynamic rolling plan that will be updated and revised through a continuous system of feedback, monitoring and evaluation. The program shall be implemented in two phases, each covering a period of three years. The program received the approval of ACDM on 11 March 2010 and was formally launched in May 2010.

Comparison between the two work programmes - ARPDM and AADMER- demonstrates in no uncertain terms the growing maturity and confidence of the ASEAN system. While the first regional program took almost six years to be developed with technical support of the ADPC and financial support of the ECHO, consensus on the second program could be reached much faster

within a year without much assistance from an outside agency. The time and efforts invested on developing the process of regional cooperation during the first programme did not go in vain. The capacities, needs, strength and constraints of the system and its stakeholders became well established during the first program which facilitated consensus on where the focus should be in the second program. The output-activity matrix of each component of the second program and the responsibilities vested with Working Groups of the Member States for the specific programs with the role of a Lead Shepherd for each activity, as envisaged in AADMER Work Program, promises a dynamic and participatory system for implementation and monitoring of the program.

Another distinguishing feature of the ASEAN system has been a very open, transparent and proactive engagement of various international organizations and multilateral institutions at every stage of the planning and implementation of the program. The bureaucratic and time consuming process of approval at every stage has been eliminated through common understanding on the basic framework and greater delegation of powers and authorities of the ASEAN Secretariat within the framework, which is missing in many other regional systems.

AADMER provides for creation of an ASEAN Coordinating Centre for Humanitarian Assistance (AHA Centre) 'for the purpose of facilitating co-operation and co-ordination among the Member States and with relevant United Nations and international organisations, in promoting regional collaboration'. The Terms of Reference of the Centre as provided in the annex to the Agreement curves out a role of the Centre, which is much beyond humanitarian assistance. The recent decision of the ASEAN Summit to appoint Secretary General of the ASEAN as the ASEAN Humanitarian Assistance Co-ordinator is suggestive of the importance that would be attached to the Centre in the ASEAN system. The organisational structure of AHA Centre, as proposed in the ARPDM-II, entails creation of four Divisions: (a) Preparedness, Response and Recovery, (b) Risk Assessment, Early Warning & Monitoring and Knowledge Management, (c) Prevention and Mitigation, and (d) Partnership and Resource Mobilization, working under an Executive Director with the oversight of a Governing Board and an Advisory Group. It may be expected that the emerging institutional mechanism would further strengthen the ASEAN system of disaster management.

Complementing disaster management efforts in ASEAN, the ASEAN Regional Forum (ARF), which draws together 27 countries that have a bearing on the security of the Asia-Pacific region, including the 10 ASEAN member states (Brunei, Cambodia, Indonesia, Laos, Malaysia, Myanmar, Philippines, Singapore, Thailand and Vietnam), the 10 ASEAN dialogue partners (Australia, Canada, China, the European Union, India, Japan, New Zealand, Republic of Korea, Russia and the United States), one ASEAN observer (Papua New Guinea), as well as the Democratic People's Republic of Korea, Mongolia, Pakistan, Timor-Leste, Bangladesh and Sri Lanka. Established in 1994, the objectives of the ARF are to foster constructive dialogue and consultation on political and security issues of common interest and concern; and make significant contributions to efforts towards confidence building and preventive diplomacy in the Asia-Pacific region. Disaster management was identified as an important aspect of comprehensive security,

and a valuable confidence building measure for the ARF as well. Considering the role that ARF might have to play in disaster response and relief, an exercise on ARF Voluntary Demonstration of Response (VDR) was conducted in the Philippines from 4 to 8 May 2009 as a civilian-led, military supported exercise designed to demonstrate ARF national capabilities in response to an affected country's request for assistance, and build regional assistance capacity for major, multinational relief operations.

Regional cooperation in disaster reduction in South East Asia has been strengthened by sub-regional cooperation in specific areas. The greatest example of such cooperation has been the Mekong River Commission (MRC), which was formed on 5 April 1995 by an agreement between the governments of Cambodia, Lao PDR, Thailand and Viet Nam. The four countries signed the Agreement on the Cooperation for the Sustainable Development of the Mekong River Basin and agreed on joint management of their shared water resources and development of the economic potential of the river, which significantly reduced the risks of flood in the region. The MRC supports the Mekong Program, which is a regional cooperation program for the sustainable development of water and related resources in the Mekong basin owned by its member countries.

ASEAN, UNISDR and the World Bank share a common goal of promoting disaster resilient nations and safer communities. In 2009, these key actors signed a Memorandum of Cooperation to strengthen their partnership to mainstream disaster risk reduction in the development processes of ASEAN member states. The guiding principles of this cooperation are inspired by the ASEAN charter; Blue print of the ASEAN Socio-cultural Community, 2008-2015; ASEAN agreement on disaster management and response (AADMER), 2009; the Hyogo Framework for Action (HFA), 2005-2015; ASEAN program on disaster management ARPDM, 2004-2010 and declarations of Asian Ministerial Conferences on Disaster risk reduction.

This collaboration has multiple objectives – all aiming toward helping ASEAN reduce disaster risks and protect its citizens from hardship as well as damages caused by natural disasters. These include the development of legislation, policies and action plans; mobilize resources, and capacity building of both the ASEAN Secretariat and member states on DRR and climate change adaptation.

Recognizing that the region is highly vulnerable to the adverse impacts of climate change, the ASEAN countries have launched an ASEAN Climate Change Initiative (ACCI). ACCI is envisaged to be a consultative platform to strengthen regional coordination and cooperation in addressing climate change, and to undertake concrete actions to respond to its adverse impacts. This Initiative will strengthen the region’s capacity both in mitigation and adaptation efforts, and in particular to bring forward the region’s interests and priorities onto international negotiations on future climate regime as appropriate.

One of the stated objectives of the AADMER Work Program is to build partnership between Disaster Risk Reduction (DRR) and Climate Change Adaptation (CCA) Institutions and Programs. These are expected to be achieved through:

(a) Improved coherence and coordination in the planning and implementation of DRR and CCA programs at the regional, national and sub-national levels;
(b) Active participation of both DRR and CCA agencies in common and relevant regional and national activities and initiatives;
(c) Establishment of new regional and national partnerships and mechanisms between DRR and CCA bodies; and
(d) Increased visibility and understanding of the scientific and practical links between DRR and CCA goals and initiatives in the region and Member States.

In order to achieve these objectives it is proposed to organize regional workshop between ACDM and other relevant ASEAN bodies (such as environment, science and technology, agriculture, energy) to forge stronger linkages between DRR and CCA initiatives in Member States to enhance their internal capacities, resources, efficiency and effectiveness towards achieving shared goals. It is further proposed to develop scientific studies and research on technical and practical impacts due to climate change for sectors vulnerable to disaster risk.

4.3.6 West Asia

The Regional Workshop on Disaster Reduction and Sustainable Development held in Riyadh in May 2009 felt the need for development of an Arab strategy for disaster risk reduction that reflects the regional vision and priorities and an executive program that includes technical and financial mechanisms to support the implementation of the strategy at national and regional levels. The Islamic Development Bank in Jeddah offered to support development of national capacities for the implementation of the Hyogo Framework of Action to reduce disaster risks. The Arab Academy for Science and Technology and Maritime Transport in Alexandria agreed to explore the possibility of developing regional capacity for disaster risk reduction through training and other programs.

In a parallel initiative the Foreign Affairs Ministers of the Gulf Cooperation Council proposed to establish a GCC Disaster Centre (GCC-DC) and appointed a Technical Committee to draft a proposal for setting up the Centre. The Technical Committee is visiting various regional and national initiatives across the globe for finalizing its recommendations. It is envisioned that the GCC-DC will be under the Executive Management of a Board of Governors that is comprised of the Ministers of Foreign Affairs in the GCC States. A Steering Board made up of one representative from each GCC Member State will provide oversight of the Centre's policies, strategies, and work program. As currently conceived, the Centre will focus on all potential risks that the region faces including the natural and technological threats. Considering the emerging threats of the region and the economic potential the region has for making investments on risk reduction it can be expected that the GCC-DC would emerge as a strong and vibrant centre for disaster risk reduction in the region.

4.4 Future prospects

Because of historical reasons, many of the institutions have evolved separate units or bodies dealing with DRR and CCA, and only a few have developed coordination mechanisms that will allow and promote joint or coordinated programming or activities. Al-

though the commitment and awareness of these institutions on their respective areas of work seem to be high, the awareness and commitment across DRR and CCA teams within organizations is an area that still needs work.

At present the nature of the activities seem to focus a lot more from a DRR perspective and on building capacity. An integrated approach at this level will allow not only to prepare for the necessary steps towards activities that focus on the impacts of climate change, but also to ensure that ongoing activities do not create new risks, or foster mal-development.

Younger institutions seem to be opportunities to foster better cooperation and integration in the region. Driven by strong political calls for cooperation, these institutions like IGOs can probably initiate better cooperation starting at coordinated programming.

5 Looking Back, Looking Forward

The Asia-Pacific is the world's most vulnerable region when it comes to natural disasters. And over the years, it has demonstrated its resolve to reduce its risks to climate change and disasters at various scales. This report focuses on DRR and CCA efforts undertaken at the regional level in the past 20 years. The purpose is not to rank the performance of the sub-regions or institutions, but rather to identify particular trends and gaps that can inform future regional approaches.

The review confirmed the major progress that the Asia-Pacific has achieved in promoting the DRR and CCA agenda regionally. This growth was spurred primarily by the adoption of the HFA in 2005 in the case of DRR, and the intensification of adaptation discussions in the UNFCCC process in the case of CCA. The escalating impacts of disasters, as aggravated by a changing climate, have made it even more imperative for stakeholders in the Asia-Pacific—from regional institutions to national governments, all the way down to community-based actors—to pursue DRR and CCA in a more integrated and strategic manner.

This development, however, has not been even throughout the region. Some sub-regions have made significant progress in developing regional programs and action plans for DRR and CCA, while others are still looking for viable models that would work in the prevailing political, security and economic situations of the regions. By and large, the performance of the sub-regions has been influenced by the presence of active institutions operating at the regional level, especially inter-governmental and regional organizations.

The achievement of HFA's five priority areas for action has also been varied. Overall, HFA 3 has been pursued more vigorously than the other goals; although there are salient differences in priorities within the sub-regions and among institutions. This points to the need of looking into these gaps and consider them in the development of regional initiatives in the future.

The stocktaking further revealed the concentration of vulnerability-oriented regional initiatives, activities that are aimed at building the capacity of institutions to effectively deal with disaster risks, whether or not climate-related. A significant number of programs that focus on mitigating the impacts of climate change through climate risk management was also found. The convergence of initiatives towards the middle of the vulnerability-impact continuum is a good indication of how DRR and CCA are steadily integrating in the region.

The experience of the Asia-Pacific region indicates that many of the institutions have been proactive in their approach to advancing DRR and CCA regionally. With the strong presence of MBFIs and UN organizations, the integration of DRR and CCA also appears to be gaining momentum in the region. It goes without saying that regional stakeholders must be able to take advantage of this opportunity.

The regional efforts greatly complement the movement taking place at the national and community levels. It must also be noted that many of the regional initiatives were actually carried out in partnership with actors at all scales—regional, national and local. The result of these multi-dimensional, multi-stakeholder partnerships has not always been seamless, but it is a step towards the right direction. For one, it has created the necessary climate for more concerted action for planning, mobilizing resources and implementation. This has also highlighted the need for greater coordination and synergy of efforts for optimum utilization of scarce resources for maximum gains.

Opportunities for sharing and cross-learning of experiences across regions both within and outside the Asia-Pacific are wide and open. It is expected that the coming years will witness heightened activities for the implementation of regional plans and programs for DRR and CCA, with more support from all types of institutions coming, as the region moves forward in realizing its shared vision of making the Asia-Pacific safer from the risks of disasters in a changing climate.

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Annex 1 – Profile of Selected Regional Institutions

Note: This appendix was developed with the inputs from members of the ISDR Asia Partnership on Disaster Reduction (IAP), the United Nations Regional Coordination Mechanism for Asia Pacific (RCM), the Asia Pacific Adaptation Knowledge Platform, and the ISDR Inter-Agency Group.

List of Institutions
1.1. Regional Inter-Governmental Organizations
1.1.1. Association of South East Asian Nations (ASEAN)
1.1.2. Asia-Pacific Economic Cooperation (APEC)
1.1.3. The Mekong River Commission Secretariat (MRC)
1.1.4. South Asian Association for Regional Cooperation (SAARC)
1.1.5. South Asia Cooperative Environment Program (SACEP)
1.1.6. Southeast Asian Fisheries Development Center (SEAFDEC)
1.1.7. The Pacific Islands Applied Geoscience Commission (SOPAC)
1.1.8. Secretariat of the Pacific Community (SPC)
1.1.9. The Pacific Regional Environment Program (SPREP)
1.2. Regional Organizations (including “Other Regional Actors”)
1.2.1. Asian Disaster Preparedness Centre (ADPC)
1.2.2. Asian Disaster Reduction Centre (ADRC)
1.2.3. World Wide Fund for Nature (WWF)
1.2.4. The World Conservation Union (IUCN)
1.2.5. CARE
1.2.6. Stockholm Environment Institute (SEI)
1.2.7. Institute for Global Environmental Strategies (IGES)
1.2.8. International Centre for Integrated Mountain Development (ICIMOD)
1.2.9. International Federation of Red Cross and Red Crescent Societies (IFRC)
1.2.10. Graduate School of Global Environmental Studies of Kyoto University
1.2.11. Japan Aerospace Exploration Agency (JAXA)
1.2.12. Asian Institute of Technology (AIT)
1.3.1. United Nations Organizations
1.3.1. United Nations International Strategy for Disaster Reduction (UNISDR)
1.3.2. United Nations Economic and Social Commission for Asia and the Pacific
1.3.3. UNOCHA’s Regional Office for Asia and the Pacific
1.3.4. World Meteorological Organization (WMO)
1.3.5. UNESCO
1.3.6. United Nations Environment Program (UNEP)
1.3.7. United Nations Development Program (UNDP)
1.3.8. Food and Agriculture Organization of the United Nations (FAO)
1.3.9. International Recovery Platform (IRP)
1.3.10. ILO Regional Office for Asia and the Pacific
1.4. Multilateral and Bilateral Funding Institutions
1.4.1. The World Bank

1.1. Regional Inter-Governmental Organizations

1.1.1. Association of South East Asian Nations (ASEAN)

The Association of South East Asian Nations (ASEAN) set up in August 1967, which makes it the oldest regional inter governmental organization of the Asia-Pacific, the ASEAN started with four countries – Indonesia, Malaysia, Philippines, Singapore and Thailand – and gradually expanded its membership to ten with the inclusions of Brunei in 1984, Viet Nam in 1995, Lao and Myanmar in 1997 and Cambodia in 1999. The ASEAN grew through the phase of declarations (Bangkok 1967, Kuala Lumpur 1976), concords (Bali 1976, 2003), Treaty of Amity and Cooperation (1976), Vision 2020 (Kuala Lumpur 1997), Plan of Action (Hanoi 1998), culminating with the adoption of the Charter of the ASEAN in November 2007, on the occasion of its fortieth anniversary.

ASEAN's disaster reduction efforts were coordinated by the ASEAN Experts Group on Disaster Management (AEGDM), which was one of the seven subsidiary bodies under the ASEAN Committee on Social Development. The Expert Group was elevated as the ASEAN Committee on Disaster Management (ACDM) in 2003. The ACDM consists of heads of national agencies responsible for disaster management in the ASEAN Member Countries and has the overall responsibility for coordinating and implementing the regional activities on disaster management.

Programs/policies related to disaster risk reduction

The ASEAN Regional Program on Disaster Management (ARPDM)

The ASEAN Regional Program on Disaster Management (ARPDM) was initiated in 1996 with technical support from the Asian Disaster Preparedness Centre (ADPC) and financial support from the European Commission Humanitarian Aid Office (ECHO). The ADPC organized a series of meetings and workshops in the member countries to assess the regional needs and capacities on disaster management, which formed the basis of the draft ARPDM 2002. The

draft went through a process of consultations, revisions and validation before it was finally approved in December 2003.

The five major components and the 29 sub-components of ARPDM 2004-10 were in the nature of intentions of what the countries wanted to do. These were not given the shape of regional projects to be implemented at the regional level. No mechanism was instituted either to monitor or evaluate the actual progress that was achieved by the national governments for the implementation of these programs.

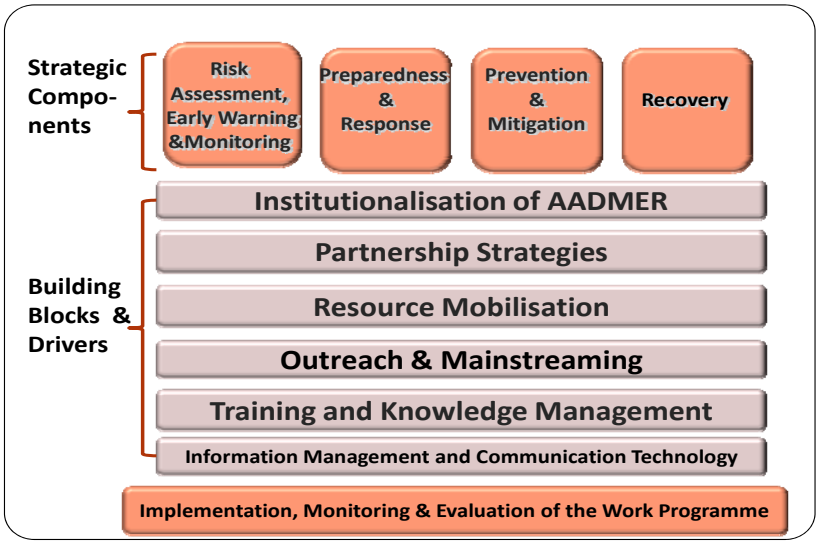
ASEAN Agreement on Disaster Management and Emergency Response (AADMER)

ASEAN Agreement on Disaster Management and Emergency Response which was signed by the Member States on 26 July 2005. The Agreement came into force on 24 December 2009 after being ratified by all the ten Member States of the ASEAN. It is the first and the only HFA-related binding instrument in the world and is a unique contribution of the ASEAN to the global disaster risk reduction aims.

The AADMER has in all 36 Articles, divided in 11 Parts that deal in a comprehensive manner the whole cycle of disaster management starting with risk identification, assessment and monitoring, and continuing with disaster prevention and mitigation, disaster preparedness, emergency response, rehabilitation, technical cooperation and scientific research and institutional arrangements and procedures. The Agreement provides that the ASEAN Coordinating Centre for Humanitarian Assistance (AHA Centre) shall be established for the purpose of facilitating co-operation and co-ordination among the Parties, and with relevant United Nations and international organizations, in promoting regional collaboration.

Earlier, in anticipation of the coming into force of the Agreement, the AADMER Work Program (2010-15) was developed through a consultative process. The program has four strategic components and six building blocks, each covering a number of activities.

Figure 1: Overview of AADMER Work Program (2010-15)



Each of the strategic components has a number of sub-components with clearly defined objectives and expected outputs. The activities to be taken up for achieving the outputs, the responsible parties for implementation, the shepherd country to lead the process, the timeline and the milestones are clearly defined in the work program. The program is intended to be a dynamic rolling plan that will be updated and revised through a continuous system of feedback, monitoring and evaluation. The program shall be implemented in two phases, each covering a period of three years. The program received the approval of ACDM on 11 March 2010 and was formally launched in May 2010.

Programs/policies related to climate change adaptation

The ASEAN Socio-Cultural Community 2009-2015 Blueprint

The key objective of the ASEAN Socio-Cultural Community 2009-2015 Blueprint is to enhance regional and international cooperation to address the issue of climate change and its impacts on socio-economic development, health and the environment in ASEAN Member States through implementation of mitigation and adaptation measures, based on the principles of equity, flexibility, effectiveness, common but differentiated responsibilities, respective capabilities, as well as reflecting on different social and economic conditions. The main areas of actions of the Blueprint are followings:

Encourage ASEAN common understanding on climate change issues and where possible, engage in joint efforts and common positions in addressing these issues;
Encourage the efforts to develop an ASEAN Climate Change Initiative (ACCI);
Promote and facilitate exchange of information/knowledge on scientific research and development (R&D), deployment and transfer of technology and best practices on adaptation and mitigation measures, and enhance human resource development;
Encourage the international community to participate in and contribute to ASEAN's efforts in afforestation and reforestation, as well as to reduce deforestation and forest degradation;
Develop regional strategies to enhance capacity for adaptation, low carbon economy, and promote public awareness to address effects of climate change;
Enhance collaboration among ASEAN Member States and relevant partners to address climate related hazards, and scenarios for climate change;
Develop regional systematic observation system to monitor impact of climate change on vulnerable ecosystems in ASEAN;
Conduct regional policy, scientific and related studies, to facilitate the implementation of climate change convention and related conventions;
Promote public awareness and advocacy to raise community participation on protecting human health from the potential impact of climate change;
Encourage the participation of local government, private sector, non-governmental organizations, and community to address the impacts of climate change; and
Promote strategies to ensure that climate change initiatives lead to economically vibrant and environment friendly ASEAN Community taking into account win-win synergy between climate change and the economic development.

Asian Climate Change Initiative (ACCI)

Recognizing that the region is highly vulnerable to the adverse impacts of climate change, the ASEAN countries have launched an ASEAN Climate Change Initiative (ACCI). ACCI is envisaged to be a consultative platform to strengthen regional coordination and cooperation in addressing climate change, and to undertake concrete actions to respond to its adverse impacts. This Initiative will strengthen the region's capacity both in mitigation and adaptation efforts and in particular to bring forward the region's interests and priorities onto international negotiations on future climate regime as appropriate.

One of the stated objectives of the AADMER Work Program is to build partnership between Disaster Risk Reduction (DRR) and Climate Change Adaptation (CCA) Institutions and Programs. These are expected to be achieved through improved coherence and coordination in the planning and implementation of DRR and CCA programs at the regional, national and sub-national levels with the following specific objectives:

Active participation of both DRR and CCA agencies in common and relevant regional and national activities and initiative;

Establishment of new regional and national partnerships and mechanisms between DRR and CCA bodies; and

Increased visibility and understanding of the scientific and practical links between DRR and CCA goals and initiatives in the region and Member States.

In order to achieve these objectives it is proposed to organize regional workshop between ACDM and other relevant ASEAN bodies (such as environment, science and technology, agriculture, energy) to forge stronger linkages between DRR and CCA initiatives in Member States to enhance their internal capacities, resources, efficiency and effectiveness towards achieving shared goals. It is further proposed to develop scientific studies and research on technical and practical impacts due to climate change for sectors vulnerable to disaster risk.

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1.1.2. Asia-Pacific Economic Cooperation (APEC)

Another inter-governmental organization that is showing considerable interest on disaster management in the recent years is the **Asia-Pacific Economic Cooperation** (APEC). Set up in 1989 to enhance cooperation among 21 Pacific Rim countries, mostly covering the East, South East and Pacific countries, besides USA, Mexico and Peru the APEC has identified disaster management as a key area for sustainable economic growth in the region. The member countries have adopted an *APEC Strategy for Disaster Risk Reduction and Emergency Preparedness and Response*: *2009-15* that lays emphasis on promoting risk management, business resilience and public-private sector partnerships, besides long-term capacity building projects aimed at accelerating recovery in disaster affected areas in APEC economies. The APEC countries have endorsed an Australia-Indonesia proposal for a Disaster Risk Reduction Facility and its linkages to APEC economies and the APEC Task Force on Emergency Preparedness.

The Asia-Pacific region has a large number **scientific, technical, academic and professional organizations** that have been collaborating with each other through sharing of knowledge, research, fellowship exchange, publications, conferences etc that have significantly contributed to the understanding of the causes and consequences of natural disasters in the regions and the tools and techniques of their remediation. Although much of such collaboration have taken place under government patronage, both the history and range of such collaborations go far beyond the initiatives of national governments and have a momentum and potentiality of its own, which can strengthen the foundation for regional collaboration on disaster risk reduction. Many universities in the Asia-Pacific have set up centres on regional studies, which conduct research on a range of issues of regional cooperation and often advises the national and regional organizations on various issues or regional cooperation. In this context a special mention needs to be made of the Graduate School of Global Environment Studies of the Kyoto University Japan which has involved itself proactively with various initiatives on regional cooperation on disaster reduction in the Asia-Pacific region.

Collaborations among the electronic and print **media** of the regions are also taking place in different regions often focusing on the need for creating increased awareness about disasters and developing appropriate standards and ethics of reporting disaster events. South Asia Free Media Association (SAFMA), for example, organized various programs and events to create awareness among the journalists.

There are many instances that the federations of **chambers of commerce and industries** of different regions of the Asia-Pacific have been interacting with each other for exchanging information and good practices on corporate social responsibilities, public-private partnerships and business continuity planning for reducing the risks of disasters.

Much more significant has been the collaboration among the **humanitarian and aid agencies** who have been in the forefront of disaster management in the region. Many international humanitarian organizations have been working with the vulnerable communities of the Asia-Pacific for a long time. Various innovative community based disaster risk management programs implemented in these regions have significantly contributed to the understanding of the inherent strength of the communities that can be harnessed for better preparedness and response, just as these have highlighted their intrinsic weakness and vulnerabilities that need external support and sustenance.

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1.1.3. The Mekong River Commission Secretariat (MRC)

The Mekong River Commission (MRC) was formed on 5 April 1995 by an agreement between the governments of Cambodia, Lao PDR, Thailand and Viet Nam. The four countries signed The Agreement on the Cooperation for the Sustainable Development of the Mekong River Basin and agreed on joint management of their shared water resources and development of the economic potential of the river. The MRC has been built on a foundation of nearly 50 years of knowledge and experience in the region starting from 1957 when it began life as the UN-founded Mekong Committee. In 1996 China and Myanmar became Dialogue Partners of the MRC and the countries now work together within a cooperation framework.

The MRC is an international, country-driven river basin organization that provides the institutional framework to promote regional cooperation in order to implement the 1995 Agreement. The MRC serves its member states by supporting decisions and promoting action on sustainable development and poverty alleviation as a contribution to the UN Millennium Development Goals.

The MRC supports the Mekong Program, a Regional Cooperation Programme for the Sustainable Development of Water and Related Resources in the Mekong Basin owned by its member countries.

The four goals of our organization for 2006-2010 are:
Goal 1: To promote and support coordinated, sustainable, and pro-poor development;
Goal 2: To enhance effective regional cooperation;
Goal 3: To strengthen basin-wide environmental monitoring and impact assessment;
Goal 4: To strengthen the Integrated Water Resources Management capacity and knowledge base of the MRC bodies, National Mekong Committees, Line Agencies, and other stakeholders.

The Mekong River Commission Secretariat, which is based in Vientiane, Lao PDR, provides technical and administrative services to the MRC Council and Joint Committee.

Selected DRR and CCA projects of MRC

Mekong River Commission, Flood Management and Mitigation Program (MRC-FMMP)

MRC-FMMP provides technical and coordination services, such as forecasts, flood data, technical standards and training packages, to the four countries in the Lower Mekong Basin. The components of the program are: (a) the establishment of a regional flood centre; (b) structural measures and flood proofing; (c) mediation of trans-boundary flood issues; (d) flood emergency management strengthening; and (e) land management. MRC was formed

in 1995; its membership includes the Lao People's Democratic Republic, Thailand and Viet Nam, as well as China and Myanmar, which are dialogue partners.

Mekong Climate Change Adaptation Initiative

The Mekong Climate Change Adaptation Initiative (CCAI) is a response to a call from the Mekong River Commission member countries to mount a collaborative regional initiative in address their shared adaptation challenges (MRC, 2008b). Its goal is to have "an environmentally sound, economically prosperous and socially just Mekong River Basin, responsive and adapting to the challenges induced by climate change". A CCAI framework document is now being designed by MRC with support from AusAID, which envisages a phased and multi-donor approach over 15 years. The process involves intensive consultation with the MRC member countries and international organizations and includes the preparation of the national review reports by the national expert teams (NET). The CCAI will work through the LMB government and implementing partners so that:

Adaptation is piloted and demonstrated throughout the region with lessons learned fed back into improving performance and affecting policies and plans

Capacity to manage and adapt at different levels in the Mekong is enhanced, including use of tools for different adaptation planning and implementation stages and methods

Strategies and plans for adaptation at various levels are in place and/or regularly updated, with implementation monitored and reported on a regular basis.

The CCAI is effectively financed, managed and implemented for at least three five-year phases.

The Initiative will build on existing MRC program activities in climate change including:

Downscaling of global climate change scenarios to the Mekong region (with SEA START)

Modeling of hydrodynamics resulting from climate changes (with CSIRO and IWMI)

Overview studies of basin vulnerability (with IWMI and the Thai Institute of Environmental Studies)

Assessing threats, local vulnerabilities and adaptation capacities in two watersheds in Lao PDR and Cambodia (with GTZ).

Site specific studies (e.g. Songkram River with support from Finland)

The first of regular Mekong Region Climate Change Forums was convened by MRC in February 2009 bringing together governments and technical organizations to discuss and help shape the CCAI.

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1.1.4. South Asian Association for Regional Cooperation (SAARC)

The South Asian Association for Regional Cooperation (SAARC) was started on 8 December 1985 when the Heads of State or Government of the seven countries of the south Asia region, namely Bangladesh, Bhutan, India, Maldives, Nepal, Pakistan and Sri Lanka adopted the its charter. Afghanistan joined the SAARC in 2007. Although the Charter does not make any specific mention of disaster management, it is broadly covered under its generic objectives to: (a) promote the welfare of the peoples and to improve their quality of life; (b) accelerate economic growth, social progress and cultural development of the region; and (c) to promote active collaboration and mutual assistance among the countries of the region. The Charter provides for a hierarchy of decision-making structure with an annual Summit meeting of Heads of States or Governments, bi-annual meetings of Foreign Ministers, quarterly meeting of the Standing Committee of Foreign Secretaries, and the Technical Committees of experts and subject matter specialists on specific fields as may be constituted. The Charter specifically provides that every decision at all levels shall be taken on the basis of unanimity. This provision has been designed to secure the sovereign equality of all the member States, particularly in the context of asymmetric power structures in the region.

Programs/policies related to disaster risk reduction

SAARC Comprehensive Framework on Disaster Management for South Asia

On the aftermath of Indian Ocean Tsunami of December 2004, a Special Session of the SAARC Environment Ministers was held at Male on 25 June 2005. The Ministers had concluded the meeting by adopting the Male Declaration, which decided inter alia that an Expert Group of the member countries shall meet at Dhaka, Bangladesh to formulate a Comprehensive Framework on Early Warning, Disaster Management and Disaster Prevention, prior to the Seventh Ministerial Meeting on Environment in Bangladesh.

The Expert Group met on 7-9 February, 2006 in Dhaka and developed a comprehensive framework on disaster management in South Asia. The framework is aligned with the implementation of the Hyogo Framework of Action (HFA) 2005-2015: Building the Resilience of Nations and Communities to Disasters. The Framework was approved by the SAARC Council of Ministers on 30 July 2006 and by the Fourteenth SAARC Summit in New Delhi in 3-4 April 2007. The Framework provides a platform for South Asian countries to:

Establish and strengthen the regional disaster management system to reduce risks and to improve response and recovery management at all levels

Identify and elaborate country and regional priorities for action

Share best practices and lessons learnt from disaster risk reduction efforts at national levels

Establish a regional system to develop and implement regional programmes and projects for early warning

Establish a regional system of exchanging information on prevention, preparedness and management of natural disasters

Create a regional response mechanism dedicated to disaster preparedness, emergency relief and rehabilitation to ensure immediate response

Create a regional mechanism to facilitate monitoring and evaluation of achievements towards goals and strategies.

SAARC Road Maps on Disaster Management

SAARC Disaster Management Centre (SDMC) has developed a *Perspective Plan for the period 2007-15* to synchronize its activities with the SAARC Comprehensive Framework for Disaster Management. The SDMC has further developed *Regional Road Maps* on six key areas of disaster management through a consultative process involving all the Member States and the concerned scientific, technical and other specialized organizations of the States. These Road Maps have identified the key areas requiring focused attention and outlined the tasks ahead in short, medium and long term to be attended by the local authorities, the national governments and the regional organizations. Based on these road maps a number of projects have been taken up for implementation at the regional level.

Climate change adaptation

SAARC Plan of Action on Environment

SAARC Plan of Action on Environment was adopted in 1997. The Action Plan provided for the establishment of Regional Centers of Excellence. The SAARC Meteorology Research Centre (SMRC) was established in Dhaka in 1995; the SAARC Coastal Zone Management Centre (SCZMC) was set up in Male in 2004; SAARC Disaster Management Centre (SDMC) came up in New Delhi in 2007 and the SAARC Forestry Center has come into the existence in Bhutan recently. All these SAARC Regional Centers can provide credible institutional support for taking up climate change and disaster risk reduction issues in the region.

SAARC Action Plan and Declaration on Climate Change

The Fourteenth SAARC Summit held in New Delhi in 2007 expressed 'deep concern' over the global climate change and called for pursuing a climate resilient development in South Asia. The member countries pledged for immediate collective action and stronger regional cooperation for the conservation and utilization of SAARC shared resources towards addressing the negatives of climate change. Further, the SAARC Council of Ministers, at their Twenty ninth Session held in New Delhi in December 2007, adopted the SAARC Declaration on Climate Change which reflects the collective vision of South Asia.

The SAARC Ministerial Meeting on Climate Change held on July 3, 2008 in Dhaka adopted the SAARC Action Plan on Climate Change. H.E. Dr Sheel Kant Sharma, the SAARC Secretary General, in his inaugural speech laid emphasis on intensifying the regional cooperation on climate change adaptation. He also highlighted that the emphasis of SAARC is to move from a declaratory to implementation phase and highlighted the roles that SAARC Regional Centers could play therein. He called upon the SAARC Meteorological Research Centre, the SAARC Coastal Zone Management Centre, SAARC Disaster Management Centre and SAARC Forestry Centre to contribute synergistically with their respective mandates in enhancing the SAARC climate change resilience by pursuing SAARC Action Plan on Climate Change.

The 15th Summit Meeting of Heads of States or Governments of SAARC countries held in Colombo on 2-3 August, 2008 has endorsed the SAARC Action Plan and Declaration on Climate Change adopted by the Environment Ministers at Dhaka on 3rd July, 2008.

The SAARC Action Plan on Climate Change stresses that the primary responsibility of implementing the Action Plan, proposed for an initial period of three years, rests with the National Governments. With regard to the regional cooperation, the Action Plan envisages that

a mechanism should be agreed upon to effectively use the existing institutional arrangements of SAARC by giving clear directions and guidance.

SAARC Disaster Management Centre (SDMC) attaches a very high priority on implementing the SAARC Action Plan on Climate Change. In fact, SDMC, in its strategy to evolve the road maps on various themes, has taken into account the integration of disaster risk reduction into climate change adaptation as one of its priority areas of action. The SAARC Workshops on Science & Technology Applications in Disaster Risk Reduction in January 2008 in New Delhi and Coastal and Marine Risks in May 2008 in Goa emphasized on exchange of information and research on the linkages between climate change adaptation and disaster risk reduction in the region.

In April 2010, Leaders at the 16th SAARC Summit, expressing deep concern over dual challenge of addressing the negative impacts of climate change and pursuing socio-economic development, called for the commissioning of a SAARC Inter-governmental Climate-related Disasters Initiative, on the integration of Climate Change Adaptation with Disaster Risk Reduction. (SAARC 2010)

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1.1.5. South Asia Cooperative Environment Program (SACEP)

South Asia Co-operative Environment Program (SACEP) is an inter-governmental organization, established in 1982 by the governments of South Asia, which includes Afghanistan, Bangladesh, Bhutan, India, Maldives, Nepal, Pakistan and Sri Lanka. The primary function of SACEP is to work with its eight member countries:

To promote cooperative activities in priority areas of environment of mutual concern;

To ensure that these activities are beneficial individually and collectively to the member states of the region;

To extend support as needed through exchange of knowledge and expertise available among the member countries;

To provide local resources towards implementation of projects and activities; and

To maximize the impact of support received from donor countries and other sources.

Since its creation, SACEP has implemented a number of projects and programs in the areas of environment education, environment legislation, biodiversity, air pollution, and the protection and management of the coastal environment. SACEP is also secretariat for the South Asian Seas Program. The Malé Declaration on control and prevention of air pollution and its likely trans-boundary effects for South Asia is another significant efforts, which encourages intergovernmental cooperation to combat the trans-boundary air pollution problem.

The SACEP Governing Council in its meeting held in August 2005 formally re-endorsed the role of SACEP as an intergovernmental organization of the region and to this end work

closely with all national, regional, and international institutions, governmental and non governmental organizations as well as experts and other groups involved with environmental protection and sustainable development.

While there are many environmental and development challenges common to the countries of the region, actions at regional level can create synergy and optimize the benefits. SACEP seeks to work in areas where regional cooperation and collective action can add value to member countries and produce better outcomes for the region. The 9th Governing Council has approved a new work program of SACEP which include the following broad areas:

Waste Management
Adaptation to Climate Change
Data Management

SACEP is also an appropriate forum for action on trans-boundary environmental issues. These are issues where the geographical scope or impact extend beyond national boundaries. One such area of engagement is control and prevention of air pollution and its likely trans-boundary effects.

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1.1.6. Southeast Asian Fisheries Development Center (SEAFDEC)

The Southeast Asian Fisheries Development Center (SEAFDEC) is an intergovernmental organization established in December 1967 for the purpose of promoting sustainable fisheries development in the region. Its current Member Countries are Brunei Darussalam, Cambodia, Indonesia, Japan, Lao PDR, Malaysia, Myanmar, the Philippines, Singapore, Thailand and Vietnam. Representing the Member Countries is the Council of Directors, the policy-making body of SEAFDEC. The chief administrator of SEAFDEC is the Secretary-General whose office, the Secretariat is based in Bangkok, Thailand.

In April 2009, during the 41st Meeting of the SEAFDEC Council, the Council adopted the new SEAFDEC Program Framework, including its mandate " to develop and manage the fisheries potential of the region by rational utilization of the resources for providing food security and safety for people and alleviating poverty through transfer of new technologies, research and information dissemination activities"

SEAFDEC Proposal for activities related to climate change and adaptation

Fishing and aquaculture households and coastal communities in the region are especially vulnerable to natural hazards as seen by the tsunami in 2004 and the typhoon Nargis in 2008. Throughout the regional coastal communities are facing similar hazards – hazards that are perceived to increase due to climate change. The impacts causes deaths of fisher-folk as well as loss of fishing and aquaculture assets and related onshore infrastructure, both of which have reduced the ability of households to earn income and sustain livelihoods. This is

also directly hitting the most vulnerable groups (poor fisher-folk communities, single headed households, illegal migrant workers, and others…).

In the process of implementation four main aspects that have been highlighted in various fora will be addressed and incorporated in the process:

The vulnerability of poorer coastal communities to natural hazards and the risk of them being (further) marginalized by not being reached by restoration efforts

Fishing capacity

Maintaining geographical features in the coastal areas, recognizing the importance of features (mangroves, corals, dunes, etc.) in the coastal areas for protection against natural hazards needs to be assessed as well as for fish reproduction.

Local knowledge and local organization: Several reports have pointed at the way in which certain coastal communities, based on their traditional knowledge, have more resilience and ability to adapt thereby facing less damage than other communities.

Three immediate objectives is to have:

Capacity for the management of fisheries and important coastal habitats (refugia) and the protection against natural hazards built up around the Andaman Sea (integration of habitat and fisheries management)

Capacity strengthened and systems improved to monitor, record and control active fishing effort (large and small scale) as a basis for development for coordinated plans for management actions on fishing capacity around the Andaman Sea and among ASEAN-SEAFDEC Member Countries (to prepare for adaptive measures needed to respond to impacts of climate change)

To provide support to policy development and the process to establish a regional fisheries management mechanism and sub-regional agreements for/in the ASEAN region including reached consensus on key issues

Results are to be delivered in four main categories:

Management options identified for the management of fisheries with emphasis given to the protection of coastal habitats, important for critical life-cycle stages of fisheries resources as well as for protection of coastal communities against future natural hazards (introduction of the refugia concept) - Integration of habitat and fisheries management

Management of fishing capacity based on expectations by climate change addressed, with a focus on Monitoring, Record and Control – large scale and small scale fishing

Local knowledge, and practices with regards to management and response to natural hazards, cross cutting issues and safety at sea

Policy development and promotion of regional cooperation on fisheries management with ASEAN, ASEAN-SEAFDEC Member Countries, FAO/APFIC, BOBLME, MFF and others

Activities have been identified to support achievement of expected results, including activities of regional as well as national nature. Among general regional activities work will be done to develop criteria to identify important areas, identification of areas (refugia) for special management, synthesis and analysis of fisheries situation, establish priorities for restoration and maintenance of geographical features, establish management regimes for identified areas and in various related fields advises will be provided together with attempts to raise the awareness on the need for better management. With a specific focus on fishing

capacity surveys will be done on the actual numbers, sizes, seaworthiness, etc of boats available and in conjunction an action plan will be developed to address over-capacity and the need to manage fishing effort and to deal with natural hazards including integration, as applicable, of local knowledge and responses. A "vessel record and inventory" for ASEAN-SEAFDEC Member Countries, should be built up in the process.

In some areas activities will be implemented that would include surveys of local knowledge and actions among ethnic groups and coastal communities in terms of responses to natural hazards and following that providing means of making local knowledge and practices available as input to processes to work out simple early warning system and response packages. In preparing and development of habitat and fisheries management activities will be done to review fisheries management systems in selected areas, to establish system to protect important nursery grounds and spawning areas in areas identified as critical habitats, to provide information on fish stocks conservation and sustainable fisheries practices (including efforts to mitigate effects of future natural disasters), to provide information on the importance to maintain coastal features (mangroves, sandy beaches, coral reefs, etc) to mitigate impacts of climate change and to develop and establish management regimes for the identified areas

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1.1.7. The Pacific Islands Applied Geoscience Commission (SOPAC)

The Pacific Islands Applied Geoscience Commission (SOPAC) is the main vehicle for the promotion of regional cooperation on DRR and CCA in the Pacific region. The SOPAC was established in 1972 under the Economic and Social Division of the UN as a project called the Committee for Coordination of Joint Prospecting for Mineral Resources in South Pacific Offshore Areas (CCOP/SOPAC). It became an autonomous intergovernmental organization in 1984 with the signing of an agreement, initially among the 12 island countries, Australia and New Zealand, which was subsequently expanded to 7 other island countries. The focus of its work was also broadened from marine mapping and geosciences to include hazard assessment and risk management for sustainable development.

Programs/policies related to DRR

Regional framework for disaster risk management

The Pacific island countries are confronted by its geographical settings of "big ocean, small islands" which contribute to environmental, economic and social exposure of the nations and communities to the risks of multiple hazards and risks. These risks of disasters are common to all the island countries and can be effectively addressed only at the regional level. Therefore close to the adoption of the Hyogo Framework of Action 2005-15 in January 2005, the Governments of the Pacific Island countries developed a regional framework for disaster risk management titled "*An Investment for Sustainable Development in the Pacific Island Countries – Disaster Risk Reduction and Disaster Management A Framework for Action 2005-2015: Building the Resilience of Nations and Communities to Disasters",* which

was agreed at the 12th Pacific Regional Disaster Management Meeting in June 2005 and endorsed by the leaders at the Thirty-Sixth Pacific Islands Forum in October 2005. The Vision of the Framework is 'safer, more resilient Pacific island nations and communities to disasters, so that Pacific peoples achieve sustainable livelihoods and lead free and worthwhile lives'. The Mission is to 'build capacity of Pacific island communities by accelerating the implementation of disaster risk reduction and disaster management policies and, planning and programs to address current and emerging challenges' through an 'all hazards' and 'whole of government' approach to reducing the risks and vulnerabilities. The Regional Framework has six themes that are closely aligned with the five themes of the Hyogo Framework of Action. These are as follows:

- Organizational, Institutional, Policy and Decision-Making Framework
- Knowledge, Information, Public Awareness and Education
- Analysis and Evaluation of Hazards, Vulnerabilities and Risks
- Planning for effective Preparedness, Response and Recovery
- Effective, Integrated and People-Focused Early Warning Systems
- Reduction of Underlying Risk Factors

Each thematic area lists key national and regional activities with the theme's expected outcomes at the end of the 10 year implementation period.

Programs/policies related to climate change adaptation

South Pacific Sea Level and Climate Monitoring Project

South Pacific Sea Level and Climate Monitoring Project is being implemented by the SOPAC to improve scientific knowledge of ocean and island ecosystems in the context of climate change for the sustainable management of natural resources. The project measures sea levels and monitors climate in 12 Pacific Island countries. In each of the project countries a tide gauge has been installed on the main wharf. This measures sea level, sea surface temperature, wind speed and direction and atmospheric pressure 24 hours a day, 365 days of the year. The information collected is transmitted via satellite to the Australian Bureau of Meteorology where it is analyzed and made available to the public through the project website http://www.bom.gov.au/pacificsealevel.

A continuous global positioning system network (CGPS) has also been installed and linked to the tide gauges to measure vertical and horizontal earth movements. Six monthly reports containing an analysis of data collected in every country, tide prediction calendars, project brochures and fact sheets are provided to each participating country.

This information is vitally important for navigators, meteorologists and other weather professionals, also, environment and coastal planners, surveyors and engineers. The ultimate goal of the project is to provide environmental information to the Pacific Island Countries and regional partners that can be applied to managing coastal environments and to enable countries to respond to extreme weather conditions. The applications are numerous and are useful to make better decisions regarding the impact of climate change on human health, water resources and marine biodiversity.

SOPAC is mobilizing technical and financial resources for regional and local level risk assessment and for development of regional early warning system. One of the critical areas of risk assessment is to understand in precise terms the impacts of sea level rise in different islands due to global warming and climate change. A number of studies have been commissioned to study the local level impacts of climate change and the measure required to mitigate the risks of climate related disasters and adapt to such changes across sectors.

1.1.8. Secretariat of the Pacific Community (SPC)

The Secretariat of the Pacific Community is a regional intergovernmental organisation whose membership includes both nations and territories. It aims to "develop the technical, professional, scientific, research, planning and management capability of Pacific Island people and directly provide information and advice, to enable them to make informed decisions about their future development and well-being." The SPC headquarters is in Nouméa, New Caledonia. SPC's technical programs are coordinated under three divisions, Land Resources, Marine Resources, and Social Resources:

Land Resources Division

The Land Resources Division, which is based in Suva, comprises two programs – sustainable management of forest and agriculture systems, and bio-security and trade facilitation. It provides advice, expertise, technical support and training to members on all aspects of agriculture and forestry, including:
Plant health
Animal health
Bio-security and trade
Forest and agriculture diversification
Crop production
Animal production
Genetic resources
Information, communication and extension
Forest and trees

Marine Resources Division

This division includes coastal, oceanic fisheries and maritime programs.

The Coastal and Oceanic Fisheries Programs

The objectives of the Coastal and Oceanic Fisheries Programs are:
Assist Pacific Island fishing communities to participate in and benefit from regional and national fisheries development and management activities
Provide technical advice, assistance and training on developing small-to-medium-scale commercial tuna fisheries
Conduct research and monitoring of the region's tuna and reef fisheries
Assist Pacific Island governments in providing an enabling environment for economically and ecologically sustainable aquaculture

The Maritime Program

The Maritime Program works with the maritime sector of member countries and territories to:

Review, update and implement maritime legislation (critical to compliance with international requirements)

Facilitate training to ensure that all seafarers meet international standards, which in turn promotes safer ships and cleaner seas, and helps to secure employment for Pacific Island seafarers

Social Resources Division

This division covers a broad range of areas and includes the:

Human Development Program – provides community education, and supports policy making and analysis relating to culture, gender equality and youth

Public Health Program – technical support and advice on non-communicable diseases (such as diabetes and heart disease); communicable diseases (HIV/AIDS and STIs, tuberculosis); adolescent reproductive health; nutrition; physical activity; alcohol and tobacco control; public health surveillance

Statistics and Demography Program – strengthens the capacity of national statistical systems to ensure the availability of accurate economic and social indicators to support evidence-based decision-making

Media Production and Training – provides training to Pacific Islanders in radio, video, television, graphic design and desktop publishing, and produces the 'Pacific Way' television series

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1.1.9. The Pacific Regional Environment Program (SPREP)

The Pacific Regional Environment Program (SPREP) is an intergovernmental organization charged with promoting cooperation, supporting protection and improvement of the Pacific islands environment, and ensuring its sustainable development. SPREP was established in 1982. There are 25 members: American Samoa, Australia, Cook Islands, Federated States of Micronesia, Fiji, France, French Polynesia, Guam, Kiribati, Marshall Islands, Nauru, New Caledonia, New Zealand, Niue, Northern Marianas Islands, Palau, Papua New Guinea, Samoa, Solomon Islands, Tokelau, Tonga, Tuvalu, USA, Vanuatu, Wallis & Futuna. The Secretariat runs two programs.

Island Ecosystems

Island Ecosystems works to assist Pacific island countries and territories to manage island resources and marine ecosystems, so they can support life and livelihoods, covering:

Island ecosystems
Coastal and marine ecosystems
Species of special interest
People and institutions

Pacific Futures

Pacific Futures works to assist Pacific island countries and territories to plan and respond to threats and pressures on island and ocean systems, covering:
Managing multilateral environmental agreements and regional coordination mechanisms
Environmental monitoring and reporting
Climate change and atmosphere
Waste management and pollution control
Environmental planning

Pacific Islands Framework for Action on Climate Change

In 2005 the Leaders endorsed the Pacific Islands Framework for Action on Climate Change. The Framework's goal is to ensure that Pacific Island peoples and communities build their capacity to be resilient to the risks and impacts of climate change with the key objective to deliver on the expected outcomes under the following Principles:
Implementing adaptation measures
Governance and decision-making
Improving our understanding of climate change
Education, training and awareness
Contributing to global greenhouse gas reduction; and
Partnerships and cooperation
This action plan is intended to contribute to the implementation of the Framework through actions taken in response to meeting the key outcomes under each of these principles. This action plan is regional in nature, with national activities complemented by regional programming in support. It provides an indicative menu of options for action on climate change. An accompanying matrix will also be developed in order to provide a clear overview of ongoing and planned activities at the national and regional levels, with responsible agencies or entities, and ensure that interested donor countries and agencies are able to identify initiatives to support, so that their work aligns to Pacific priorities. By clearly identifying actual existing programs and projects within the matrix of activities it is expected that national officials and local stakeholders, as well as interested donor countries and partner organizations can ensure greater leverage of resources to the region for climate change work. This will also allow for a clearer alignment between different initiatives.

It is envisaged that project activities will be implemented by PICTs in line with these principles at the national and regional levels, supported by the CROP, and in partnership with other agencies such as civil society organizations that work on climate change in the region. The action plan identifies key areas in PICTs that will be impacted by climate change. These key areas are food security and agriculture, health, coastal areas and infrastructure and water resources, as highlighted by PIC National Communications and by the IPCC. Sectors of

importance to the sustainable development of PICTs such as tourism, land-based resources, fisheries, industry and biodiversity will also be considered under this action plan.

At the Pacific Islands Climate Change Roundtable meeting to review the Framework, held in Madang, PNG, in June 2005, ideas for developing an action plan for the Framework were generated. This action plan builds on those initial elements. The action plan should be seen as a living document that will require monitoring and evaluation over time. PICT Governments, their development partners and regional organizations, and all stakeholders at the community and national levels should utilize the action plan and its matrix to guide their climate change activities and planning. The implementation of the action plan will also be guided by decisions and activities at the level of the UNFCCC and GEF, but in turn the work under the action plan will assist PIC delegates to the meetings of UNFCCC and GEF to formulate positions to optimize technical and financial support for the region.

In order to ensure appropriate coordination of activities under the Framework, a Pacific Climate Change Roundtable (PCCR) has been reconstituted. Since responsibility for the Framework's regional and international actions can and should be shared by the region's organizations, SPREP has been called upon to convene regular meetings of the PCCR inclusive of all regional and international organizations, as well as civil society organizations, with active programs on climate change in the Pacific region to:

Help update the PICTs on regional and international actions undertaken in support of the Framework;

Share lessons learned from best practices in the implementation of climate change programs

Voluntarily lead or collaborate in implementing and monitoring actions relevant to their Priorities and work programs;

Agree on mechanisms for measuring progress, identifying difficulties, and addressing actions needing special attention; and

Disseminate information on new and existing funding modalities and opportunities

The PCCR should meet at least once a year, acting as a monitoring and evaluation mechanism for this action plan and as a coordinating body for activities under the Framework. Funding for the PCCR will be sought from traditional donors as well as other interested countries and organizations. Meetings will be convened conditional upon such support. The PCCR should also operate as an on-line forum, through which the matrix can be regularly updated and other information can be shared, including through the SPREP climate change portal.

SPREP, acting as the secretariat for the PCCR, should in cooperation with CROP, draft the agenda for the PCCR and circulate these to national climate change focal points for final clearance, issue invitations to PICTs and relevant organizations, and arrange for financing for the participation of delegates from the PICTs. To assist SPREP in preparing for and convening the meetings of the Pacific Climate Change Roundtable, a Facilitator should be appointed. This post should be financed under normal consultancy procedures.

CROP and other agencies should appoint focal points for the PCCR as appropriate, and ensure that CROP participation in the meetings of the PCCR are assured. PCCR meetings should

be open to all interested countries, organizations, agencies and civil society stakeholders. Rules of procedure for the meetings should allow for an interactive, multi-disciplinary and inclusive dialogue.

SPREP will seek to ensure that points of contact at the national levels and in CROP are readily available and kept up to date through the climate change portal.

Programs related to climate change

SPREP members have identified five main focal areas to guide the strategic direction for CC related programs

Strengthened Meteorological Services

Objective: meteorological and climatologically capacities of Pacific Island Countries (PICs) need to be strengthened to plan and respond to climate variability and extreme weather events.

Understanding Climate Change, Variability and sea level rise

Objective: to reduce uncertainties in climate prediction and scenario development through the use of clearinghouse mechanisms. More research needs to be done to understand climate variability, climate change and sea level rise through information, modelling and clearinghouse mechanisms. Such research needs to identify and assess vulnerabilities as well as impacts.

Vulnerability, Adaptation and Mitigation

Objective: to develop frameworks for analysing Impacts and Vulnerability and develop adaptation response measures . Pacific islands urgently need to adapt to climate change and adopt mitigation options and coordination and assistance is needed to assess and implement feasible options and access funds for implementation of activities.

Policy Development on Climate Change

Objective: To enhance the development of climate change policy in PICs internationally, regionally and nationally and to identify and secure funding. Technical/legal advisory services needs to be provided to assist Pacific island parties implement the UNFCCC and to ensure consistency with other international processes such as the WSSD Type II initiatives, Barbados Plan of Action +10. Linkages also need to be made with the Convention on Biological Diversity and related instruments such as the Convention on Desertification. At the regional level SPREP will continue to coordinate the Regional Framework for climate change and its attendant round-table process, and assist with mainstreaming climate change into developmental processes and capacity building activities.

Ozone-Depleting Substances

Objective: To assist in facilitating the phase-out of CFCs by 2005 in eight core countries
Taking into account the linkages between ozone-depleting substances (chlorofluorocarbons) and greenhouse gases, SPREP is working to implement the objectives of Montreal Protocol on Substances that Deplete the Ozone Layer to the Vienna Convention for the Protection of the Ozone Layer, to eliminate ozone depleting substances by the year 2005.

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1.2. Regional Organizations

The section presents a wide range of institutions and organizations that are regional in nature but are not based on the initiatives of the sovereign States, although national governments may be associated with such ventures.

1.2.1. Asian Disaster Preparedness Centre (ADPC)

The Asian Disaster Preparedness Centre (ADPC) was established in 1986 as an outreach activity of the Asian Institute of Technology in Bangkok, with support from the Government of Thailand, on the recommendation of UN Disaster Relief Organization, with the aim of strengthening the national disaster risk management systems in the region. In 1999, ADPC became an independent entity, governed and guided by a Board of Trustees (21 members representing 15 countries) and advised by a Regional Consultative Committee (32 members from 26 countries) and an Advisory Council (55 members from a wide range of agencies). The focus of the ADPC has also shifted from disaster response and preparedness to risk reduction and mitigation.

'Safer communities and sustainable development through disaster risk reduction' is the vision of ADPC, which is in tandem with the Hyogo Framework of Action and its mission is to mainstream disaster reduction in development, build and strengthen capacity and facilitate partnerships and exchange of experiences. In accomplishing its mission, ADPC has developed and implemented cross-sectoral programs and projects in different thematic areas disaster risk management, such as (a) Climate Risk Management, (b) Community-Based Disaster Risk Management, (c) Disaster Risk Management Systems, (d) Public Health in Emergencies, (e) Training Resources and (f) Urban Disaster Risk Management. The contributions made by ADPC in development of capacities, systems and processes in different regions of the Asia-Pacific, particularly in the South East and South Asia are widely acknowledged.

The mechanism of Regional Consultative Committee that involves high level policy makers of the national governments of 26 countries (10 South East, 8 South, 3 East, 2 each from Central and West Asia and 1 from the Pacific) in annual meetings on specific themes, hosted by the national governments, has played significant role in promoting regional and sub-regional cooperation for disasters risk mitigation and preparedness. Since 2000 eight such meetings have taken place in the region, each contributing to better understandings of the current and future disaster risk management challenges and issues. The accumulated operational experience and expertise of ADPC has been useful in providing valuable technical support to the national governments and regional organizations towards their efforts for disaster risk management.

In 2004, ADPC conducted a study for the Embassy of Sweden/SIDA on Environmental Degradation and Disaster Risk. This study was initiated with two goals in mind. First, to determine whether empirical evidence is available to support the supposition that environmental degradation and disaster management are linked and; second to determine whether the prevention dividends associated with wise environmental management are measurable. The study concluded "until site-specific information about the impacts of environmental changes on hazard probabilities are available, quantification of the benefits of environmental management will continue to be elusive. Even when such information is available, cost-benefit analyses will only reflect a portion of the benefits of prevention since methodological approaches of capturing intangible and indirect costs remain underdeveloped. While models are being refined, we can promote general interest in the potential linkage between disaster risk and environmental degradation. Project developers might support ecological assessments in the vicinity of disaster management initiatives and disaster management initiatives might incorporate more ecological information in the assessment of risk and vulnerability."

In 2004, ADPC conducted the Study for the Establishment and Operationalization of ASEAN emergency response and strategic planning institute for environmental disasters. The study was initiated on the recommendations made at the Eight Association of South East Asian Nations (ASEAN) Ministerial Meeting on the Environment (AMME) held in October 2000, where the chairman proposed the setting up of an emergency response and strategic planning institute for environmental disasters which would include monitoring, rescue, research and training activities. The recognition that agricultural methods are changing, land use is diversifying, and that fire has been and will continue to be an essential tool in farming practices and had lead to the need for a regional approach to dealing with transboundary environmental issues. Asian Senior Officials on the Environment (ASOEN) was requested to explore this initiative in consultation with existing ASEAN mechanisms. Following this action, in November 2001, at the 8th Joint Sub Regional Firefighting Arrangement (SRFA) Meeting, ASEAN presented the draft Terms of Reference (TOR), and it was recommended that the study should be conducted in all ASEAN Member Countries. The ADPC was selected in 2003 to conduct the study. The study was conducted by ADPC from July 2003 to July 2004 and a final report was submitted based on series of planning meetings with ASEAN Secretariat, with government representatives to the 14th ASOEN Meeting, visits to ASEAN Member countries, relevant documents provided by the ASEAN Secretariat and the member countries, and draft report at the Experts Group Meeting held in Kuala Lumpur in April 2004.

The key recommendations are:

- Development of an ASEAN Regional Program on Environmental Disaster Preparedness and Management
- Prioritization of the Implementation on Program on the Management of Forest and Land Fires and Trans-boundary haze.
- Establishment and Operationalization of the ASEAN Coordinating Center.

In 1998, with the growing understanding on El Nino, it was recognized that disasters related to climate phenomena was wreaking havoc on people's lives, their economies, and the development of their countries. With the assistance of OFDA and NOAA, ADPC set out to closely examine in its project on Extreme Climate Events Program (1999-2003); how climate,

especially El Nino and La Nina interact with the local climate. ADPC and its partners in Indonesia, Philippines, and Vietnam researched this issue for almost two years to enhance understanding. Compilation of already existing information and documentation of it, so that the scientific community and decision makers could access it readily, to draw upon national and international forecasting experts to identify indicators of impending extreme climate events and to provide an interface between scientific community of climate information producers and the users of this information, such as national governments, NGOs, and press bureaus; were the three main objectives of the project in its first phase. The second phase of the project had two main activities: Capacity Building and Demonstration Projects. Capacity Building and Training for ECE involved enhancing skills and strengthening institutions at the national and local level, how climate information can be used to enhance decision-making and reduce the risks of disasters from extreme climate events. The project was successful in bringing together the scientific community on climate science and the policy makers together, and understanding the necessity to manage and use such information.

One of ADPC's roles as an agency is to support regional cooperation in disaster management between countries of the region. One mechanism for achieving it is by having a Regional Consultative Committee (RCC) on Disaster Management with heads of the National Disaster Management Offices (NDMOs) from 25 countries round Asia as its members. The RCC has met annually since 2000 to provide an active forum for regional and sub-regional cooperation in disaster management and to advice and guide ADPC of the priority needs of individual countries. These meetings are convened by ADPC and co-organized in collaboration with the Government of the host country. A key direction provided by the RCC has been to take up mainstreaming of disaster risk reduction into policies, planning, and implementation. Accordingly the RCC Program on Mainstreaming Disaster Risk Reduction into Development (MDRD) was launched in 2004. The program looks into integrating disaster risk reduction into key sectors namely Agriculture, Education, Health, Finance, Housing, Infrastructure, and Environment.

Under the sector on Environment the program looks at two outputs as follows:

Output 1 - Develop RCC Guidelines on Integrating Disaster risk reduction aspects into Environmental Impacts Assessment. This Guideline would be a general document, which can be referred by all RCC Member countries and would provide them guidance on the process to integrate DRR into EIA.

The Guideline is divided under the following heads of

- Rationale for integrating DRR into EIA
- Approach for integration
- Good practices and successful experience of integration
- Detailed step for integration

Output 2 - Carry out an implementation project in a country. The project would give a first hand experience of integration. Following are the suggested steps to be taken up in the implementation project.

Establishment of Working Group and Advisory Group with officials from NDMOs, Ministry of Environment and other agencies to carry out the integration.

Revising EIA process integrating DRR, establishing the TOR for EIA with components of DRR included
Revising the application form and instructions to developers for submission of EIA Report
Initiate the enforcement of the revised EIA process by cabinet/parliament approval and/or by national order depending on the country situation
Wide publicity of the new procedure.

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1.2.2. Asian Disaster Reduction Centre (ADRC)

The Asian Disaster Reduction Centre (ADRC) Kobe was set up in 1998 by the Government of Japan with mission to enhance disaster resilience of the Asian countries and communities and to establish networks among countries through various programs including exchange of personnel working in the field of disaster risk management. So far 28 countries of the Asia-Pacific (9 South East, 6 South, 4 East, 7 Central and 1 each from West Asia and the Pacific) have joined this network.

The most significant contribution made by the ADRC is the Sentinel Asia project, which is an initiative for establishing a disaster management support system for the Asia-Pacific region utilizing the data from earth observation satellites. The project involves 51 organizations including 44 agencies from 18 countries and 7 international organizations for emergency observation of major disasters through remote sensing data received from the satellites, interpretation of the data and their conversion into digital maps easily accessible and understandable to disaster risk managers in the region.

ADRC maintains a repository of data and good practices on disaster management in the Asia-Pacific region, conducts studies for the promotion of disaster reduction, develops education and training materials for dissemination of knowledge and capacity building and organizes various conferences and workshops on various general and specialized themes. The annual Asian Conference on Disaster Reduction convened by the ADRC in January every year, coinciding with the anniversary of Kobe earthquake, is participated by disaster management officials from the member countries and experts from international organizations to promote information sharing, exchange opinions, and enhance partnerships among participating countries and organizations.

Although ADRC does not have a clear policy for CCA, ADRC is planning to work on a CCA project in the near future. Following section is the on going and planned regional projects implemented by ADRC.

Ongoing projects

ASEAN capacity building courses

The ADRC has been conducting a three-year project since 2008, which is aimed at building capacity of officials of ASEAN member countries. This project consists of the following:

- Development of Web-based and GLIDE-associated Disaster Database;
- Promotion of Satellite Imagery Application to Disaster Management;
- Promotion of Disaster Education in Schools; and
- Capacity Building of Local Government Officials on Disaster Management.

Transfer of Disaster Management Measures of Japan to Enhance National Capacity in Asia

The ADRC has been providing technical support to the "Project on Transfer of Disaster Management Measures of Japan to Enhance National Capacity in Asia", which is a new initiative of the Cabinet Office, Government of Japan. This project is designed to provide technical support to the ADRC member countries based on experiences in successful disaster risk reduction activities in Japan.

ADRC Publications

The ADRC produces its annual/periodical publications, including: "Good Practices", a compilation of leading efforts made by member countries towards DRR; "Data Book", which compiles and analyzes the trends and situation of natural disasters.

Promotion of Global Unique Disaster Identifier Number (GLIDE)

Since 2001, the ADRC has been collaborating with various organizations such as UNOCHA/ReliefWeb in promoting the use of a globally common, unique identification scheme for disaster events named "Global Unique Disaster Identifier (GLIDE)."

Application of space-based technologies to disaster risk reduction

The ADRC, in cooperation with space agencies such as GISTDA, ISRO, KARI and JAXA, has been promoting the application of space technologies to disaster risk reduction in the framework of Sentinel Asia by providing countries in Asia with satellite imagery of disaster-affected areas upon their requests for emergency observation. This work has been expanded recently. UNOOSA and the ADRC reached an agreement in June 2009 that the ADRC would perform as a Regional Support Office in Asia of the UN-SPIDER Program. Furthermore, the ADRC will escalate an emergency observation request from member countries to the International Charter “Space and Major Disasters” to obtain satellite data from other space agencies around the world, in addition to the four agencies of Sentinel Asia.

Visiting Researcher Program

Every year, the ADRC invites Visiting Researchers (VRs) from its member countries since its inception. To-date, a total of forty-eight VRs have joined the program from twenty member countries. VRs spend up to six months at the ADRC during which they are engaged in their own research activities, such as comparison of disaster management system between their countries and Japan. VRs also have chances to learn more about disaster management systems and practices in Japan through participation in various training courses provided by the ADRC.

JICA training courses

The ADRC has been in cooperation with JICA to conduct various training courses for the purpose of building capacity of officials and experts across Asia. The JICA courses implemented by the ADRC for 2010 include:

- Comprehensive Disaster Risk Management;
- Disaster Management Training Course for Central Asia and the Caucasus;
- Dissemination and Establishment of Disaster Prevention Culture for Asian Countries 4) Earthquake Resistant Construction and Planning for China (tentative)

ADRC Peer Review

The ADRC launched the "DRR Peer Review" to facilitate mutually learning process among member countries in strengthening DRR policies. It is conducted in such a way that reviewers composed of officials from other member countries, experts and the ADRC staff members visit countries and conduct on-site study by interviewing relevant officials. On the last day of the on-site study, reviewers and a target country will get together to share their experiences and exchange information.

Planned projects

Glacier Lake Outburst Flood (GLOF) Project in Bhutan - It has been observed that the frequency of the occurrence of Glacier Lake Outburst Flood (GLOF), which may cause disasters to life and property along the downstream, has been increasing in the second half of the twentieth century in the Himalayan region or elsewhere. Glacial lake outburst flood (GLOF) causes serious death tolls and destruction of valuable forests, farms and costly mountain infrastructure. It is expected that baseline surveys will be conducted in 2010 to be followed by a series of activities for awareness raising including the production of GLOF hazard maps and relevant materials for the use of local government officials.

Information needs

CCA and DRR is a new area for most of countries and DRR communities in Asia. Therefore there are needs for good access of relevant information on the methodologies and tools for promoting CCA and DRR activities, as well as information sharing among relevant organizations and countries.

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1.2.3. World Wide Fund for Nature (WWF)

WWF's global network is active in 100 countries on over 2,000 conservation programs. WWF has been working for 45 years to protecting natural areas, save endangered species, and address global threats such as deforestation, over-fishing and climate change. WWF recog-

nizes the delicate and complex balance between the ecosystems, communities, governments and market forces. By identifying these interrelationships, WWF is developing multi-layered approaches to address conservation. WWF's work crosses all sectors and scales, from on-the-ground conservation to international policy.

The tragedy wrought by the 2004 Asian tsunami has resulted in the establishment of several innovative partnerships between environment, humanitarian aid and development organizations to find practical solutions for the lasting benefit of both people and nature in the Asia Pacific region. Shortly after the tsunami struck, World Wildlife Fund (WWF) and the American Red Cross formed an innovative, five-year partnership to help survivors rebuild their communities as well as the natural environments on which they depend. By combining the humanitarian aid expertise of the American Red Cross with the environmental expertise of WWF, the Partnership will ensure a long-lasting recovery by restoring livelihoods, protecting natural resources, and strengthening communities against future disasters.

As a global leader in delivering humanitarian aid, the American Red Cross is meeting immediate needs and engaging in long-term recovery efforts in areas such as water and sanitation, housing, livelihoods, and disaster management. As a leading authority on environment management, WWF is advising the American Red Cross on the best practices for rebuilding communities with a commitment to long-term recovery success. WWF is providing guidance to help American Red Cross staff in the field address environmental issues as they continue to help communities recover.

Soon after the tsunami, WWF wrote the "Green Reconstruction Policy Guidelines" as a road map to recovery and a guide for managing the consequences of disasters. These guidelines are helping the American Red Cross and others involved in tsunami recovery to plan and implement projects while protecting the natural resources those communities rely on. WWF and the American Red Cross are currently working together in Indonesia, the Maldives, Sri Lanka and Thailand focusing on four major areas:

Livelihoods: In many of the tsunami-affected areas, livelihoods were literally washed away. Restoring lost jobs, economic opportunities, food sources, and a sense of purpose within communities is a necessary step toward full recovery. WWF is assisting the American Red Cross in developing sustainable fishery, aquaculture and agricultural practices, while also training survivors in resource management techniques. By doing so, survivors are returning to work, restoring their traditional daily activities, while, at the same time, reducing the impact on natural ecosystems.

Water and Sanitation: Access to clean water is vital to survival. WWF and the American Red Cross are supporting communities as they restore their water systems in order to have clean, safe water for agriculture, aquaculture, washing and cooking, while protecting streams, rivers and marine environments. In the past year, WWF and the American Red Cross have helped develop watershed and waste management plans in Indonesia, Thailand, and Sri Lanka.

Rebuilding: Rebuilding homes and other structures is one of the greatest needs to re-establish a sense of community and security for people. Rebuilding needs to incorporate proper planning so it will not cause further damage to ecosystems such as forests, man-

groves, and coral reefs. It is also vital that future generations have access to the materials they need, like forest timber. The American Red Cross and WWF are working to restore infrastructure and build homes in ways that minimize the destruction of natural resources which could expose communities to future harm. In the past year, WWF and the American Red Cross helped humanitarian aid agencies utilize sustainably-sourced timber to prevent further deforestation in Indonesia.

Disaster Management: Addressing the effects of disasters means much more than just restoring what was lost. Communities and the environment must also be prepared to deal with future disasters. The American Red Cross and WWF are helping train communities to respond to future disasters, as well as strengthening natural buffer systems to minimize the effects of those disasters. With proper preparation, the Partnership is reducing community vulnerability and helping to prevent and prepare for future disasters.

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1.2.4. The World Conservation Union (IUCN)

IUCN, as a global conservation union of more than 1000 government and NGO members as well as its' expert networks, is mobilizing its members and partners to develop and use conservation knowledge for human well-being. In the case of natural hazards, IUCN assists societies around the world to make better ecosystem management decisions to reduce the risk of disasters and to re-establish sustainable livelihoods in the aftermath of disasters. Realizing there is a strong linkage between ecosystems, livelihoods and disasters, IUCN has taken into account ecosystem characteristics and their services in many projects and programs in order to assist people securing their livelihoods and enhance people resilience to natural disasters over the long term. Followings are some key projects of IUCN in which environment, disaster and development have been integrated. IUCN Asia is undertaking a range of climate change activities in Asia in cooperation with international and national partners. The focal areas of IUCN's work are:

- Identify potential impacts of and vulnerability to climate change of socio-economic sectors and geographical regions in Indochina and South Asia
- Develop climate change adaptation programs and strategies
- Mainstream climate changes issues in planning tools and management strategies
- Raising awareness and building capacity in coping with and adapting to climate change

A key activity has been the development of an ecosystem-based adaptation approach to climate change, which involves measures to build resilience and reduce risk for local communities and ecosystems. It includes a range of local and landscape scale strategies for

managing ecosystems to increase resilience and maintain essential ecosystem services and reduce the vulnerability of people, their livelihoods and nature in the face of climate change. Other climate change activities of the IUCN include:

- National Plans and Strategies to adapt to and mitigate climate impacts
- Science and Technology Strategies to adapt to climate impacts and mitigate GHG emissions
- Climate Change Action Plans for economic sectors and special economic zones
- Mainstreaming climate change issues in agricultural and aqua-cultural development
- Technology transfers in mitigating GHG emissions
- Facilitating international partnership and cooperation
- Awareness raising and capacity building
- Policy and institutional supports in climate change adaptation and mitigation
- Consulting in scientific and technological development in climate change issues and use of natural resources
- Developing action plans to cope with and adapt to climate change

Consulting in negotiation process and other climate-related issues for governments of Thailand, Lao PDR, Cambodia, and Vietnam.

Project related to DRR and CCA implemented by IUCN

Mangroves for the Future

Launched in September 2005, Mangroves for the Future is a multi-agency, multi-country initiative for the long-term conservation and sustainable management of coastal ecosystems such as mangroves, coral reefs, wetlands, forests, lagoons, estuaries, beaches and sandy shores. It covers twelve tsunami-affected countries in South and Southeast Asia and the Western Indian Ocean. The initiative involves collaboration between multiple partners, including government agencies, non-governmental and community-based organizations, research institutes and universities, the World Conservation Union (IUCN), UN agencies and other multilateral bodies.

Mangroves for the Future provides a platform, which brings together the efforts of different countries, sectors and agencies under a common goal — to conserve and restore ecosystems to sustain human livelihoods, increase resilience and reduce vulnerability among coastal communities in the Indian Ocean Region.

The initiative has received enthusiastic support from the many organizations involved in coastal management and post-tsunami reconstruction. As a result of this support and interest, a detailed process of consultation and dialogue has been undertaken in tsunami-affected countries and at the global level, in order to identify priorities, needs and partnership arrangements, and to establish a comprehensive strategy and program document. These were presented to a donor roundtable in New York on 12 September 2006, where pledges of funding for the initiative were made.

Mangroves for the Future started implementation 1 January 2007. It will engage and directly involve a wide range of stakeholders from governments, international agencies, NGOs,

CBOs, the private sector and local communities to work towards a common goal. At the regional level, implementation of the initiative will be supported and guided by a Regional Steering Committee co-chaired by the World Conservation Union (IUCN) and the United Nations Development Program (UNDP), which will include representation from national governments, UN agencies (United Nations Environment Program, Food and Agriculture Organization, in particular) and non-governmental organizations.

At the national level, Mangroves for the Future will be coordinated and steered through strengthening the existing mechanisms for coastal management which bring together different agencies, sectors and civil society groups. On the ground, the initiative will be implemented through a series of individual actions that are linked by a common goal and strategy, but are spread out geographically, temporally, and in terms of management and implementation responsibility. Many different agencies and organizations will take the lead in implementing these actions.

Coral bleaching is increasingly being seen as a social-ecological disaster, with similar social and economic consequences as other hazards induced by human processes. Mass bleaching events can eventually have severe impacts on food sources, biodiversity, tourism income and coastal protection and are predicted to increase in frequency and severity. To combat this problem, IUCN has brought together some the world's leading coral reef scientists and managers to expedite the creation of practical management tools to strengthen the resilience of coral reefs. With the support from the MacArthur Foundation, IUCN has established a Marine Working Group on Climate Change and Coral Reefs (CCCR), with its first purpose to address the issue of resilience, coral reefs and climate change. The main outcome is to bridge the science-management gap and create management tools for the conservation of coral reefs in the face of climate change. The project period is 2006-2008. The global initiative aimed at studying the implications of climate variability and change in water resource policies and management modes

Promotion of Adaptation to Climate Change and Climate Variability in Bangladesh

The coastline of Bangladesh is particularly vulnerable to the sea level rise (SLR) in the Bay of Bengal on account of the low-lying deltaic environment. Climate change may exacerbate erosion, accretion, floods, water logging, cyclones and tidal surges in the coastal region. Against this backdrop, the coastal inhabitants dependent on its resources for their livelihood sustenance are exposed to the vulnerabilities. Considering these facts, this project has been initiated and is being carried out in Noakhali Sadar and Subarno Char thanas of Noakhali district to make specific recommendations for promoting adaptation.

The main focus of the project to influence the policy regime relevant to coastal zone management that will be better informed and this will be attained through multi-layered project outputs: impact analysis of climate change on livelihoods, especially fishermen and farmers; capacity assessment of local institutions and formation of a national level advisory committee and network of experts. Donor: The Netherlands Climate Change Assistance Programme (NCAP) - Phase II

Floating gardens (baira) for sustainable livelihood in selected haor areas of Bangladesh

Lack of cultivatable space over the long flooding period is a vital concern in the haors of Bangladesh and it restricts the livelihoods of the local communities. The present project aimed at the promotion of baira cultivation or floating gardening, an age old agricultural system in southern Bangladesh, in the haor area to overcome this constrain. This project will facilitate baira cultivation in the area including consumption/marketing of the products, and to sensitize the local vulnerable people towards this useful technique. Through appropriate capacity building and community organization this initiative will promote baira cultivation as a sustainable alternative livelihood in monsoon as well as in winter through seedling raising and vegetable gardening. The project will test the feasibility of baira introduced in the project area for the enhancement of livelihood, thus the food security of the vulnerable people will be promoted. Donor: CARE Bangladesh

Linking biodiversity with livelihood in selected coastal areas of Bangladesh

The people of Bangladesh are deeply dependent upon the natural resources where biodiversity occupies a significant part. The coastal areas are more vulnerable than any other areas of the country, especially as they suffer from natural calamities. The project focuses on establishing a linkage between biodiversity and livelihoods of the people of a village in Cox's Bazar District, Bangladesh. This project will assess the natural capital (i.e. biological resources) available for the people in the project site and document traditional and current dependency on this capital. A participatory action plan will be developed through community initiative to establish the linkages between livelihood and biodiversity, and to encourage people to manage biological resources sustainably. It is expected that this project will demonstrate how a rural community with enhanced awareness and knowledge levels can recognize the importance of biodiversity in their livelihood and practice a sustainable utilization system in an organized manner. Donor: CARE Bangladesh

Organizing Resource Generation and Nutrition Support Project

As a follow up of a pilot project (2005-2006), IUCN Bangladesh and CARE Bangladesh have jointly been implementing the 'Organizing Resource Generation and Nutritional Support (ORGANS)' project in the haor region of CARE's SHOUHARDO Program. The project aims to contribute to the food security of the vulnerable population through floating gardening (baira) and associated winter gardening farming initiative. Using the available natural resources, the project will facilitate community mobilization and capacity building to promote sustainable homestead-based year-round agriculture practices as an alternative livelihood option in 100 villages of all the four districts of SHOUHARDO Haor Region over April 2007 to June 2009. In the first year, the project will primarily focus on 25 villages of Kishorganj and Sunamganj Districts covering 250 households with about 1,700 family members. The project envisages to aware and trains the respective Village Development Committees (VDCs), relevant SHOUHARDO Partner NGOs and CARE staff in the project areas. It will further encourage the target farmers to sell possibly the surplus of their produces in the local markets and earning income for household livelihood support. Donor: CARE Bangladesh/USAID

Climate Change Adaptation Target Setting Project

The mitigation aspect of climate change has been endeavored through curtailing GHGs emission under the scopes of the Kyoto Protocol. However, mitigation is not enough to alle-

viate climate change threats. IPCC- Forth Assessment Report (2007) claimed that changes in temperature have had marked impacts on many physical and biological systems of the planet. To reduce threats of this climate change on people lives and ecosystems, it is highly recommended to enhance adaptive capacity. Climate Change Adaptation Target setting project endeavors to set up goal, targets and indicators for adaptation to climate change and climate variability that will lead to establish a common but differentiated framework to achieve adaptive measures to climate change across the world.

The envisioned aim of the project is to develop a format that includes specific goals, targets and indicators to measure and monitor adaptation interventions to enhance adaptability against climate change effects. Donor: NCAP, The Netherlands Governments.

Tackling poverty and drought – The Sindh Programme, Pakistan

Most of the land area in Pakistan is arid or semi arid and increasingly exposed to drought and soil degradation. This is particularly the case in the Sindh provinces. In addition, the substantial decline of floodwater in the Sindh has led to rapid sea intrusion in the delta region, raising salinity levels and increasing cattle migration to irrigated areas. The IUCN Sindh Programme is pilot testing bio-saline agriculture and aquaculture and promotes appropriate water conservation methods. Donor: IUCN, British Council, Asian Development Bank, NORAD, CIDA.

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1.2.5. CARE

The focus on DRR is in line with CARE's vision, mission, and program principles and with the "Unifying Framework for Poverty Eradication & Social Justice", particularly in facilitating an "enabling environment", one of the top outcomes of the Framework. Under this top outcome, several key immediate outcomes have been formulated, which are directly linked to DRR, like for instance: community participation, strong & fair Environment for Economic Growth and Sound Environmental stewardship. This implies that any effort within the domains of humanitarian assistance, reconstruction or development operations, sound DRR policies and practices are imperative in addressing the root causes of poverty.

In CARE's analysis of poverty and its underlying causes (Underlying Causes of Poverty – UCP), environmental disasters and other types of disasters (human made disasters, complex political emergencies) are mentioned as immediate as well as underlying causes of poverty, illustrating the possible negative impact of disaster on people's livelihoods and opportunities for development.

An initial "Reference Group" (of currently four people from CARE Nederland, USA, Cambodia and Somalia) was created. The Reference Group, together with a "Community of Practice" (including workshop participants), is tasked with promoting the mainstreaming of disaster risk reduction into CARE's work.

CARE's mission, vision and program principles require that underlying causes of poverty are properly analyzed and addressed. To date, Disaster Risk Reduction constitutes an integral part of CARE's programming policies, for addressing people's vulnerabilities to increasing numbers and severity of hazards is considered imperative in ensuring an enabling environment for poverty eradication and social justice.

CARE's Types and Objectives of DRR programming

Mainstreaming Disaster Risk Reduction into (existing or future) programs and projects.

This entails mainstreaming disaster risk reduction into current and future programs, ensuring that DRR considerations are fully integrated into all phases of the project cycle. CARE considers DRR in the first place a cross cutting issue in that all humanitarian and development activities will need to be planned and implemented with an appropriate understanding and consideration of the entire risk constellation in which these activities are undertaken. This implies that risk analyses need to be integrated at the initial stages of the project cycle and that the findings will be fully taken into account in all subsequent steps. This will lead to projects and programs in the spectrum of relief, reconstruction and development that enable people to establish and structurally enhance their livelihoods, in a safe and disaster-resilient fashion.

Within the domain of emergency relief or disaster response, DRR approaches and tools will prevent relief work from re-building the vulnerabilities that render people prone to similar disaster. The DRR 'lens' provides with valuable insights in the underlying factors of vulnerability to hazards and in the features of these hazards. Also, it will enable us to identify and map local capacities to cope with these hazards and will help us conduct effective disaster response while reducing risks that similar disasters will re-occur.

Explicit DRR programs and projects

This entails focused disaster risk reduction programming, entirely focusing upon the reduction of hazards people are facing and of their vulnerabilities to these hazards, while strengthening their capacities to cope with these hazards. In certain locations, CARE promotes explicit DRR programs, particularly where development activities are structurally being undermined by disasters and where people's livelihoods are evidently under major threat of – specifically – natural disasters. In these cases, the poverty reduction does not sufficiently result in safety and resilience to disasters, which justifies explicit DRR strategies and programs, at least for the short and medium term. The objective of these explicit DRR programs and projects is to ensure hazard-resilient communities that can effectively (be assisted to) create enabling conditions for sustained development.

Statement of Disaster Risk Reduction Mainstreaming Principles

Principle one: Advocacy and Lobbying

CARE International, in particular its Members, Regional Management Units, and Country Offices, is committed to lobby and advocate for governments, non governmental partner agencies, and the donor community to place greater emphasis on disaster risk reduction. CARE International strives to convey the key message that disaster risk reduction pays off in

terms of lives saved and livelihoods protected and that urgent action is needed by the governments of disaster prone countries and donor agencies to invest in disaster risk reduction measures.

CARE considers it is essential to document best practices in disaster risk management, release regular reports for dissemination, and use data produced by expert institutions on disaster-related costs and losses and on disaster risks and risk factors (with particular emphasis on socio-economic impacts of disasters), in order to convince donor agencies and key stakeholders of the need to integrate disaster risk management into rehabilitation and development programmes.

Principle two: Partnership and Networking

CARE is committed to build institutional capacity for disaster risk reduction. Inherently there is a need for networking and building partnerships at international, regional, national and local levels. Networking and partnerships allow for the development of unified strategic framework arrangements and an appropriate division of responsibilities, based on comparative advantages. CARE will ensure local community participation in planning, assessing vulnerability and implementing risk management practices. CARE is committed to document and disseminate relevant information, particularly regarding lessons learned and capacity building in disaster risk reduction.

Principle three: Community participation

In the belief that community participation is conditional to the success of DRR activities, CARE works through a community based approach in all phases of DRR programming, while building capacities of local communities and community based organizations to influence rehabilitation and development decisions and implement projects that help reduce beneficiaries' vulnerability and enhance their ability to cope with risk.

Principle four: Resource Mobilization

CARE will actively engage in the disaster risk reduction institutional and funding environment. CARE aims to obtain sufficient resources for disaster risk reduction through funds capture, leveraging and cooperation with partners. CARE members and RMU's will actively engage in fund raising, both to obtain funds for focused disaster risk reduction activities as well as to include funds in rehabilitation and development program and project budgets for integrating disaster risk reduction. CARE will advocate for ample inclusion of funds for capacity building in disaster risk reduction. CARE will advocate for separate funding mechanisms and/or inclusion of disaster risk reduction in existing funding mechanisms of national donors and the EC. CARE members, RMUs and Country Offices will actively seek private sector funds and promote co-financing by corporate businesses for disaster risk reduction activities.

Principle five: Learning and Dissemination

CARE is committed to acquire, transfer and apply knowledge on disaster risk reduction. Through regional and sub-regional knowledge networks, CARE's will enable Country Offices and partners to share information on strategies and best practices for reducing disaster risk and vulnerability.

CARE will develop a training manual, comprised of a collation of relevant existing, adapted tools in an accessible, practical form. Amongst others included will be a disaster risk assessment tool, vulnerability assessment, and a vulnerability and risk reduction handbook. CARE staff, partners, and communities will be trained in the use of disaster risk reduction tools and methods.

Principle six: Institutional Strengthening

CARE is committed to further build competence in DRR at a national and regional scale with international linkages.

In the long term CARE aims to develop a comprehensive capacity building strategy on DRR and build a disaster risk reduction knowledge management system.

CARE will analyze its ability to plan and implement disaster risk reduction initiatives and assess organizational capacity developments relating to disaster risk reduction mainstreaming into organizational policy and practice. CARE will use an institutional disaster risk reduction mainstreaming assessment framework. To do so, CARE will review, adapt and apply an existing tool to assess mainstreaming in institutions.

CARE will actively engage in discourse on disaster risk reduction and present findings of its disaster risk management experiences in existing fora.

Principle seven: Policy Development

CARE will develop a policy on DRR informed by and applicable to all of CARE. Other measures taken to advance a CI disaster risk reduction strategic framework are:

Disaster risk reduction will be explicitly included in CARE International's strategic plan.

Disaster risk reduction is integrated into Member's LRSP guidelines, strategic directions, and strategic guidelines. CARE Members will promote the integration of disaster risk reduction into program development.

Disaster risk reduction is incorporated into LRSPs of Country Offices.

Disaster risk reduction is incorporate into existing frameworks and instruments, such as AOPs, the DM&E Framework (PSMI), logframes, program guidelines, and cross cutting guidelines; such as the Unified Framework, Rights Based Approach (RBA), Household Livelihood Security Framework (HLS), etc.

CARE's projects

The CBDRM: SAMADHAN Project

The Project will strengthen the organizational and technical capacity of the 2 NGOs and other relevant organizations in awareness and advocacy of disaster emergency preparedness. The project aims to build resiliency among communities, especially the poor, marginalized, and socially excluded, to withstand natural hazards with less losses in lives and assets. The project will be implemented through two district level NGOs (a) Equality Development

Centre (EDC) in Doti District and (b) Concious Society for Social Development (CSSD) in Kailali District.

The project will build the capacity of 460 people, comprised of community based organizations, teachers, and youth volunteers, to increase the disaster preparedness of 22,208 individuals. These 22,208 individuals represent (1) the total general population of 30 rural communities in the districts of Doti and Kailali, including students from 15 public schools in these 30 rural communities and (2) students from four public schools in the municipality of Silgadhi, the district capital of Doti. Beneficiaries are poor, marginalized and socially excluded people, including women, children, differently abled, Dalits, Janajati, Kamaiya, and people affected with HIV/AIDS. They live on hazardous land near riverbanks in Kailali and on steep, fragile hillsides in Doti.

The project major outputs are as follows:

20 community-based organizations in Kailai and 10 community based organizations in Doti are functional, gender equitable, and leading disaster risk reduction initiatives.

20 community-based organizations in Kailali and 10 community-based organizations in Doti understand causes and effects of hazards and how they can help their communities prepare for, respond to and mitigate risks.

Disaster preparedness is integrated into longer-term programming in project area.

schools in Kailali and 12 schools in Doti are organized and coordinated to reduce risks and manage disasters.

60 staff from implementing partners, local NGOs and other district stakeholders have strengthened their capacity to support community disaster preparedness.

Knowledge sharing among disaster preparedness agencies is improved.

For Disaster Risk Reduction:	For Climate Change:
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1.2.6. Stockholm Environment Institute (SEI)

SEI is an independent international research institute and has been engaged in environment and development issues at local, national, regional and global policy levels for more than 20 years. The Institute was formally established in 1989 by the Swedish Government and celebrated its 20th anniversary in October 2009. SEI has established a reputation for rigorous and objective scientific analysis in the field of environment and development. SEI's goal is to bring about change for sustainable development by bridging science and policy.

The Stockholm Environment Institute is undertaking and planning a range of climate change activities within the LMB, which have potential linkages to the MRC CCAI. These include:

- Developing tools to analyze data for decision making through the Water Evaluation and Planning System (WEAP) and the Climate Change Explorer (CCE)
- Examining the extent to which water-related issues influences levels of poverty through the Mekong Basin Focal Project
- Facilitating the establishment of partnerships for adaptation through the Regional Climate Adaptation Knowledge Platform (with UNEP)
- Building capacity for research & communication through technical support to ACCCA & Too Much/Too Little Water projects

For Disaster Risk Reduction:	For Climate Change:
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1.2.7. Institute for Global Environmental Strategies (IGES)

Institute for Global Environmental Strategies (IGES) is a research institute that conducts pragmatic and innovative strategic policy research to support sustainable development in the Asia-Pacific region. The institute was established by an initiative of the Japanese Government in 1998 and was granted Special Consultative Status under the United Nations Economic and Social Council (UN/ECOSOC) in 2003. The institute has been continuously expanding its research activities and networks with the mission of effective contribution to the policy and decision making of a broad range of entities in response to the key environmental issues including climate change. The activities that IGES conducts include:

- Operating the joint regional hub for the Asia Pacific Regional Adaptation Network in partnership with the Asian Institute of Technology (AIT)/UNEP Regional Resource Centre for Asia and the Pacific (RRC.AP).
- Development of adaptation metrics and decision-making framework as well as promotion of capacity building that facilitate mainstreaming adaptation in collaboration with research institutes and universities in Japan and the region.

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1.2.8. International Centre for Integrated Mountain Development (ICIMOD)

The International Centre for Integrated Mountain Development (ICIMOD) is a regional centre of eight member countries– Afghanistan, Bangladesh, Bhutan, China, India, Myanmar, Nepal, and Pakistan – that seeks to study the dynamics of mountain ecosystems and livelihoods in the Hindu Kush-Himalaya region in the contexts of climate change and globalization. Set up in 1983 the Centre has passed through its formative years of documentation and information sharing and implemented Regional Collaborative Program Phase I (1995-98) and Phase II (1998-2002) which significantly enhanced the knowledge and capacity of the mountain people in understanding the changes, adapt to them, and make the most of new opportunities. Three key strategic areas – water, environmental services, and livelihoods – have been identified through intensive consultations with the member countries, which enabled trans-disciplinary problem analysis, design, and implementation, and monitoring of the programs.

From 2002 onwards, ICIMOD started working on a new program, which encapsulated a strategic approach for better aligning the opportunities for development interventions with the physical, social, and economical vulnerability dimensions of the HKH region. Six integrated programs were identified: Natural Resources Management; Agriculture and Rural Income Diversification; Water, Hazards and Environmental Management; Culture, Equity, Gender and Governance; Policy and Partnership Development; and Information and Knowledge Management. These programs evolved as a result of the need to consolidate the Centre's earlier work, and serve the needs of the member countries as expressed during consultations held with partner institutions.

ICIMOD mobilizes its resources from the donor countries and organizations, which initially created apprehension about the intent of the organization in influencing policy decisions on strategic issues in the region, but the outcome of various research and program interventions made by the Centre over nearly four decades have established its credibility as a knowledge based organization that can play useful role in supplementing the efforts of government and other agencies in improving the living conditions of the people. The effectiveness of the organization in promoting trans-boundary exchange of critical information on rainfall, water etc has been constrained by the reluctance of the member countries to share such information with their neighbors.

For Disaster Risk Reduction:	For Climate Change:
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1.2.9. International Federation of Red Cross and Red Crescent Societies (IFRC)

The International Federation of Red Cross and Red Crescent (IFRC) Societies has a strong presence in the Asia-Pacific region. There are thirty-seven Red Cross/Red Crescent National

Societies across the Asia Pacific region supported by four IFRC regional delegations (New Delhi- India, Bangkok-Thailand, Beijing-China and Suva-Fiji) and fifteen IFRC country delegations working together with the national societies across Asia Pacific implementing disaster preparedness and risk reduction, climate change adaptation, response and recovery programs through a decentralized planning and implementation mechanism. The Asia Pacific Zonal Office of the IFRC based in Kuala Lumpur together with country delegations work with the national societies in issuing Emergency Appeals for humanitarian assistance and coordinating relief and recovery operations following catastrophic disasters.

The key disaster management program components implemented through the National Societies are:

Community Based Disaster Risk Management
Climate Change Adaptation (CCA)with particular emphasis on integrating CCA in to existing program activities
Vulnerability Capacity Assessments (VCA)/ Risk Assessments and Early warning dissemination
Promoting culture of preparedness particularly through schools
Preparedness for disaster response
Disaster response and recovery

The following regional DRR-CCA programs/projects are currently being implemented through the national societies:

Framework for community safety and resilience

Framework for community safety and resilience – is the foundation on which all Red Cross / Red Crescent programs, projects and interventions in DRR and all actions which contribute to building of safe and resilient communities are developed and sustained. The framework is used by national societies for defining and programming DRR activities through the following three strategic objectives:
The integration of DRR into policies, planning and longer-term programming
Targeted disaster prevention, mitigation and preparedness activities and advocacy
The focused integration of DRR considerations into humanitarian response and recovery

DRR-CCA programming guided by the Framework for community safety and resilience is being implemented in Afghanistan, Bangladesh, Cambodia, China, Cook Islands, Democratic People's Republic of Korea, Fiji, Indonesia, India, Lao PDR, Maldives, Mongolia, Myanmar, Nepal, Pakistan, Philippines, Solomon Islands, Sri Lanka, Timor-Leste, Thailand, Tuvalu and Vietnam.

Global Alliance on DRR

Global Alliance on DRR- Planned and implemented in Bangladesh, Cambodia, Cook Island, India, Indonesia, Nepal and Tonga. The purpose of this program is to scale up Red Cross/Red Crescent efforts in reducing disaster risks among the most vulnerable communities. The four outputs of the program are:
To increase community orientation in global and national disaster risk reduction policies and strengthen national and local institutions for disaster risk reduction

To encourage and support expanded community-based programming to identify and tackle disaster risks

To integrate enhanced community-centered disaster risk reduction measures as part of comprehensive disaster response management whenever this is applied

Strengthening of National Society capacities to deliver and sustain scaled up programmes in disaster risk reduction

Preparedness for Climate Change

Preparedness for Climate Change phase two – currently being implemented in Bangladesh, Bhutan, Fiji, India, Mongolia, Myanmar, Nepal, Papua New Guinea, and Timor-Leste. The objective of this program is to build capacity in national societies and delegations at large to assess and address the humanitarian consequences of climate change.

Preparedness for Climate Change phase one – was implemented in Cook Islands, Indonesia, Laos, Philippines, Solomon Islands and Thailand

Phase two of the Enhancing *Red Cross and Red Crescent capacity to build safer and more resilient communities in Southeast Asia* - implemented in Cambodia, Indonesia, Lao PDR, Myanmar, The Philippines, Timor-Leste and Viet Nam. The overall objective of this project is for Red Cross and Red Crescent national societies in Southeast Asia to scale up activities and streamline their approaches to CBDRR programming built upon the achievements of Phase one of the program as well as regional exchanges.

Phase two *Regional Disaster Management Program in South Asia* - The program focuses on supporting the national societies in the region to meet the challenges rising from the risks of re-occurring disasters with the aim of reducing the number of deaths, injuries and impact from disasters. The program is committed to champion the Red Cross / Red Crescent approach to disaster risk reduction in line with the priorities outlined by the IFRC Global Framework for Community Safety and Resilience. It will also encourage national societies to align their disaster risk reduction programming with the four outputs of the DRR-Global Alliance

Development of *climate information monitoring framework* for the Asia Pacific region - the objective of this project is to help the National Societies to analyze and use the climate Information for better Disaster Risk Management in Asia Pacific

International Disaster Response Laws, Rules and Principles program (IDRL). IDRL program seeks to reduce human vulnerability by promoting legal preparedness for disasters. This is a global program and implemented in the Asia Pacific region as well.

Apart from longer term DRR- CCA related activities, IFRC also implements health and care, water and sanitation, organizational development and transitional shelter activities and the promotion of humanitarian values across Asia Pacific. IFRC has produced excellent knowledge sharing materials highlighting the experiences and the lessons learned.

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1.2.10. Graduate School of Global Environmental Studies of Kyoto University

The Graduate School of Global Environmental Studies of Kyoto University undertakes multi-disciplinary innovative approaches to address environmental issues, including climate change adaptation. The International Environment and Disaster Management Laboratory (IEDM) of Kyoto University Graduate School of Global Environmental Studies undertake field-based action research on environment and disaster risk reduction in Asian countries.

IEDM as a partner of Nairobi work program (of UNFCCC) in partnership with organizations such as the regional network of local authorities for the management of human Settlements (CITYNET) and UNISDR conducted studies to measure the climate disaster resilience of 16 cities in Asia and produce the CDRI. The index, which categorized five resilience-based dimensions (natural, physical, social, economic and institutional), helped raise the awareness of city managers and practitioners and could be used as a training tool for city governments in the future. Recommendations based on the results encourage city governments to address vulnerability through specific city services, as well as institutional and capacity-building. IEDM has been analyzing 70 Indian cities differing in terrain and hazard exposure, and a similar exercise is underway for 17 cities in Metro Manila, and 10 cities in China.

IEDM hosts the Asian University Network for Environment and Disaster Management (AUEDM), which has 18 universities members from 14 Asian countries and regions. The goal of this network is to enhance research and practice in the field of disaster risk reduction and climate change adaptation. IEDM and AUEDM collaborate closely with the Asian Disaster Reduction and Response Network (ADRRN), which is a network of national and local NGOs in Asian countries.

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1.2.11. Japan Aerospace Exploration Agency (JAXA)

On October 1, 2003, the Institute of Space and Astronautical Science (ISAS), the National Aerospace Laboratory of Japan (NAL) and the National Space Development Agency of Japan (NASDA) were merged into one independent administrative institution to be able to perform all their activities in the aerospace field as one organization, from basic research and development to utilization. The independent administrative institution is the Japan Aerospace Exploration Agency (JAXA.)

As space development and utilization, and aviation research and development are steps to achieve the nation's policy objectives, our contribution to problem solving is an important mission for us. JAXA proposed its long-term vision, "JAXA2025," to realize our own mission.

Under our corporate message "Reaching for the skies, exploring space," JAXA is pursuing great possibilities in various aerospace fields and is striving to succeed with various research and development missions in order to contribute to the peace and happiness of humankind.

Project related to DRR and CCA

Sentinel Asia was initiated by Asia-Pacific Regional Space Agency Forum (APRSAF) to support disaster management activity in the Asia-Pacific region by applying the WEB-GIS technology and space based technology, such as earth observation satellites data.

APRSAF was established in 1993 in response to the declaration adopted by the Asia-Pacific International Space Year Conference (APIC) in 1992, to enhance the development of each country's space program and to exchange views toward future cooperation in space activities in the Asia-Pacific region.

Sentinel Asia is promoted through cooperation amongst APRSAF, international agencies like UNESCAP, UNOOSA, ASEAN, the Asian Institute of Technology (AIT), etc., disaster reduction agencies like the Asian Disaster Reduction Center (ADRC), its member countries,

The Joint Project Team (JPT) was organized to support the SA project and consists of 58 organizations from 28 countries and regions and 9 international organizations (The figure is as of May 2010). JAXA is acting as the Secretariat of the JPT.

Main activities of Sentinel Asia is as follows.
Emergency observation by earth observation satellites in case of major disasters
Acceptance of observation requests
Wildfire monitoring, Flood monitoring and Glacier Lake Outburst Flood monitoring
Capacity building for utilization of satellite image/data for disaster management

For Disaster Risk Reduction:	For Climate Change:
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1.2.12. Asian Institute of Technology (AIT)

Over the 50 years of its history, and as a leading regional developmental graduate institution, the Asian Institute of Technology (AIT) has played an important role in the development of technologies and scientific competence and capacity of the Asian region and beyond. AIT's internationality and its close interactions with institutions throughout the region

and the world have uniquely positioned the Institute to reach out to different stakeholders at all levels in Asia.

In terms of a AIT's role as a contributor to regional sustainable development, has been launched a Center of Excellence (CoE) on Sustainable Development in the Context of Climate Change (SDCC) of AIT, on the 24th of September 2009 to tackle climate change and poverty in the Asia-Pacific region and beyond.

The Asian Institute of Technology (AIT) has been engaged in promoting sustainable development of the region from its inception. Incorporated into AIT's Strategic Plan 2013 is the consolidation of research efforts and creation of a niche that will harness the Institute's range of network, experience and expertise.

The Institute has decided to strengthen its knowledge and experience in research into an umbrella thematic knowledge area. This will allow further networking and possibility of working in multidisciplinary manner with a critical mass of scientists, which are essential to address the emerging needs the region will face. The research efforts in sustainable development in the region have gained renewed significance as climate change is imminently taking center stage as the crucial issue of our time. After serious deliberation and keeping the Institute's vision and original inspiration and contribution to the sustainable development of the region in mind and responding to the call of the time, the AIT community and partners committed to advance its research under the thematic knowledge area of "Sustainable Development in the Context of Climate Change".

This impetus has led to a series of meetings called among faculty and senior research staff to form multi-disciplinary research teams to cover the identified thematic knowledge area. Each thematic knowledge sub-area is composed of a critical mass of in-house faculty and senior scientific staff and a strong network of committed partners and supporters from all over the world. Under the umbrella thematic area, the thematic research sub-areas identified by AIT are:

Vulnerability and Disaster Risk Reduction
Water Resources and Coastal Adaptation
Urban and Rural Sustainability
Low Carbon Society and Renewable Technology
Agriculture, Land Use and Forestry
Cleaner Production and Waste Refineries

Objectives of SDCC

Bring together thought-leaders, research groups and SDCC experts to reflect on future research, design action plans and agenda, and pool resources to face emerging issues and urgent themes in climate change adaptation and mitigation

Consolidate the Institute' s research efforts and partnerships by providing a platform to discuss AND LAUNCH shared initiatives with like-minded stakeholders and partners

Strengthen AIT's role as regional hub of knowledge and experience in research and development in sustainable development and climate change adaptation and mitigation

Background on DPMM

Asian countries are becoming increasingly vulnerable to various types of disasters including landslides, floods, droughts, forest fires, heavy rains, cyclones, earthquakes, typhoons and human-made hazards.

Given the social and economic setting of many Asian countries, adverse impacts of disasters are felt worse by that component of the population living near or below the poverty line. Most of these countries have also displayed very limited capacity in terms of their knowledge base, skills training, long-term planning, emergency preparedness and policy development to respond to such disasters. Asia must develop its capacity based on sound engineering and management principles to face future disasters, and to minimize their impacts on people and the economy. Furthermore, the recent floods and hurricanes in the USA suggest that *'disaster preparedness, mitigation and management*' is a world-wide priority. Even well-developed countries need to be better prepared to handle the effects of disasters. It is in line with this that AIT has developed an academic program in Disaster Preparedness, Mitigation and Management (DPMM).

Aim and Objectives of the DPMM Program

The aim of this academic program is to instill the necessary interdisciplinary capacities to manage and minimize the effects of disasters in people on the front lines of disaster response and preparedness. Upon completion of the program, graduates will have gained a profound scientific understanding of natural and human-made disasters. They will be able to assess risks properly, construct disaster management plans using appropriate tools and techniques, and apply suitable measures to mitigate risk. They will possess the skills necessary for handling complex emergency situations and to communicate with various stakeholders and policy makers on issues associated with disaster preparedness, mitigation and management. Given these skills and expertise, program graduates will be ready to play a leading role in protecting lives from the forceful rising tide of disasters.

Collaboration with some institutions renowned for their expertise in areas related to disaster mitigation engineering and management is the key for successful development and implementation of the proposed interdisciplinary programs. The partners and collaborators of this program include:

Asian Disaster Preparedness Center (ADPC)
National Oceanic and Atmospheric Administration (NOAA), USA
International Institute for Geo-information Science and Earth Observation (ITC), the Netherlands

For Disaster Risk Reduction:	For Climate Change:
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1.3. United Nations Organizations

The United Nations and its various agencies, through the coordinated efforts of the UNISDR, UNEP, UNDP and the UNESCAP have promoted, encouraged and facilitated regional cooperation on DRR and CCA in different regions of the Asia-Pacific.

1.3.1. United Nations International Strategy for Disaster Reduction (UNISDR)

The United Nations International Strategy for Disaster Reduction (UNISDR), created by the Resolution No.A/RES/54/219 dated 27 December 1999 of the UN General Assembly, is the focal point in the UN System to promote links and synergies between, and the coordination of, disaster reduction activities in the socio-economic, humanitarian and development fields, as well as to support policy integration. Following the India Ocean Tsunami of December 2004 and the World Conference on Disaster Reduction of January 2005, the UNISDR established a regional unit for Asia and the Pacific in June 2005 in Bangkok. Three specific areas of focus were identified to guide the work of the regional unit: (a) promotion of the Hyogo Framework for Action (HFA) throughout the whole Asia and Pacific Islands region and the forging of partnerships at the regional level to facilitate its implementation, (b) follow-up and strengthening of the projects carried out under the United Nations Flash Appeal for the Indian Ocean Tsunami Early Warning System (IOTWS) and (c) development of an effective information management system with comprehensive databases on disasters and their reduction in the region. UNISDR has been extending very meaningful assistance and support to the existing regional organizations and the organizations in the making to enhance regional cooperation for DRR and CCA. Such support has been provided through a range of activities extending from policy advocacy and development of tools, methodologies and good practices to direct technical and financial assistance for various projects like school and hospital safety, knowledge management and networking etc. ISDR has been proactively supporting various regional events, campaigns, workshops and conferences on disaster risk reduction and supporting the participation of regional stakeholders in such activities.

The regional unit of the Asia-Pacific has established ISDR Asian Partnership (IAP) on disaster reduction, which has been able to bring together the national governments, regional intergovernmental and other organizations and the international organizations in a common platform to meet periodically to review the progress of implementation of HFA in the Asia-Pacific region. Following the adoption of the Delhi Declaration at the Second Asian Ministerial Conference on Disaster Reduction in November 2007 the IAP has assumed the role of providing technical, operational and secretarial support for the implementation of the decisions taken at the Asian Ministerial Conferences on Disaster Reduction.

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1.3.2. United Nations Economic and Social Commission for Asia and the Pacific

With a membership of 62 Governments, United Nations Economic and Social Commission for Asia and the Pacific (ESCAP) objective is to promote regional cooperation for inclusive and sustainable economic and social development in Asia and the Pacific. ESCAP's program priorities are mainly determined by its member States through the Commission, as well as the directives of the U.N. General Assembly and the Economic and Social Council. Mandate provided by the commission reflects the key social and economic challenges that confront Asia-Pacific region. Priorities are given to the implementation of the U.N. Millennium Declaration (2000), other global mandates and regional mandates. The objective of the sub program on information and communication technology and disaster risk reduction is to strengthen regional cooperation for the improved management of disasters and associated socio-economic risks and to promote application of information and communications technology for socio-economic development in the ESCAP region.

In 2008, the Member States of the ESCAP established a Committee on Disaster Risk Reduction as an intergovernmental regional forum to assess existing challenges, formulate regional perspectives, and facilitate discussions on collective efforts and actions on policy options and strategies for multi-hazard disaster risk reduction and mitigation. The first session of the Committee on Disaster Risk Reduction in March 2009 reviewed the status of disaster risk reduction initiatives in the region and recommended, inter alia, that the secretariat should: (a) continue to promote regional cooperative mechanisms and knowledge-sharing arrangements, including those on information, communications and space technologies; (b) establish an Asia-Pacific gateway on disaster risk reduction and development for information sharing and analysis for disaster risk reduction; (c) launch a publication focusing on best practices and lessons learned in various aspects of disaster risk reduction and management in the Asia-Pacific region; (d) further enhance partnerships and collaboration with the International Strategy for Disaster Reduction and other United Nations entities as well regional and sub-regional organizations to provide member countries with better assistance in the area of disaster risk reduction, including on early warning for communities; and (e) build regional consensuses to serve as inputs to major regional and global events.

Policies related to DRR

Provide policy options and strategies on multi-hazard disaster risk reduction and mitigation

Establish regional cooperation mechanism for disaster risk management, including space and other technical support systems.

Implement multi-hazard assessment, preparedness, early warning and response to disaster risk.

Projects related to DRR and CCA

Regional Integrated Multi-Hazard Early Warning System (RIMES)

The Multi-donor Voluntary Trust Fund on Tsunami Early Warning Arrangements in the Indian Ocean and Southeast Asia administrated by ESCAP is supporting an initiative of Indian Ocean and Southeast Asian countries to establish the Regional Integrated Multi-hazard Early Warning System for Africa and Asia, called RIMES.

RIMES aims to provide regional early warning services, and build capacity of its members in the early warning of tsunami and hydro-meteorological hazards. The services provided by RIMES include the provision of regional tsunami watch information, capacity building and technology transfer for providing localized hydro-meteorological disaster risk information, capacity building to respond to early warning information at national and local levels.

The early warning system is viewed in a multi-hazard framework with regional, national and local elements of an end-to-end system. RIMES will work in conjunction with the national and regional tsunami watch providers in Australia, India, Indonesia, Malaysia set up as part of the IOC process, and share information with the Pacific Tsunami Warning Centre (PTWC) based in Hawaii and the Japan Meteorological Agency (JMA) in Tokyo.

RIMES covers 26 countries. Collaboration between RIMES members had evolved since 2005 to address the needs of countries with differing capacities and vulnerabilities. RIMES was established on 30 April 2009 with the signing of an international Cooperation Agreement by five countries. The 21 other countries are in various stages of consideration and approval for signing. The Government of the Maldives is RIMES Secretariat. The early warning centre is located at the Asian Institute of Technology (AIT) campus near Bangkok, Thailand. The centre's Regional Technical Committee has found the centre almost ready to begin operational tsunami warning services. The support of ESCAP for the tsunami and capacity building subsystems has been catalytic. DANIDA provided support for the hydro-meteorological subsystem of this multi-hazard end-to-end early warning system.

Strengthening capacity to reduce the risks of extreme weather events in Asia

Compile a compendium on sound practices, methodologies and experiences in flood risk reduction, forecasting and monitoring and catchment management in the Central Asia and East and North-East Asia sub-regions taking into consideration extreme weather events.

Establish a portal for pilot provision of information and analysis services in flood risk reduction as a component of the Asia-Pacific gateway for disaster risk reduction and development of ESCAP. Prepare a strategy towards a framework of regional cooperation on sharing of information and analysis capacities in flood risk reduction and extreme weather events in Central Asia.

Strengthening regional cooperation and capacity development towards DRR

Organize a meeting of ESCAP/WMO Typhoon Committee (TC) members to discuss, share experiences and recommend strategies for the establishment of a TC task force of experts on meteorology, hydrology, and disaster risk reduction to provide technical advisory for im-

proving urban flood risk management in cities that are most affected by floods in the region. The TC Trust Fund will cover the travel costs of some of the participants. An analytical study will be carried out to identify and compile good practices on urban risk flood management, including analysis of ways to address different impacts of floods on men and women. Organize activities to raise awareness of ESCAP members, including members of the United Nations Special Program for the Economies of Central Asia (SPECA), on key findings and related policy recommendations of the Asia-Pacific Disaster Report on regional cooperation for DRR, including on strategies to reduce the risk of water-related disasters in a context of changing climate.(location: Republic of Korea)

Organize capacity development activities for WMO/ESCAP Panel on Tropical Cyclones (PTC) members on implementing strategies for mainstreaming DRR for effective preparedness and response at all levels.(location: Thailand)

Organize training on Disaster Damage and Loss Assessment (DALA), including identification of policy options for mainstreaming disaster risk reduction into recovery and reconstruction strategies. Such training will target Pacific Island Developing Countries and will be supported by the World Bank.(location: Fiji).

Support the participation of trainees from countries with special needs, including SPECA members, in training activities, to be implemented by partner institutions in member countries, on the use of space applications for providing required information for mainstreaming DRR in the various phases of disaster risk management.(location: Indonesia)

Asia-Pacific Disaster Report (APDR)

Conceptualizing and developing the content and structure of the APDR.
Discussions and brainstorming through editorial committee meetings.
Peer review, editing and finalizing the report.
Launch of the report by October 2010'

Asia-Pacific Gateway for Disaster Risk Reduction and Development

Developing a web portal to mainstream DRR into socio-economic development

Strengthening regional cooperation on drought disaster monitoring and early warning

Develop a Regional Cooperative Mechanism on Drought Disaster Monitoring and Early warning, which provides the following functions:
An Information Portal
A distributed regional satellite product service platform
Data Sharing Gateway to provide data sharing services
Capacity Building activities

For the sharing and exchanging technical services and other drought relevant information in order to assist less capable drought prone countries in the development of national capacities on integrated analysis of space-based information with ground based observations and in the development of localized decision supporting products and tools.

Develop technical modules and provide products and services, to assist establishment of national DMEW service networks to ensure accurate monitoring and early warning of drought event with sufficient lead-time so as to enable relevant decision makers take

actions to prevent them from becoming major disasters.

Training module on Climate Change and ICT for the Academy of ICT Essentials for Government Leaders

Develop content of a new Academy module on Climate Change and ICT that is of high-quality and relevant to policymakers and other government officials in Asia and the Pacific.

Conduct a training workshop to solicit feedback on the new module.

Deliver the new module through multi-channels, e.g. through print, online via the APCICT Virtual Academy, an online distance learning platform, and in the form of CD-ROMs for those with no or limited Internet access.

Promote and disseminate the module through APCICT's e-Collaborative Hub and seek collaboration with National Training Institutions.

Engage with National Training Institutions in customizing the module with local case studies, translating it into different languages such as Bahasa Indonesia and Russian, and delivering the module at the national levels.

Develop monitoring and evaluation mechanism to assess the quality and relevance of the new module.

UNESCAP cooperation strategies

ESCAP will partner with the ESCAP/WMO Typhoon Committee (TC) to facilitate consultations among TC members for planning the work of a task force of experts on meteorology, hydrology, and DRR to provide technical advisory for improving urban flood risk management in the cities that are most affected by floods in the region. Analytical work will be conducted to identify good practices on urban flood risk management. The Committee, at its forty-second Session, identified urban flood risk management as a very important area of work and requested ESCAP secretariat to support the establishment of a task force to assist countries in reducing the damage caused by tropical cyclones and heavy rainfall in populous cities. ESCAP will support the participation of TC members from ESCAP developing members and associate members: Cambodia, China; Hong Kong, China; Macao, China; Democratic People's Republic of Korea; Lao People's Democratic Republic; Malaysia; the Philippines; Thailand and Viet Nam. Some of the travel costs of participants will be covered by resources from the TC Trust Fund.

ESCAP will also partner with the WMO/ESCAP Panel on Tropical Cyclones (PTC) and the Department of Disaster Prevention and Mitigation (DDPM) of Thailand to build capacity of PTC members on implementing strategies for strengthen disaster preparedness for effective response at all levels. PTC members, during Working Group meetings at the thirty-seventh Session of the PTC, requested ESCAP's support in such capacity building activities. ESCAP has held consultations with DDPM to plan for the organization of trainings on disaster management drills based on DDPM's experience. ESCAP will support the participation of PTC members from ESCAP region: Bangladesh, India, Maldives, Myanmar, Pakistan, and Sri Lanka.

ESCAP will support training activities on space applications for disaster management to be implemented by partner institutions in member countries. For the last 15 years, the governments of China, India and Indonesia, in cooperation with ESCAP, have been providing their host facilities and support to series of training courses on space applications for disas-

ter risk management, as substantive contributions to the implementation of RESAP. ESCAP will continue to support the participation of trainees from countries with special needs, including SPECA members.

ESCAP will partner with ISDR in raising awareness of member countries regarding the key findings of the forthcoming ESCAP/ISDR Asia Pacific Disaster Report (APDR), which will be launched during the Fourth Asian Ministerial Conference on Disaster Risk Reduction (AMC) to be held in Incheon, Republic of Korea in October 2010. The ESCAP Committee on Disaster Risk Reduction, at its First Session, recommended ESCAP secretariat to produce the APDR in collaboration with key partners and focusing on best practices and lessons learned in various aspects of disaster risk reduction and management in the Asia-Pacific region.

ESCAP will collaborate with ECLAC in organizing capacity development activities on disaster damage and loss assessment, including identification of policy options for mainstreaming disaster risk reduction into recovery and reconstruction strategies. Such activities will target Pacific Island Developing Countries and will be supported by the World Bank.

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1.3.3. UNOCHA's Regional Office for Asia and the Pacific

UNOCHA's Regional Office for Asia and the Pacific (ROAP) provide support and assistance to regional organisations, governments, UN agencies, NGOs and other humanitarian actors in response to a number of major natural disasters, including through the deployment staff with a range of technical expertise. The Regional Office also works to build response capacity in the region *before* disasters strike, by strengthening emergency preparedness.

The mission of OCHA is to: (a) mobilize and coordinate humanitarian action in partnership with national and international actors in order to alleviate human suffering in disasters and emergencies; (b) advocate for the rights of people in need; (c) promote preparedness and prevention; and (d) facilitate sustainable solutions. OCHA provides online sharing of information through websites such as: (a) ReliefWeb.int, which provides the global humanitarian community with information on emergencies on natural disasters on a 24-hour basis; (b) IRINnews.org, which offers reporting of humanitarian crises in sub-Saharan Africa and Central Asia; and (c) HumanitarianInfo.org, which is a gateway to humanitarian information centres and other field-based sources which provide accurate information and data for relief workers and decision makers.

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1.3.4. World Meteorological Organization (WMO)

World Meteorological Organization (WMO) is the specialized United Nations agency for weather, climate, hydrology and water resources and related environmental issues, which has a vast reservoir of expertise, knowledge, data and tools. Through the National Meteorological and Hydrological Services (NMHSs) of its 189 Members, WMO provides authoritative and targeted analyses to the UNFCCC by bringing strong scientific and technical capability along with local, regional and global knowledge, that form the basis of weather and hydrological forecasting services and water resources management. When compiled over a long period of time hydrometeorological observations provide the climatology of specific locations, forming an integral part of the WMO Global Observing System.

Together with UNEP, WMO established the IPCC in 1988, which has subsequently published four assessment reports with significant contribution in advancing climate change research, the assessment of vulnerability, impacts and adaptation. In 2009, the WMO organized World Climate Conference-3 (WCC-3), at which the high-level delegations of Member countries established a Global Framework for Climate Services (GFCS) to strengthen the provision and use of climate predictions, products and information worldwide. Through strengthened observations, research and information systems, as well as new interaction mechanisms for climate information users and providers, GFCS would ensure that all sectors of society have user-friendly climate products that enable them to plan ahead in the face of changing climate conditions. At the global level, WMO regularly issues authoritative statements such as the status of the global climate, El Niño/La Niña Updates, etc. So far 12 Global Producing Centres for Long Range Forecasts (GPCs) were established in different parts of the world, which routinely produce and disseminate seasonal forecast products to all WMO Members. In addition, WMO has also developed the concept of Regional Climate Centres (RCCs) which develop and disseminate regional climate products including long-range forecasts in support of regional and national climate activities, and thereby strengthen the capacity of WMO Members in a given region to deliver better climate services to national users. The first WMO RCCs formally designated happen to be from Asia: the Beijing Climate Centre (China) and the Tokyo Climate Centre (TCC). India, Iran, Russian Federation and Saudi Arabia are the other countries in Asia that are making concerted efforts to establish WMO RCCs. Regional Climate Outlook Forums (RCOFs), established more than a decade ago and supported by WMO in partnership with a number of other agencies, bring together national, regional and international climate experts, on an operational basis, to produce regional climate outlooks based on input from NMHSs, regional institutions, RCCs and GPCs. By bringing together countries having common climatological characteristics, the forums ensure consistency in the access to and interpretation of climate information. Through interaction with sectoral users, extension agencies and policy makers, RCOFs also assess the likely implications of the outlooks on the most pertinent socio-economic sectors in the given region and explore the ways in which these outlooks could be made use of. RCOFs are currently active in Africa, South America, Central America, Asia, Pacific Islands, Caribbean and Southeastern Europe. Building on the success of RCOF concept, WMO is proactively pursuing the development of user-specific outlook forums to consider the climate outlooks in user-level decision contexts, with special focus on agriculture and water sectors. In Asia, BCC has been organizing since 2005 a pan-Asia RCOF called FOCRAII (Forum on regional climate monitoring,

assessment and prediction for Regional Association II (Asia)). Recently, WMO has also taken up an initiative to develop sub-regional RCOFs in Asia, and a South Asian Climate Outlook Forum (SASCOF) held its first session in 2010 hosted by India for eight South Asian countries. Sub-regional RCOFs for East Asia and Southeast Asia are also being actively considered for development. The GPC-RCC-RCOF-NMHS mechanism promoted by WMO is expected to facilitate a smooth flow of climate information from global to local scales, and constitute a key component of the climate services information system under the GFCS.

To reduce loss of life and damage caused by tropical cyclones (typhoons), WMO established the Tropical Cyclone Programme (TCP). The Mission of TCP is to assist and enhance capabilities of its Members to: (i) provide reliable and improved forecasts of tropical cyclone (TC) tracks and intensities, and related forecasts of strong winds, heavy rainfall, and storm surges, along with timely warnings, through multi-hazard approaches, covering all TC-prone areas; (ii) establish and upgrade early warning systems with a multi-hazard approach; (iii) provide forecasts and assessments of floods associated with TC; (iv) promote awareness to warnings and carry out activities to facilitate the provision of easy to understand warnings to users; (v) provide the required basic meteorological and hydrological data and advice to support hazard assessment and risk evaluation of TC disasters; and (vii) establish national disaster risk management and reduction mechanisms. TCP is effected at both national and regional levels through cooperative action. It covers activities of Members, WMO Regional Associations, other international and regional bodies and the WMO Secretariat. Its activities are implemented mainly through two components (the General Component and the Regional Component). The General Component focuses on capacity buildings for transfer of technology, information and scientific knowledge to Members to support the achievement of the objectives of TCP; while the Regional Component comprises the planning and implementation of the programmes of the TCP Regional Bodies. In Asia and Western Pacific, the TCP Regional Bodies include ESCAP/WMO Typhoon Committee, WMO/ESCAP Panel on Tropical Cyclones, and RA V Tropical Cyclone Committee. Each of these Bodies has a Regional Specialized Meteorological Centre (RSMC) with activity specialization in tropical cyclones (RSMC Tokyo Typhoon Centre, RSMC New Delhi Tropical Cyclone Centre and RSMC Nadi Tropical Cyclone Centre respectively), which provide tropical cyclone/typhoon forecasting advisories to the Members of the respective body on the basis of an Operational Plan or Manual. The Operational Plan is designed to provide the best possible forecasting and warning services within the limits of scientific knowledge and technological developments and of the available resources, ensuring full coordination and taking maximum advantage of the high level of cooperation which has been achieved in these regions. These plans are regularly updated to incorporate new facilities, advances and developments.

Cooperation between WMO, UN-ISDR System partners as well as its Member countries has resulted in the development of a systematic process for documenting good practices in early warning systems (EWS). To-date seven good practices have been documented through a multi-agency process, including three in Asia, i.e., (i) Bangladesh Cyclone Preparedness Programme; (ii) Shanghai Multi-Hazard Early Warning and Emergency Preparedness Programme; and (iii) the Japan Multi-Hazard Early Warning System. These cases along with guidelines on “Institutional partnerships and coordination on Multi-Hazard EWS” will be published in 2010 and have been used to develop training targeted at high-level officials from NMHSs and disaster risk management institutions. WMO through an extensive techni-

cal cooperation with the China Meteorological Administration (CMA), its Shanghai forecasting bureau and working with the municipal government of Shanghai has supported the development of the Multi-Hazard EWS for the city of Shanghai, which serves as a model for development of EWS for mega cities. During the EXPO 2010 (May to October 2010), the Shanghai Multi-Hazard Early Warning System, which includes various components, will demonstrate the benefits of an integrated multi-hazard approach for the production, communication and use of weather, climate, water and environmental information, warnings and related services in a multidisciplinary context.

In Central Asia and Caucasus, WMO, World Bank, UN-ISDR and UNDP are working together to initiate a regional programme for the strengthening and coordination of the NMHSs in support of disaster risk reduction, climate risk management and early warning systems in the countries and region. Detailed assessments of the status of NMHSs services have been completed in eight countries (Armenia, Azerbaijan, Georgia, Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan and Uzbekistan) and a regional programme is being developed to facilitate coordination and cooperation among the participating countries in the region. A cooperation agreement has been signed between the NMHSs of the five central Asian Countries (Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan and Uzbekistan). The World Bank is investing in the modernization of NMHSs in Tajikistan and Kyrgyzstan. Assessment are also being carried out in five countries in South East Asia (Cambodia, Lao PDR, Viet Nam, the Philippines and Indonesia) through a partnership between WMO, the World Bank and ISDR, and funded by the GFDRR. This is the early stage of a major initiative in multi-hazard early warning systems (MHEWS) that will engage various national and regional partners for the development of a regional programme in MHEWS.

As part of its capacity-building initiatives to assist NMHSs in developing countries and LDCs to have access to, and make effective use of existing observational datasets and advanced numerical weather prediction products for improving severe weather forecasting methods and in turn improve the warning services they provide for hazardous weather conditions, WMO is implementing the Severe Weather Forecasting Demonstration Project (SWFDP). This project has the goal of increasing the lead-time and accuracy of alerts and warnings. The SWFDP commenced its pilot phase in the South-west Pacific region in November 2009 (four South Pacific Islands States: Fiji, Samoa, Salomon Islands and Vanuatu), focused on heavy precipitation, strong winds and damaging waves. It is currently being expanded to include all South Pacific Island States and to span all seasons and meteorological hazards such as heavy rain, strong winds, large waves, storm surges, etc., which are in turn directly linked to important high-impact phenomena, such as flash floods and coastal inundation. A SWFDP in Southeast Asia, involving Cambodia, Lao PDR, Thailand and Viet Nam, is currently under development and it is envisioned to commence the demonstration in June 2011.

To improve flood forecasting accuracy and lead times, WMO is implementing on a global level the WMO Flood Forecasting Initiative (FFI), through enhanced cooperation between meteorological and hydrological services. Related to flash floods, WMO together with its partners – NOAA, USAID/OFDA and the US-based Hydrologic Research Centre is implementing the establishment of a Flash Flood Guidance System with global coverage. In Asia, this system has been put into operations in the Mekong River Basin. Furthermore, WMO is currently implementing two projects under the framework of its World Hydrological Cycle Observing System (WHYCOS) to reduce flood disaster risk. These include (i) the regional flood

information system in the Mekong basin being implemented with Cambodia, Lao PDR, Thailand and Viet Nam in cooperation with the Mekong River Basin Commission (MRC) and (ii) the regional flood information system in the Hindu Kush Himalayan region being established with Bangladesh, Bhutan, China, India, Pakistan and Nepal as participating countries. The latter project is being implemented with the International Centre for Integrated Mountain Development (ICIMOD) as regional centre.

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1.3.5. UNESCO

UNESCO is a United Nations agency that has been involved in disaster reduction for the past 45 years, with studies on earthquakes and oceanography dating back to the 1960s. It has since expanded into many areas as it pursues multidisciplinary actions to study natural hazards and mitigate their effects. UNESCO coordinates various networks, such as the Reducing Earthquake Losses in the South Asian Region program and the Intergovernmental Oceanographic Commission (IOC). IOC, through the Global Ocean Observing System, helps improve operational oceanography, weather and climate forecasts and monitoring, and supports the ongoing observing needs of the United Nations Framework Convention on Climate Change. IOC also established the International Tsunami Information Centre in 1965 to maintain and develop relationships with scientific research and academic organizations, civil defense agencies, and the general public, with a view to mitigating the hazards associated with tsunamis by improving tsunami preparedness for all Pacific countries. IOC has also coordinated the Pacific Tsunami Warning System for the Pacific Ocean since 1968; after the Indian Ocean tsunami in December 2004, IOC received the mandate to assist all UNESCO member States of the Indian Ocean rim with establishing their own tsunami early warning system. To provide immediate interim coverage for tsunami warnings in all other oceans, advisory systems have been established under IOC coordination, in cooperation with PTWC and the Japan Meteorological Agency.

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1.3.6. United Nations Environment Program (UNEP)

UNEP is the leading environmental authority in the United Nations system. UNEP uses its expertise to strengthen environmental standards and practices while helping implement environmental obligations at the country, regional, and global levels.

UNEP has identified six cross-cutting thematic priorities drawing upon the scientific evidence; the comparative advantage of UNEP, and the UNEP mandate; priorities emerging from global and regional fora; and an assessment of where UNEP can make a transformative difference. The six cross-cutting thematic priorities are, in alphabetical order:

1. Climate change;
2. Disasters and conflicts;
3. Ecosystem management;
4. Environmental governance;
5. Harmful substances and hazardous waste; and
6. Resource efficiency – sustainable consumption and production.

UNEP's activities in Climate change

UNEP works with countries to strengthen their ability to adapt to climate change, move towards low-carbon societies, improve understanding of climate science and rasie public awareness of the Earth's changing climate. All of UNEP's work on climate change is shaped by the negotiations process of the United Nations Framework Convention on Climate Change (UNFCCC). UNEP climate change sub-programmes focuses on four key goals

- Adapting to climate change;
- Mitigating climate change;
- Reducing emission from deforestation (REDD+); and
- Enhancing knowledge and communication

UNEP's adaptation work focuses on incorporating planning, financing and cost-effective preventative actions into national development processes that are supported by scientific information, integrated climate impact assessments and local climate data.

In the Asia and Pacific region, UNEP is supporting several regional initiatives:

Regional Climate Change Adaptation Knowledge Platform for Asia

The **Regional Climate Change Adaptation Knowledge Platform for Asia** (Adaptation Knowledge Platform) supports research and capacity building, policy making and information assimilation, generation, management and sharing. It also facilitates climate change adaptation at local, national and regional levels – while working with existing and emerging networks and initiatives. The Adaptation Knowledge Platform has been jointly established by the Asian Institute of Technology/United Nations Environment Programme Regional Resource Centre for Asia and the Pacific (AIT/UNEP RRC.AP), the Stockholm Environment Institute (SEI), the Swedish Environmental Secretariat for Asia (SENSA) and UNEP, with funding support from Swedish International Development Cooperation Agency (SIDA). The Platform

has been active in several South East Asia and South Asia countries with activities or reports including:

The **Asia Pacific Adaptation Network** (Adaptation Network), part of the Global Adaptation Network, aims to build climate resilience of vulnerable human systems, ecosystems and economies through the mobilization of knowledge and technologies to support adaptation capacity building, policy setting, planning and practices. The Adaptation Network activities will be undertaken by its Regional Hub, sub-regional nodes and partner institutions in the Asia Pacific region. The Adaptation Network is facilitated by AIT/UNEP RRC.AP, Institute for Global Environment Strategies (IGES), Asian Development Bank and UNEP in partnership with other key actors in the region.

The Network has been active in several Asian countries with activities or reports including:

UNEP's activities in Disasters and conflicts

In the Asia and the Pacific region, UNEP works in coordination with the UNEP Disasters and Conflict Branch in Geneva to facilitate activities in the recovery phase and in disaster risk reduction and to contribute to the development and long-term rehabilitation of affected countries in the region. Basing on an extensive experience in addressing the environmental elements of disasters and conflict, and drawing on the large internal technical expertise and its pool of external resources, UNEP provides four core services:

- Post-crisis environmental assessments
- Post-crisis environmental recovery
- Environmental cooperation for peace-building,
- Disaster risk reduction

In the DRR arena, after cyclone Nargis, Myanmar (2008), UNEP developed a capacity building programme on Environment and Disaster risk reduction and a training workshop on use of Geographic Information System (GIS) for disaster management.

In 2009, UNEP completed a program on "Capacity building to integrate disaster risk reduction into coastal zone management" with the aim of building disaster risk reduction capacities of coastal zone managers to design and implement projects to enhance the protection of lives and livelihoods while improving environmental quality and protecting ecosystem services. The project was implemented in collaboration with the Asia Disaster Preparedness Center (ADPC), national environmental technical institutions and national disaster management organizations in India, Indonesia and Sri Lanka. Representatives from Malaysia, Maldives, Seychelles, Pakistan, Thailand, Viet Nam also benefited through the collaboration of the project with the IUCN World Conservation Congress 2008 and/or with the Mangroves for the Future initiative and its "Applying project cycle tools to support integrated coastal management" (October 2008).

In 2010, UNEP is providing specific technical assistance to the government of Sri Lanka and the UN country team in organizing an integrated Strategic Environment Assessment (SEA) for the Northern Province of the country, which, among other things, will mainstream disaster risk reduction and climate change adaptation in development plans of the area.

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1.3.7. United Nations Development Program (UNDP)

UNDP works with Governments, local communities and international partners to help them prepare for and respond to disasters, as well as to bridge the gap between emergency relief and long-term development. In addition to providing technical support and coordination and supporting Government planning and management of natural disaster risks, the Program encourages communities and local officials to work together to prevent natural hazards from becoming natural disasters. UNDP is the global development network of the United Nations, advocating for change and connecting countries to knowledge, experience and resources to help people build a better life. UNDP is present in 166 countries. Selected regional projects on DRR and CCA implemented by UNDP in Asia and Pacific are presented below.

Asia Pacific Human Development Report on Climate Change

Asia Pacific Human Development Report on Climate Change (APHDR) is a regional initiative to bring new and innovative Asia-Pacific thinking on what a more sustainable pathway might be. The APHDR is managed from UNDP Regional Centre in Colombo but involves consultations and research throughout the region. Stakeholder consultations have taken place in Suva, Majuro, Bangkok and Kathmandu. Further consultations are planned in Delhi and other places in the region. The APHDR will apply the human development lens to the theme of climate change, keeping people at the centre to explore key issues that are priorities for the region, instead of focusing only within national boundaries. A range of technical background papers are being commissioned focusing on specific types of vulnerable groups (nomadic herders, fisher folk, farmers in deltas, urban communities) broadly representative of what climate change means for the people and the region both in terms of vulnerability to existing and future climate change, as well as potential human development opportunities arising.

Disaster risk reduction and management forms on important element in this analysis. An e-discussion on human development and climate change has been launched as a means of sharing learning and bringing in new thinking from across the region. The e-discussion is organized into a number of sub-themes including: 'Adaptation and climate related disaster risk reduction'. Short think pieces are also being commissioned from recognized regional experts and institutions on climate, society and development. The final report will be compiled

and launched during mid 2011. Project location is in Colombo and Bangkok but working throughout the Asia Pacific Region

Glacial Lake Outburst Flood (GLOF) Risk Reduction in the Himalayas – Hindukush Himalayan Region

The severe impact of climate change on the glaciers has generated the concrete hazard of Glacial Lake Outbursts Floods (GLOFs) as well as associated effects on fresh water sources, environmental degradation and hydropower generation. Countries in the Himalayan region and particularly the most vulnerable communities within these countries need to be better equipped to reduce the risk of Glacial Lake Outburst Floods (GLOF) by incorporating non-structural and community based measures into ongoing disaster mitigation programs.

The Regional GLOF Risk Reduction Initiative in the Himalayas has been able to address the critical aspects essentially the community-based risk mitigation and preparedness measures for strengthening GLOF hazard in the identified project countries. The disaster cycle associated with the hazard was assessed and analyzed. Attention was also been focused on the perception of the communities and the local administrations about this hazard. This has helped to better understand the socio-economic vulnerabilities associated with GLOF events and their impacts. The existing capacity at administrative and community level for reducing, preparing for and responding to the hazard was also assessed and needs and gaps identified. The Project was able to harness the knowledge; experiences and expertise generated on the subject by different institutions/organizations over the years and effectively utilizes the same through initiatives aimed at information sharing and knowledge networking. Through this project, the GLOF hazard was brought to the attention of the administrators, policy and decision-makers, local communities and as well as other stakeholders.

Second phase of this project is currently being implemented to ensure a more holistic risk mitigation and preparedness to contribute towards furthering the achievement of the priority related to '*strengthen disaster preparedness for effective response at all levels'* under the Hyogo Framework for Action.

Project location: Bhutan, India, Nepal and Pakistan from Nov 2007 to Feb 2009

Regional Climate Risk Reduction Project in the Himalayan Region

The overall objective of the project is to develop and implement comprehensive climate risk management strategies in the Himalayan region to reduce the risks faced by mountain communities and to mitigate the impacts of hydro-meteorological/climate-induced hazards. The Project is being implemented in Bhutan (Punakha, Wangdue and Bumthang districts and in Thimphu, Phuntseling and Samdrup-Jongkhar cities), India (in Kinnaur and Kangra districts in Himachal Pradesh, Chamoli district in Uttarakhand, Nepal (Sindhupal and Dolakha districts – 3 communities in each district) and Pakistan (in Gilgit and Astore districts in 7 multi-hazard villages).

The *Regional Climate Risk Reduction Project in the Himalayas* is centered on assessing the impact of climate-induced/hydro-meteorological hazards on mountain communities and socio-economic infrastructure to develop a better understanding of the nature, occurrence, triggers, impacts and trends of climate-induced disasters and their inter-relationship. The

Project builds upon the experience and findings from the Regional GLOF Risk Reduction Initiative and it also addresses issues related to GLOF hazard along with other hydro-meteorological hazards especially the climate-induced ones.

The project adopts a gender-sensitive approach with greater focus on women through awareness raising and training and capacity building initiatives. This is of special relevance in mountain communities due to the nature of family and community structure wherein women play a more pro-active role and have to act as family heads or community leaders. In order to ensure greater female participation, local-level women organizations would be actively associated with the implementation process, wherever feasible.

Under the project, UNDP-BCPR will identify and document past climatic disasters, review existing literature and writing up of case studies.

Regional Program on Capacity Building for Sustainable Recovery and Risk Reduction

The Regional Program on Capacity Building for Sustainable Recovery and Risk Reduction (RP) was designed in response to the Indian Ocean tsunami disaster of 26 December 2004, to build capacity for risk reduction and promote sustainable recovery. Managed by the UNDP Regional Centre in Bangkok, the RP's implementation strategy combines both regional and in-country interventions. These interventions have been adjusted to align with UNDP Country Offices (COs) disaster risk reduction (DRR) strategies and recovery programmes, and to meet target countries' needs. The RP targets five tsunami-affected countries – India, Indonesia, Maldives Sri Lanka and Thailand, but by request, support has also been extended to other countries, and a number of regional activities have included the participation of non-tsunami-affected countries. The following provides a brief overview of the key results from the project:

Outcome 1

Enhanced institutional systems for building risk knowledge and application in planning and decision making for risk reduction, response and recovery. One of the priorities of the HFA is to 'know the risks' through the enhancement of technical and institutional capacities to observe, record, research, analyze, forecast, model and map natural hazards and vulnerabilities. Key RP activities and results in this area include the development of: 1) disaster loss databases using the DesInventar methodology; 2) disaster resource networks based on India's experience; and 3) a standardized risk assessment methodology.

Outcome 2

The effectiveness and coherence of end to end early warning systems are enhanced. In line with the HFA, the RP strengthened capacity in the development of people-centred early warning systems (EWS) and the integration of EWS within a holistic DRR framework. In the aftermath of the tsunami, new entities and programmes that focus on EWS were established, but often without adequate capacities to develop effective EWS. In response, the RP has provided demand-driven technical and financial assistance in the target countries. Additionally, the RP has: 1) commissioned studies on institutional and legislative systems (ILS) for EWS; and 2) supported the review and development of standard operation procedures (SOP) for EWS in target countries.

Outcome 3

Within the context of the United Nations International Strategy for Disaster Reduction System, the capacities of national institutions for disaster risk reduction are strengthened in three countries.

Under the HFA, all countries are encouraged to establish National Platforms for DRR or other coordination mechanisms, and systematically review progress towards achieving the objectives and priorities of the HFA. As part of the RP's core purpose to strengthen capacities for risk reduction and sustainable recovery, the RP signed an agreement with UN/ISDR to cooperate in improving coordination and reporting of DRR progress in eight countries, viz. Bangladesh, India, Indonesia, Lao PDR, Maldives, Nepal, Philippines and Sri Lanka.

Building on the successful experiences of the RP, the regional Crisis Prevention and Recovery team continues to provide demand-driven technical advice, facilitate cross learning events and initiate partnerships that have led to positive progress in developing DRR capacities. These include improved information management capacity, and better early warning and risk assessment practices.

Regional Program on Mainstreaming DRM at national, provincial and sector levels

The overall objective of the mainstreaming program is to strengthen the capacity for DRM at all levels of decision making in Pacific Island Countries (PICs). A common feature across PICs is that mechanisms to reduce risks in almost all Pacific countries are very weak with a number of associated challenges: poor institutional arrangements for mainstreaming disaster risk management into economic planning; limited (and in many instances inadequate) capacity for hazard analysis and vulnerability mapping; outdated national disaster management plans and supporting legislation; limited focus on prevention and mitigation planning; limited sphere of influence and resources of national disaster management offices; uncoordinated response and recovery arrangements; lack of political support, engagement and commitment to national disaster management committees. In response to these challenges the UNDP Pacific Centre is working through SOPAC, the regional agency mandated to lead on DRM in the Pacific, to mainstream DRM at all levels of decision making through the following four main activity lines:

Development of National Action Plans: this activity is based on a methodology developed by UNDP PC and SOPAC which is based on both a thorough in-country consultation process as well as a an analytical process of identifying vulnerabilities, capacities and solutions (see:

Mainstreaming at Sector level: National level mainstreaming activities are being complemented by the development of more detailed sector specific DRM strategies and action plans. Given the synergies with climate change, these

Development of Provincial DRM plans: mainstreaming work in PNG is focusing on mainstreaming at the provincial level, given the diversity of vulnerabilities and capacities, as well as the relative autonomy across the provinces in PNG.

South-South exchange

The program's expected outcome is: strengthened safety and resilience of Pacific and Caribbean SIDS communities to a range of natural hazards by facilitating and supporting a South-South cooperation program targeted at strengthening climate change adaptation and disaster risk reduction capacity in SIDS, based on the transfer of appropriate 'southern' expertise and technologies. The following outputs and associated activities are planned under this project:

Identification, documentation and dissemination of best practices on integrated climate change adaptation and disaster management specific to the SIDS context. *Sample activities: case studies, presentations at conferences, contributions to on-line networks.*

Transfer and exchange of technologies currently being used by SIDS for effective, equitable and appropriate disaster risk management and climate change adaptation, between the Pacific and the Caribbean regions. *Sample activities: training in storm surge modeling, assessment of climate change impacts in the agricultural sector, manual for climate observers.*

Disaster risk management and climate change adaptation included in the broader development agenda through support for national action planning, mainstreaming and advocacy work in the Pacific and Caribbean regions and countries. *Sample activities: guidelines, checklists, position papers.*

Gender mainstreaming in to DRR and CCA

In the Pacific, the cross-cutting theme of gender is important for understanding the socio-economic dimensions of disaster, environmental degradation and climate change on a number of levels, including how they variously affect women, men, girls and boys. In addition, there are often fundamental differences in understanding and interpreting risk among these groups. It is also important to recognise the different roles these groups play and the contributions they make in preparing for and reducing the risk of disaster and adapting to climate change. The gender mainstreaming programme is being delivered through two main components:

Training: on gender dimensions of DRR and CCA to familiarize government officials, field staff and UNDP country office staff with key concepts referring to gender, disaster risk management and climate change and to promote reflection and analysis of how to improve gender equity in relation to recurring disasters and ongoing climate change in the Pacific Islands' contexts;

Research: the main objective is to learn about and document the differences between men and women, in their ways of experiencing and adapting to climate change and disasters in the Pacific region, in order to advocate for more effective DRR and CCA practices, through the incorporation of a gender perspective.

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1.3.8. Food and Agriculture Organization of the United Nations (FAO)

As the United Nations specialized agency for the food and agriculture sectors, FAO assists member countries in integrating disaster risk reduction measures in agriculture and food sector policies and practices and well as in protecting and restoring agriculture based livelihoods in the aftermath of a disaster, and in view of future impacts to be expected from climate change. FAO is also a source of knowledge and information. It assists countries in modernizing and improving agriculture, forestry and fisheries practices and ensuring good nutrition for all. To this end, FAO established the Global Information and Early Warning System, which is a source of information on food production and food security for every country in the world. The system is a worldwide network which includes 115 Governments, 61 NGOs and numerous trade, research and media organizations. FAO was established in 1945.

Regional policy related to CCA and DRR

Enhancing equitable, productive, and sustainable natural resource management and utilization

Reduce the degradation of natural resources including land, water, forests and fisheries and reach a sustainable level of natural resources use

Develop a broad based consensus on the use and management of natural resources to reduce the threat of exploitation in the future

Increase water productivity and improve management of groundwater and surface irrigation systems

Conserve genetic resources and biodiversity in order to meet future food and agriculture, habitat and other needs

Improved capacity to respond to food and agricultural threats and emergencies

Facilitate the shift in emphasis from emergency response with short-term relief measures towards broad-based and concerted disaster risk reduction, preparedness and prevention programs in order to mitigate the long-term impact of disasters on food security and balanced nutrition

Enhance sub-regional capacity for disaster and risk reduction, preparedness for natural disasters and effective emergency response consistent with the transition to rehabilitation for long-term sustainable growth

Climate change and impacts on agriculture and food and nutrition security

Identify innovative technologies and appropriate practices in sub-regions for coping with the adverse impacts of climate change on the agricultural sector with a view to protect and consolidate progress in food security and nutrition

Reduce the contribution of agriculture including livestock and aquaculture and deforestation to GHG emissions and integrate climate change adaptation and mitigation into strategies for agriculture and rural development

The Food and Agriculture Organization (FAO) has carried out a number of climate related activities in Asia and has a number of ongoing projects. Previous activities include:

Cross-border animal disease control: avian influenza
Post-disaster agriculture recovery: floods, tsunami
Addressing water supply uncertainty: irrigation and water management
Rural livelihoods adaptation: crop variety, home garden, agriculture diversification
Sustainable fishery in Mekong River and costal marine
Protection of mangroves

Ongoing projects include:
Food security and vulnerability assessment and monitoring and agriculture crisis mitigation and preparedness
Restructuring of Livestock Farming for Climate Change
Livestock waste management in East Asia
Adaptive Learning on Tsunami Early Warning System for Fishermen and Marine Occupations (ALTEWS)
Formulating Regional and National Strategies on Climate Change Adaptation and Mitigation in Asian Agriculture

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1.3.9. International Recovery Platform (IRP)

IRP is a joint initiative by the United Nations System and partners, with the support of the Government of Japan and other countries as well as the Asian Disaster Reduction Center (ADRC), aimed at supporting a more coordinated United Nations system methodology and approach to the disaster recovery process. Its goals are: (a) to translate into practice the strategic goal of integrating risk reduction into post-disaster recovery; (b) to provide a coordination framework and network for post-disaster recovery; (c) to facilitate the dissemination of lessons learned using common tools and mechanisms; (d) to provide advice and support on the formulation of post-disaster recovery planning and programming (e) to strengthen national capacities ensuring links with longer-term development programming; (f) to facilitate South-South cooperation between disaster prone countries; and (g) to utilize the accumulated know-how of these countries.

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1.3.10. ILO Regional Office for Asia and the Pacific

ILO continues to be an active international player in the area of crisis response, particularly through its programs on local economic recovery and employment-intensive investment.

During the past few years, the ILO has progressively contributed towards mainstreaming the employment and decent work dimensions into disaster response, disaster risk reduction and, most recently, adaptation to climate change and recovery. This has been done by establishing partnerships within the frameworks of the UNISDR, the IASC Cluster Working Group on Early Recovery, and the International Recovery Platform. Examples include the joint development, with FAO of a Livelihood Assessment Toolkit; the participation in inter-agency post-disaster assessments in, amongst others, Bangladesh and Myanmar; and the signing in 2009 of a Joint Statement with the World Bank on Disaster Risk Reduction and Recovery. ILO is also partnering with other UN organizations and the WB in an effort to launch specific programmes to better prepare high disaster risk countries through capacity building and pre-disaster recovery planning with the aim of reducing vulnerabilities of livelihoods at risk. An example of such cooperation is the development by the International Training Centre of the ILO of a training course on Disaster Risk Reduction within the Framework of Sustainable Local Development.

Climate change represents an increasing concern for the ILO and its constituents, considered the impact that this will have on employment and livelihoods. The promotion of green jobs, i.e. jobs that reduce the environmental impact of enterprises and economic sectors, can have a positive long-term effect on the capacity of economies to resist and recover from disasters. Green jobs contribute to the adaptation to climate change consequences on human activities, to the reduction of disaster risk and to the mitigation of subsequent effects on livelihood. In the Asia and Pacific region, specific ILO programmes to promote green jobs have been implemented over the past twelve months in Bangladesh, China and India. Capacity building for constituents has included the development of relevant training courses by the ITC/ILO. A Community of Practice on Green Jobs is in its start-up phase.

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1.4. Multilateral and Bilateral Funding Institutions

1.4.1. The World Bank

The World Bank's mandate is to fight poverty with passion and professionalism for lasting results and to help people help themselves and their environment by providing resources, sharing knowledge, building capacity and forging partnerships in the public and private sectors. The World Bank, owned by 186 member countries, provides low-interest loans, interest-free credits and grants to developing countries for a wide array of purposes that include

investments in education, health, public administration, infrastructure, financial and private sector development, agriculture and environmental and natural resource management.

The Global Facility for Disaster Reduction and Recovery (GFDRR) of the World Bank provided more than $25 million in trust fund resources to the EAP region to support strategic risk reduction activities at the regional and country levels from FY07-10. Other sources of funding are the World Bank, AusAID, Korea TF, TFESSD, and MDTF for Climate Change.

Policy related to CCA and DRR at regional level

Programs for Disaster Risk Management and Climate Change Adaptation: 3 year programs on DRM and CCA, endorsed by the Government and other stakeholders
MoUs with ASEAN and SOPAC to provide support to the ASEAN and Pacific Island Countries for the reduction of risks from disasters and climate change.
MoU with EU and UN on Post Disaster Needs Assessments
World Bank Strategic Framework on Development and Climate Change

Selected projects related to CCA and DRR at regional level

1. Safer Homes, Stronger Communities: A Handbook for Reconstructing after Disasters was developed to assist policy makers and project managers engaged in large-scale post-disaster reconstruction programs make decisions about how to reconstruct housing and communities after natural disasters.

2. Climate Resilient Cities: A Primer on Reducing Vulnerabilities to Disasters helps cities to assess their vulnerabilities to disasters and become more climate resilient

This step-by-step guide for city self-assessments challenges policymakers to think seriously about the resources needed to combat climatic and other natural disasters and the potential effects of unexpected disaster. The primer helps local governments in East Asia better understand the concepts of climate change and natural disasters; how climate change consequences contribute to urban vulnerabilities; and what is being done by cities in the region and worldwide to learn, build capacity, and invest capital to promote sustainable, resilient communities. The primer is available in English, Bahassa, Chinese, and Vietnamese.

3. As part of the Climate Resilient Cities initiative, and in supporting city governments implement the approach outlined in the Primer, the World Bank has launched cooperative efforts with the three cities in Vietnam, three cities in Indonesia, one city in the Philippines, and one city in China to develop Local Resilience Action Plans (LRAPs). These plans reflect a risk assessment based on current hazards and potential impacts of future climate changes, as well as urban expansion, and present various options to mitigate these risks, resulting in a set of specific prioritized structural investments and nonstructural measures that the city would like to undertake to increase its resilience. Because many other communities are vulnerable to natural disasters, the World Bank is preparing a Workbook that other communities can use as a blueprint for their own LRAPs. The experience of the pilot cities is being used as the basis for capturing the methodology.

4. A methodology for a Multi-Hazard City Risk Index (MHCRI) is being developed and will be piloted in at least six cities in the region before possible scale-up. The index would be de-

signed to capture risk at the urban level in terms of hazards, exposure, and adaptive capacity. The objective would be to provide policymakers with a metric to assess their susceptibility to climate and disaster impacts, over time and relative to other cities, as a way to incentive preventive action. At the national level, such an index would help ministries of planning and finance in channeling inter-governmental fiscal transfers to those cities where the need is greatest and where the funds could be well implemented. At the international level, development partners would have a tool by which to assess city-by-city risk rather than overall national risk measures that mask substantial variance. As part of the methodology development, consultations will be undertaken with end-users (e.g. governments and development partners) to tailor the product to demand.

5. Google, Microsoft, NASA, The World Bank and Yahoo! are partners in a progressive initiative called Random Hacks of Kindness (RHoK), whose mission is to mobilize a global community of technologists to solve real-world problems through technology. The purpose of the RHoK hackathons is to develop innovative solutions that are applicable to real-life situation and problems. The goal is to provide communities afflicted by natural disasters with the best possible solutions regardless of delivery platform, operating system or development tools (Budget: US$ 30,000; financed by GFDRR)

6. The Pacific Catastrophe Risk Pool Feasibility Study: At the request of the Pacific Islands, the World Bank has conducted a catastrophe risk financing study to estimate the economic impact of major natural disasters on the Pacific Islands and to identify options for catastrophe risk financing. Catastrophe risk profiles are developed for 15 PICs (Cook Islands, Fiji, Papua New Guinea, Samoa, Solomon Islands, Tonga, Tuvalu, Niue, Nauru, Federal State Of Micronesia, Marshal Islands, Palau, Kiribati, Timor-Leste and Vanuatu). The project performs portfolio risk analysis to assess the benefits of risk pooling/diversification and it examines institutional operating options and an implementation plan.

7. Sustainable management through reduced risk from disasters and climate: This grant contributes to increasing the PIC's ability to prepare, mitigate and respond rapidly and effectively to the increasing hazards in the region, through improved access to better information, good practices, and scaling-up of appropriate technologies and tools.

A stock-taking exercise contributed to developing an understanding of the key issues faced by the Pacific countries, opening a dialogue around the issue of mainstreaming DRR into policies and programs and seeking synergies between climate and disaster risk management and between DRR and climate change adaptation. The exercise identified priority measures in seven countries. This grant addresses these measures through a number of pilot projects.

8. The Pilot Program for Climate Resilience (PPCR) is part of the Strategic Climate Fund (SCF), a multi-donor Trust Fund within the World Bank's Climate Investment Funds. The overall objective of the program is to pilot and demonstrate ways to integrate climate risk and resilience into developing countries' core development planning. The program provides regional funds to the Pacific in two phases. Phase one is a technical assistance phase which includes looking at how countries' development plans can be made more climate resilient. At the end of phase one, the fund offered grants of up to $1.5 million to develop their strategic program. Phase two will be offered as grants with an option of additional loans and the Pacific will each receive up to US$50-70 million in resources to implement the program.

9. Gender and Disaster Risk Management in South East Asia: Focusing on gender issues in disaster risk management, this work i) contributes to a better understanding of the impact disasters have on women and men; ii) identifies how disaster risk management programs can be an opportunity for transferring decision making, implementation, and resources to poor communities and promoting gender equitable development over time; and iii) provides recommendations and specific operational guidance on how disaster risk management work in South East Asia can become more effective by ensuring that women and men's particular needs, constraints and opportunities are adequately addressed.

10. Lower Mekong Integrated Water Resources Management Project (M-IWRMP): The goal of this APL (Adaptable Programmatic Lending) with an initial budget of US$ 25.3 million is the promotion of integrated water resources management in the Lower Mekong Basin through improving integration of water resources management from the regional level to the community level, considering downstream impacts and benefits. In order to achieve this objective, the project is designed to: i) support implementation of tools for integrated water resource and natural disaster risk management, mainly floods and droughts in the LMB countries; ii) improve institutional capacity for integrated water resources management in selected countries, including strengthening hydromet systems; and iii) support improved floodplain management and management of aquatic resources for regional environmental benefits and the enhancement of rural livelihoods in pilot areas.

12. The Global Handbook for Mayors for Handling Urban Flood Risk Management will be a user-friendly, visually compelling manual on flood management aimed at providing practical technical guidance to city mayors and other policy makers in megacities in developing countries. The manual will take a comprehensive view of flooding, including storm, river, and coastal flooding. In a holistic approach to urban flood management, the manual will include parameters such as urban watershed modeling and management, urban planning, infrastructure codes and scenario forecasts, drainage networks and links to solid waste management and sewerage, flood barriers, institutional and policy/ regulatory frameworks, early warning systems and financing mechanisms.

13. The Pacific Islands Geonode project consolidates and enhances the use of regional exposure and hazard datasets in the pacific. Geonode tailors to the pacific needs and deploy the recently developed Geo-node concept: a free and open source spatial data architecture designed for simplicity and low bandwidth environments. The geonode leverages innovations in the geospatial web that enable map making and sharing with collaborative features and automated metadata standards

Proposed mechanism

A multi-stakeholder planning process lays the foundation for the programs for disaster risk reduction and climate change adaptation in the GFDRR priority countries. In each priority country, the following steps were undertaken to develop the country programs:

Investigation of a) the underlying risk factors and b) the progress in the five priority areas of the Hyogo Framework for Action;

Stocktaking of ongoing risk reduction and climate change adaptation programs by key stakeholders, including UN agencies, multilateral and bilateral donors, and other partners;

Identification of key gaps at national, sector, and local levels;

Solicitation of proposals from different government and non-government entities and concerned donor agencies;

Analysis of the solicited proposals and consensus building in a consultative process involving a range of stakeholders, including relevant government ministries, UN organizations, multilateral and bilateral donors, INGOs and civil society actors;

Development of strategic comprehensive programs of support based on the gathered information.

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1.4.2. Asian Development Bank

The Asian Development Bank has a comprehensive Disaster and Emergency Assistance Policy (DEAP) approved in June 2004. The objectives of the policy are to: (a) strengthen support for reducing disaster risk in developing member countries, (b) provide rehabilitation and reconstruction assistance following disasters, and (c) leverage ADB's activities by developing partnerships. An accompanying DEAP Action Plan was approved by management in April 2008. The Action Plan develops an approach that will embed disaster risk management within ADB's operational practices.

On 1 April 2009, the ADB established the Asia Pacific Disaster Response Fund (APDRF) to provide incremental grant resources to developing member country for the restoration of life-preserving services to communities affected by a natural disaster. The APDRF will help bridge the gap between existing ADB arrangements that assist the member countries to reduce disaster risk through hazard mitigation loans and grants and longer-term post-disaster reconstruction lending. ADB is further negotiating with regional organizations like the SAARC and the ASEAN to offer assistance for various regional programs for disaster reduction in the South East and South Asia regions.

ADB's vision is an Asia and Pacific region free of poverty. Its mission is to help its developing member countries substantially reduce poverty and improve the quality of their people. ADB is committed to reducing poverty through inclusive economic growth, environmentally sustainable growth, and regional integration. Based in Manila, ADB is owned by 67 members, including 48 from the region. Its main instruments for helping its developing member

countries are policy dialogue, loans, equity investments, guarantees, grants, and technical assistance.

ADB is actively supporting regional cooperation in the DRM area, especially in the areas of knowledge and capacity building. Its experience in collaborating with development partners has been very positive. With respect to climate change adaptation, ADB has provided and is carrying on with its active support to regional cooperation and integration to allow more efficient and effective use of resources and management of common trans-boundary problems by helping fill the gaps in financing, knowledge, and capacities.

ADB recognizes that the intersection of DRR and CCA is substantial, with increases in drought, flooding, landslides and coastal erosion all possible consequences of climate change. Coping strategies developed under DRM programs provide viable options for these hydro-meteorological hazards. ADB's DRR and climate change programs are incorporated at policy and strategy levels and at the project implementation level. A risk screening tool is currently being tested that takes into account climate-induced and geophysical hazards, for use as an initial screen at a location or project level, and is designed to flag whether a more systematic hazard assessment is necessary.

ADB is working with partners to make mitigation and adaptation actions more affordable and competitive. For example, ADB is the executing agency of the Global Environment Facility and can assist DMCs in accessing grant resources. It has established its Climate Change Fund to support both mitigation and adaptation activities. It mobilizes additional concessional resources such as the Climate Investment Funds, catalyzing private sector investments, and maximizing the use of market-based instruments.

ADB has established regional knowledge hubs at several leading academic institutions within the region: Clean Energy—The Energy and Resources Institute (TERI) in New Delhi, India; Climate Change—Tsinghua University in Beijing, PRC; and Reduce, Reuse, Recycle (3Rs)—Asian Institute of Technology in Bangkok, Thailand; Water and Climate Change Adaptation in SE Asia —National Hydraulic Research Institute of Malaysia (NARIM); Water-Related Disaster Management, international Centre for Water Hazard and Risk Management, Tsukuba, Japan (ICHARM) and Urban Water Management—PUB Waterhub, Singapore. The ADB’s policy related to CCA and DRR at regional level are presented below:

2004 Disaster and Emergency Assistance Policy

2006 Regional Cooperation and Integration (RCI) Strategy, of which Cooperation in Regional Public Goods (RPG) is the fourth pillar (there are six RPGs: (i) Clean Energy and Energy Efficiency, (ii) Environment (including climate change adaptation), (iii) Communicable Diseases, (iv) Disaster Risk Management, (v) Governance and (vi) Human and Drug Trafficking.

2008 Strategy 2020. The Long-Term Strategic Framework of the Asian Development Bank 2008-2020

Addressing Climate Change in Asia and the Pacific. Priorities for Action

Ongoing projects related to CCA and DRR at regional level

ADB has been engaged in 334 emergency projects since 1987 relating to the environment, health, natural hazards, or conflict - a rate of at least one a month. ADB has spent almost $10 billion in disaster-related assistance. Of this total, approximately 45% has been for risk reduction/hazard management; 39% for post-impact reconstruction and rehabilitation; and 16% for emergency assistance. These figures do not include all recent climate change adaptation financial assistance.

- A Climate Change Implementation Plan for each region has been drawn up and will articulate how ADB integrates its responses to climate change challenges. The Plan will serve as the basis for the establishment of country specific climate change action plans which can be integrated into individual country strategies. Several CCIPs include linkages with disaster risk reduction for geophysical hazards. Asia Pacific Disaster Response Fund – quick-disbursing financial assistance to DMCs affected by a declared natural disaster emergency.

Selected projects:

- Asian Tsunami Fund (2005-2010) total approved assistance and co-financed funds for tsunami-affected countries = $891 million.
- Supporting Investments in Water-Related Disaster Management project of $2 million approved on 27 April 2009.
- Regional technical assistance of $400,000 for Stocktaking and Mapping for Disaster Risk Reduction approved in December 2008.
- Regional Partnership for Climate Change and Disaster Preparedness in Pacific approved in October 2008. (RCIF)
- Regional technical assistance project on Natural Catastrophe Risk Insurance Mechanisms for Asia and the Pacific worth $800,000 approved in August 2008.
- Greater Mekong Subregion Flood and Drought Risk Management and Mitigation for $2 million approved on 23 April 2008.
- Surveillance mechanisms to control agriculture pests in South Asia and the Pacific.
- Early warning and forecasting systems to reduce health and economic risks of dust and sand storms in central Asia and parts of East Asia.
- Regional Economics of Climate Change in South Asia Part II: Adaptation and Impact Assessment project of P500,000 approved in December 2009. The project has four intended outputs: i) country and regional assessments ii) analyses of climate change sector impacts iii)climate policy simulation and iv) dissemination. (UK provided an additional $700,000 in cofinancing).
- Small scale technical assistance of $140,000 for a project on Managing Climate Impacts on Health in Water and Agriculture and Disaster Risk Reduction was approved in December 2009 (SIDA co-financing).
- Strengthening the Capacity of Pacific Developing Member Countries to Respond to Climate Change (Phase 1) technical assistance for $3.14 million approved in October 2009. The project has three main outputs: i) The Pacific Climate Change Program ii) adaptation preparation in selected Pacific countries and iii) the promotion of a mitigation strategy and identification of mitigation projects (the Canadian Cooperation Fund on Climate Change contributed $325,000).
- An Enabling Climate Change Interventions in Central and West Asia project for $5 million

approved on 23 April 2009.

- A Regional Partnerships for Climate Change Adaptation and Disaster Preparedness project for $1 million approved on 27 October 2008.
- A technical assistance project on Addressing Climate Change in Asia and the Pacific, for $1.25 million approved in August 2008. The project will study the impact of climate change on energy, agriculture and migration.

Planned project/program related to CCA and DRR at regional level

- ADB is adopting an integrated disaster risk management approach that has three pillars: (i) a disaster risk finance pillar will focus on developing finance capacity and instruments such as emergency contingent credit lines, insurance-backed liquidity programs and other risk transfer mechanisms; (ii) a disaster risk reduction pillar will focus on providing grants and technical assistance support to investments in enhancing disaster impact reduction and prevention; and (iii) a climate change adaptation pillar will focus on incorporating adaptation goals and opportunities into DRM initiatives.

- As development patterns need to shift to simultaneous response to both the causes and consequences of climate change, ADB is adopting an integrated approach – addressing climate change mitigation and adaptation, facilitated by financing, knowledge generation and partnerships

Selected planned programs/projects:

Developing disaster risk finance options through the implementation of an integrated risk management framework that consists of three pillars: i) disaster risk finance ii) disaster risk reduction and iii) climate change adaptation.

Regional capacity development assistance for applying remote sensing in river basin management, including disaster risk management and climate change adaptation components

Practitioner handbooks on Disaster Risk Management Practices in Asia

Promoting Regional-level DRM

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1.4.3. The European Union (EU)

The European Union (EU) is a group of 27 democratic European countries that work together to foster peace, stability and prosperity for its people. The EU is the world's largest development donor, as it accounts for 60% of the world's official development assistance. The European Commission (EC) manages more than a fifth of EU development aid, with an

aid budget amounting to nearly € 12 billion in 2009. This assistance is provided to more than 160 countries, territories or organizations worldwide in order to fight poverty and promote economic development and democracy. The European Commission (EC) and its member states constitute the world's main humanitarian donor. Through its Humanitarian Aid and Civil Protection department (ECHO) and as per its humanitarian mandate, the EC provides emergency assistance and relief to the victims of natural disasters or armed conflicts outside of the European Union. The aid is intended to go directly to those in distress, irrespective of race, religion or political convictions. The EC also supports preventive, mitigation and preparedness measures within the EU through its Civil Protection mechanisms and outside the EU through humanitarian assistance. In 2009, DG ECHO has provided € 930 million of humanitarian aid funding in over 70 countries, assisting 115 million people affected by humanitarian crises

Policy related to CCA and DRR at regional level

Disaster Risk Reduction and Climate Change are concepts fully integrated into the 2005 European Consensus on Development promoting a more coherent EC's policy, and into the 2006 European Consensus on Humanitarian Aid.

In 2009, the European Union adopted a package of two Communications covering respectively the EU strategy outside and inside the EU: 1) Strategy for Supporting Disaster Risk Reduction in Developing Countries and 2) Community Approach to the Prevention of Natural and Man-made Disasters. Since 2010, DG ECHO is a Partner of the One Million Safe Campaign on Schools and Hospitals.

Specific policy and program frameworks exist for Asia and for the Pacific, with intensifying support to regional integration through, and cooperation with, the Asia-Europe Meeting (ASEM), the Association of South-East Asia Nations (ASEAN, the ASEAN Regional Forum (ARF) and the South Asian Association for Regional Cooperation (SAARC).

Climate change remains at the top of the European Union's agenda, with numerous initiatives. In 2009, the Communication on Stepping up international climate finance: A European blueprint for the Copenhagen deal proposed options to generate adequate financial flows for developing countries in their efforts to adapt to and mitigate climate change. The White Paper: "Adapting to climate change: towards an European framework for action" sets out a framework to reduce the EU's vulnerability to the impact of climate change, complements action by Member States and supports wider international efforts to adapt to climate change, particularly in developing countries

The European Union closely engages key strategic regional and national partners in dialogue and cooperation on climate change. These include: a number of OECD countries and other United Nations Framework Convention for Climate Change (UNFCCC) Annex I countries; emerging economies such as India, China and South Korea; a number of regional groupings on environment and climate change issues such as the African, Caribbean and Pacific (ACP) countries, the Asia Europe Meeting (ASEM), the Association of South East Asian Nations (ASEAN), the Gulf Cooperation Council (GCC), Latin American and Caribbean (LAC) countries and the Organization of the Petroleum Exporting Countries (OPEC). In addition, the EU sup-

ports numerous regional and national programs on climate change adaptation initiatives in Asia and the Pacific.

DRR and CCA regional projects/programs

Outline of main contributions including Asia and the Pacific[10]

- To ISDR: € 1.5 million for capacity building of the ISDR system.
- To World Bank:
  - GFDRR: €63,610,693 for the period 2008-2013 (includes € 60 million for the EC ACP Natural Disaster Facility).
  - €25 million to the Global Index Insurance Facility (GIIF) multi-donor trust fund.

- Climate Change (including DRR in some cases):
  - Cooperation with non-EU countries, in particular India, China.
  - Global Climate Change Alliance (GCCA): € 60 million allocated by the EC for 2008-2010. In Asia-Pacific, pilot countries include Cambodia (€. 2.2 m), Maldives (€ 3.8 m), Vanuatu (€ 3.2 m), Bangladesh (€ 8.5 m). In 2010, the beneficiary countries would be: Nepal, the Pacific region incl. the Solomon Islands, possibly Laos.
  - European Investment Bank: loans and projects.
  - Regional cooperation with Asia on Environment, Energy and Climate Change (incl. DRR) through Sustainable Consumption and Production (SWITCH Asia) and Forest Law Enforcement, Governance and Trade (FLEGT) Program.
  - Samples of projects: C3D+ (includes Asia and South Pacific), total € 2.5 m; TroF-CCA (incl. South East Asia), € 3.3 m; Thematic Budget Line on Environment, Energy and Climate Change (includes DRR/CCA); in preparation: CCA program in the Philippines.

- DG ECHO (humanitarian and disaster preparedness assistance, Civil Protection):
  - Disaster preparedness integration into humanitarian assistance: in 2008, 11.7% of DG ECHO's budget.
  - Disaster Preparedness Program (DIPECHO): ongoing € 27.3 m for Asia, € 1.5 m for the Pacific, as well as € 2 m for the Caucasus.
  - Advocacy measures: dialogue with other EC services, with ISDR, UN agencies and International Organizations, World Bank, EU Member States etc., as well as through projects in regions
  - Capacity building of humanitarian actors and systems, including on preparedness to respond and disaster preparedness mechanisms: over € 135 since 2005 globally (IFRC, ISDR, OCHA, UNICEF, WFP, NGOs etc.).
  - EU Monitoring and Information Centre (MIC): contributions through facilitation of identification and technical assistance missions, incl. outside the EU.
  - Community Mechanism for Civil Protection

- Thematic Programs on food security and environment/natural resources (integrates DRR/CCA). Examples: € 163,799,000 (globally) under 2009 Annual Action Program implementing the programming document "Thematic Strategy Paper for the envi-

[10] NB - EC only, non exhaustive; does not include DRR mainstreaming into humanitarian response; does not include EU Member States' bilateral contributions

ronment and sustainable management of natural resources, including energy (ENRTP) for the period 2007-2010" for the Development Cooperation Instrument; LINK in Asia; TEIN-3.
- Global contribution to FAO, including for Global Information Systems and EWS in Asia.

- Research Framework Programs (FP)**:**
  - 6th Research FP. Example: Distant Early Warning System (DEWS).
  - 7th Research FP (FP7): supports a substantial amount of hazard- and disaster-related research and tools, in particular the Environment program which has a sub-activity devoted to natural hazards.
- Joint Research Centre: numerous actions related to hazard and disaster-related research and tools.
- Cooperation with EUMETSAT on monitoring climate change, including in the Pacific.

- Regional cooperation and programs - Asia:
  - With ASEM , with ASEAN, in particular through READI and through DG ECHO; with SAARC.
  - DRR programs in numerous countries.

- Regional programs - the Pacific:
  - ACP EU Natural Disaster Facility for regional capacity building in disaster risk reduction (9th EDF): € 1,868 m through SOPAC [*to reinforce SOPAC initiatives in the field of disaster risk management, specifically, to enhance the human safety level of the populations and to reduce the social, economic and environmental costs of natural disasters in the Pacific region*].
  - ACP EU Natural Disaster Facility for regional capacity building in disaster risk reduction (10th EDF): being programmed: in the Pacific, will contribute to the World Bank GFDRR (€ 30 mln for ACP countries including the Pacific); € 500 mln for DRR (€ 180 mln) and CCA for ACP countries.
  - € 9 mln (Envelop B) in eight Pacific states (SOPAC). Objectives: To reduce vulnerability and increase, resilience in FSM, RMI, Nauru, Palau, PNG, Solomon Island (€ 550,000), Tuvalu
  - EDF: support to regional cooperation in the Pacific (various initiatives including DRR).
  - Numerous programs and project on resource management.
  - Global Climate Change Alliance: including €.3.2 m to Vanuatu.
  - Global Index Insurance Facility (GIIF): € 25 million including Pacific

- Regional Cooperation with South Caucasus countries and with Russia:
  - Program for the Prevention, Preparedness and Response to Natural and Man-Made Disasters (PPRD-East), € 6 m.

Disaster preparedness (DG ECHO): disaster preparedness projects in regions prone to natural catastrophes are among the life saving activities financed through DG ECHO's specialized program DIPECHO. By preparing the communities at risk to respond by themselves, DIPECHO aims at reducing the impact of natural disasters on the most vulnerable popula-

tions through simple and inexpensive yet effective preparatory measures developed and implemented by the communities themselves. Such measures more and more include Climate Change Adaptation methodologies and practices.

DG ECHO:

- humanitarian assistance: following crises; see Funding Decisions
- disaster preparedness (DIPECHO):
  - South East Asia: Burma/Myanmar, Cambodia, Indonesia, Lao PDR, the Philippines, , Vietnam, as well as Timor Leste and Thailand in regional initiatives;
  - Central Asia: Tajikistan, Kyrgyzstan, Uzbekistan, Turkmenistan, Kazakhstan and Afghanistan for cross border initiatives with Tajikistan
  - South Asia: Afghanistan, Bangladesh, India, Nepal, and Pakistan. Bhutan and Sri Lanka possibly through regional initiatives.
  - Pacific: Solomon Islands, Vanuatu, Fiji (for regional initiatives)
  - South Caucasus: Georgia, Armenia, Azerbaijan.

Proposed coordination mechanism

The European Union aims to deliver aid quickly and efficiently to where it is most needed. It carries out careful analysis and consultation before committing funding to development actions. Rigorous checks are in place to ensure the millions of Euros committed each year are spent effectively and in a transparent and accountable way. Actions are assessed and monitored to ensure they meet high quality standards.

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1.4.4. Japan International Cooperation Agency (JICA)

JICA was originally established in 1974, which was inaugurated in 2008 with a merger between the existing JICA and the overseas economic cooperation section of the Japan Bank for International Cooperation (JBIC). JICA has a network of 96 overseas bureaus and has undertaken around 150 countries. Since the merger in 2008, JICA has been the world's largest bilateral development assistance agency with a size of estimated USD10.3billion.

JICA's Policies of Assistance in Disaster Management Sector

In Sectoral Guideline of JICA, Disaster Management Sector (February, 2009), the following three development strategies were adopted as the basis for assistance in the disaster management sector of JICA. Development Strategies of Disaster Management Sector

Strategy 1: Build Community and Society Resilient to Disasters: Mitigation and Preparedness

Strategy 2: Response Reached Swiftly and Effectively to Victims: Response

Strategy 3: Sift to and Implementation of Appropriate Recovery and Reconstruction: Recovery and Reconstruction

To achieve the objectives of disaster risk reduction, it is necessary to conduct activities according to the stages of the disaster management cycle (DMC), namely, activities of ordinary times, activities immediately after the disaster and activities to recover normal life of people. The three strategies are corresponding to "Prevention, Mitigation and Preparedness", "Response" and "Recovery and Reconstruction", respectively.

Among the three strategies, JICA considers Strategy 1, "Build Community and Society Resilient to Disasters", is the most important. The Hyogo Framework for Action also has a goal, "Building Resilience to Hazards", and the 5 priorities for action also consider activities before the disasters as important. As Sectoral Guideline of JICA was prepared by considering the directions of the UN World Conference on Disaster Risk Reduction, the strategies of JICA are similar to those of HFA. Activities before disasters can reduce the risks of disasters, however, it cannot prevent completely occurrence of the disasters. So, JICA will actively provide assistance for activities of the stages of response, and recovery and reconstruction.

Typical activities under the strategies of JICA are listed in Table 1. Strategy 1 for prevention, mitigation and preparedness places an emphasis on the development of capacities of organizations concerned, including national governments, local governments, research institutions and NGOs. A special emphasis is placed on the development of disaster management capacity of communities (community based disaster risk reduction).

Table 1: Development Strategies, Policies of Cooperation and Samples of Activity

Development Strategy	Policy of Cooperation	Samples of Activity
Strategy 1 Build Community and Society Resilient to Disasters	Activities to enhance capacity of response to disasters, especially of communities Integration of disaster reduction into development	Preparation of legal system (national level), preparation of disaster management plans (national, local and community levels) Establishment and strengthening of disaster management systems (capacity development of organizations who involved in disaster risk reduction (administration, research institution and NGO), and especially of community) Knowing disaster risks and preparation of maps for disaster risk reduction (national, local and community levels) Preparation of forecast and early warning systems, and evacuation systems Education and fermentation of culture of disaster risk reduction

		Improvement of capacity of prevention and mitigation by hard measures
Strategy 2 Response Reached Swiftly and Effectively to Victims - Protect Life	Continuation of emergency disaster relief Sanitation and medical supports for victims	Swift implementation of needs assessment of emergency disaster relief, which is integrated into the international support Swift dispatch of rescue and medical teams Dispatch of specialist team harmonized with local needs Swift supply of goods Carrying out mental cares
Strategy 3 Sift to and Implementation of Appropriate Recovery and Reconstruction	Continuous supports to victims Support to build resilient community and society during recovery and reconstruction phases	Swift implementation of needs assessment of recovery and reconstruction Recovery and reconstruction of lifelines and public facilities Reconstruction by participation of community Recovery of livelihood Carrying out mental cares of victims in medium and long terms

Assistance of JICA for disaster risk reduction is carried out through the schemes of technical cooperation, grant aid, yen loan (ODA loan) and emergency disaster relief. The technical cooperation includes technical cooperation program, development study (now, named as technical assistance for preparation of development plan), dispatching experts, acceptance of technical training participants, provision of necessary equipments and cooperation with NGOs.

JICA's Policy on Climate Change Adaptation for DRR

In March 2010, JICA prepared "A Handbook on Climate Change Adaptation in the Water Sector — A Resilient Approach that Integrates Water Management and Community Development" which describes the policy on CCA. Following is the summary of the handbook.

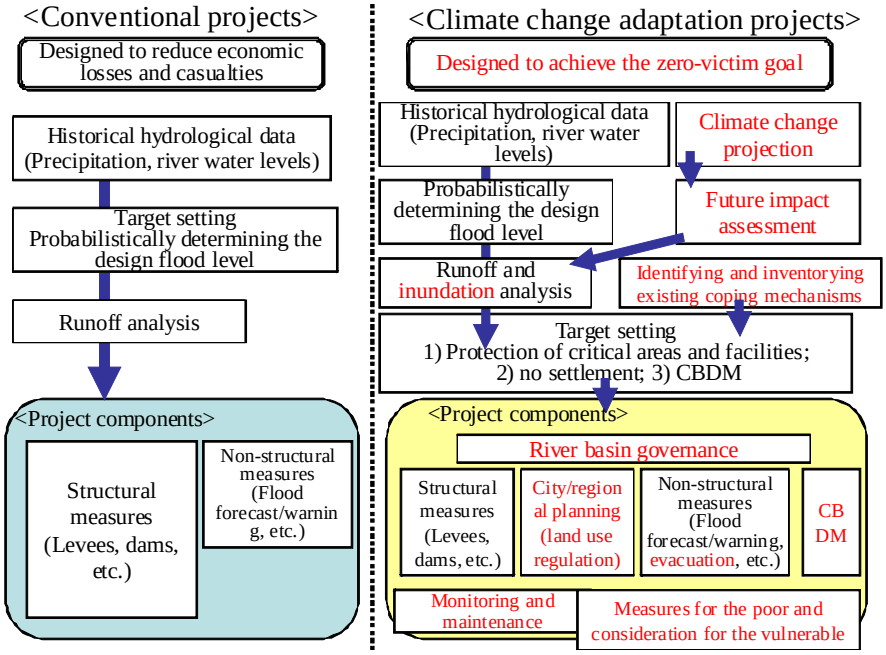
It is predicted that climate change will increase the intensity and frequency of floods and droughts with its impacts more severely felt in developing countries. A fundamental review of development assistance approaches is required in the water sector. This handbook provides a new approach to formulating and implementing projects for climate change adaptation. For the future, development interventions should meet the following requirements:

Dealing with a changing climate

Formulating and implementing projects while projecting future impacts, and

Adjusting water management systems to reflect day-to-day progress in technologies available for projection and adaptation.

Figure 2: Conceptual Differences regarding Flood Risk Management Projects



For Disaster Risk Reduction:	For Climate Change:
Mr. Mikio Ishiwatari Senior Adviser Japan International Cooperation Agency (JICA)	Mr. Mikio Ishiwatari Senior Adviser Japan International Cooperation Agency (JICA)

1.5. Regional alliances and networks

1.5.1. Delhi Declaration on Disaster Reduction in Asia

The conference hosted by India in November 2007 was attended by high level Ministerial participation from more than 50 countries of the Asia-Pacific along with attendance of large number delegation representing various other stakeholders including the regional and international organizations, scientific and technical institutions, civil society organizations and representative of the media, corporate sector etc and assumed the nomenclature of Asian Ministerial Conference on Disaster Risk Reduction (AMCDRR). The same model was followed in the third conference in Kuala Lumpur, Malaysia in December 2008 and the forthcoming fourth conference in Inchon, Republic of Korea in October 2010. The conference adopted the **Delhi Declaration on Disaster Reduction in Asia** which affirmed that the biennial Asian Ministerial Conference will be expanded as the Regional Platform for Disaster Risk Reduction, with participation of the national governments, regional and sub-regional organizations, the UN agencies, International Financial Institutions and other stakeholders including the civil society, scientific and technical organizations, the private sector and the media; the Ministers in charge of disaster reduction will provide the political leadership and commitment to the Regional Platform; while the Asia-Pacific regional office of the UNISDR within the framework of expanded ISDR Asia Partnership shall provide the technical, operational and secretarial support to the Regional Platform. The declaration further added that the

various geographical sub-regions of the Asia-Pacific may hold periodic conference of the national governments and other stakeholders and ensure these are well coordinated and complement each other in taking stock of the progress made in the implementation of Hyogo Framework for Action in the respective sub-regions. The Delhi Declaration was a significant strategic move in as much as it placed political leadership in the central place, while acknowledging the multi-stakeholder participation at the regional level and recognising the critical role of ISDR regional office in providing technical, operational and secretarial support. This ensured that the AMCDRR does not remain once-in-two-year activity and that its decisions are followed up on a continuing basis. This helped to activate the ISDR regional office and the IAP to involve the stakeholders in regular consultations for implementation of the HFA.

1.5.2. Kuala Lumpur Declaration

The Kuala Lumpur Declaration adopted at the Third AMCDRR took the process further forward by highlighting six important issues of disaster risk reduction requiring the attention of national governments and other stakeholders, namely (a) public-private partnership; (b) high technology and scientific application including climate change adaptation; (c) involvement and empowerment of local governments and civil society; (d) mobilization of resources; (d) engaging the media and (e) creating public awareness and education for disaster risk reduction. The Declaration invited the Asia-Pacific regional office of the UNISDR in collaboration with members of the IAP to prepare a Regional Action Plan on the Kuala Lumpur Declaration on Disaster Risk Reduction as well as earlier declarations in Delhi and Beijing, and to report on its progress at the Fourth Asian Ministerial Conference on Disaster Risk Reduction, and to also call on donors to support the preparation process and implementation of the Action Plan.

The task of preparation of **Kuala Lumpur Action Plan** (KLAP) was entrusted to the Asian Disaster Preparedness Centre. The draft Plan submitted by the ADPC has seven components, namely

- Accelerating HFA Implementation through National Action Plans;
- Empowerment of Local Government and Civil Society in DRR;
- Mobilizing Resources and Promoting Public Private Partnership for DRR;
- Linking Climate Change Adaptation to DRR;
- Protecting Critical Infrastructure
- Public Education, Awareness and Engaging the Media in DRR; and
- High Technology and Scientific Application for DRR

It was proposed that the KLAP shall have 8 implementation clusters; one each for the seven components and one for overall steering of the KL Regional Action Plan. Each implementation cluster would comprise of one or more lead mentor countries, one or more lead support agencies and several partner support agencies. The role of the implementation cluster would be to plan and implement the regional actions listed under the component, provide guidance and support from countries implementing national actions under this component and monitor progress of regional and national actions under the component.

The role(s) of the lead mentor countries would be to serve as Chair of the cluster, give needed guidance and direction to the support agencies in the development and implementation of regional actions, serve as a catalyst in mobilizing inputs and resources from other countries and donors. Each cluster would have a number of support agencies drawn from the IAP Members or other regional entities. They would take the lead on organizing one of the regional actions under the component individually or in partnership with other support agencies and to collaborate with other support agencies in the cluster.

It was proposed that resources for the implementation of the KLAP shall be mobilized through the following five different sources:

- National government resources;
- Ongoing DRR programs being implemented in partnership with UN Agencies, bilateral donors, regional organizations and NGOs;
- New national DRR programs implemented in relation to these components;
- Synergistic implementation with ongoing regional programs;
- New regional programs.

The draft KLAP with such modification as may be decided by the IAP is likely to be submitted to the 4th AMCDRR in Inchon in October 2010 for consideration and approval.

1.5.3. Asian Disaster Reduction & Response Network

Two such coalitions that have emerged in the region are the **Asian Disaster Reduction & Response Network** (ADRRN) and Duryog Nivaran. The ADRRN is a network of 34 national NGOs from 16 countries across the Asia-Pacific region, with its secretariat is based in Kuala Lumpur, Malaysia. The Mission of ADRRN is to promote coordination and collaboration among NGOs and other stakeholders for effective and efficient disaster reduction and response in the Asia-Pacific region and its objectives are to (a) develop an interactive network of NGOs committed to achieving excellence in the field of disaster reduction and response, (b) raise the relevant concerns of NGOs in the Asia-Pacific region to the larger community of NGOs globally, through various international forums and platforms, (c) promote best practices and standards in disaster reduction and response and (d) provide a mechanism for sharing reliable information and facilitating capacity building among network members and other stakeholders. Towards promotion of these objectives, the ADRRN has been making their presence felt in various regional and global conferences, workshops and platforms on humanitarian response and disaster risk reduction.

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1.5.4. Duryog Nivaran

Duryog Nivaran, meaning disaster mitigation, was established in 1995 as a network of individuals and organizations from South Asia, who are committed to promoting the 'alternative perspective' on disasters and vulnerability as a basis for disaster mitigation in the region. The network undertook studies and research related to disaster preparedness and mitigation, regional cooperation, gender and risk and livelihoods and organised several policy discussions and debates on institutionalizing and mainstreaming disaster risk reduction in development in South Asia. The most important of these policy forums was

the South Asia Policy Dialogue in New Delhi during August 2006, organized in collaboration with the National Institute of Disaster Management India and Practical Action Sri Lanka, which was attended by the policy makers, scientific and technical organizations, media, and civil society organizations from all the countries of South Asia region. The dialogue ended with the adoption of the Delhi Declaration, which provided a vision and a blueprint for disaster management in South Asia region, particularly for the SAARC Disaster Management Centre which was established in New Delhi soon thereafter. Duryog Nivaran took another pioneering initiative of bringing South Asia Disaster Report. The two editions of this report released in 2006 and 2009 added lot of value to the current understandings of disaster risk and vulnerabilities in South Asia region.

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1.5.5. Asian Cities Climate Change Resilience Network (ACCCRN)

The Asian Cities Climate Change Resilience Network aims to catalyze attention, funding, and action on building climate change resilience for poor and vulnerable people by creating robust models and methodologies for assessing and addressing risk through active engagement and analysis of various cities. The funding in Asian urban areas is currently focused in four countries: Thailand, Vietnam, India, and Indonesia.

Through the actions of the Asian Cities Climate Change Resilience Network, it is anticipated that by 2012, a network of cities in Asia will have developed robust plans to prepare for, withstand and recover from the predicted impacts of climate change. To accomplish this, ACCCRN must meet the following objectives:

- Test and demonstrate a range of actions to build climate change resilience in cities
- Build a replicable base of lessons learned, successes and failures
- Assist cities in the development and implementation of a climate change resilience building process
- Help cities continue activities that build climate change resilience

The Rockefeller Foundation's initiative will develop a network of Asian city partners who will experiment with a range of activities that will collectively improve the ability of the cities to withstand, prepare for, and recover from the projected impacts of climate change. It is expected that interventions will span health, infrastructure, water, disaster, urban planning/development issues, and will include leveraging policy incentives and investment funds to improve infrastructure, services, disaster management and preparedness strategies.

The approaches taken will be determined by local needs and priorities, but will be replicable in different urban contexts and will bring particular focus to improving the resilience of poor and vulnerable populations to climate change impacts. Activities will involve the development of secondary partnerships and activities with a spectrum of actors, including local, state, and national governments, the private sector, community based organizations, and universities and research institutions. Anticipated results of the ACCCRN program include:

- Capacity building: Selected cities in South and South East Asia have adequate capacity to plan, finance, coordinate, and implement climate change resilience strategies.
- Network for learning and engagement: A broad range of representatives of cities, civil society, donors, private sector, technical partners engage with ACCCRN to mutually identify and solve key climate change resilience problems.
- Expansion, deepening of experience, scaling up: New and more diverse partners provide resources and funding for replication in current and new cities to support the implementation of resilience plans and strategies.

1.5.6. Regional Climate Change Adaptation Knowledge Platform for Asia

The Regional Climate Change Adaptation Knowledge Platform for Asia (hereinafter, referred to as the Adaptation Knowledge Platform) has been developed to respond to demand for effective mechanisms for sharing information on climate change adaptation and developing adaptive capacities in Asian countries, many of whom are the most vulnerable to the effects of climate change. The Adaptation Knowledge Platform supports research and capacity building, policy making and information sharing to help countries in Asia adapt to the challenges of climate change.

In particular, the program will focus on the mainstreaming of adaptation into poverty reduction and sustainable development policies and strategies, targeting the poorest and most vulnerable segments of society and taking gender equity and environmental sustainability as key principles. The Adaptation Knowledge Platform will seek to facilitate climate change adaptation at local, national and regional levels and to strengthen adaptive capacity of countries in the region – while working with existing and emerging networks and initiatives such as the Poverty-Environment Initiative and UNDP's Adaptation Learning Mechanism.

Through its work the Adaptation Knowledge Platform is working towards building bridges between current knowledge on adaptation to climate change and the governments, agencies and communities (especially the poor and most vulnerable segments of society) that need this knowledge to inform their responses to the challenges that climate change presents to them. This is reflected in the Platform Goal, which is to facilitate climate change adaptation in Asia at local, national and regional levels and strengthen adaptive capacity.

The specific Purpose of the Adaptation Knowledge Platform is to establish a regionally and nationally owned mechanism that facilitates the integration of climate change adaptation into national and regional economic and development policies, processes and plans, strengthens linkages between adaptation and the sustainable development agenda in the region and enhances institutional and research capacity.

In order to achieve this purpose, the Adaptation Knowledge Platform will bring together policy-makers, adaptation researchers, practitioners, and business leaders and will work through a range of activities to achieve three components:

Regional knowledge sharing system: a regionally and nationally owned mechanism to promote dialogue and improve the exchange of knowledge, information and methods within and between countries on climate change adaptation and to link existing and emerging networks and initiatives.

Generation of new knowledge: to facilitate the generation of new climate change adaptation knowledge promoting understanding and providing guidance relevant to the development and implementation of national and regional climate change adaptation policy, plans and processes focused on climate change adaptation.

Application of existing and new knowledge: synthesis of existing and new climate change adaptation knowledge to facilitate its application in sustainable development practices at the local, national and regional levels.

The immediate beneficiaries are civil servants, researchers and development practitioners working to promote climate change adaptation policies and strategies.

In collaboration with a wide range of national and regional partners, the Adaptation Knowledge Platform will aim at establishing a regionally and nationally owned information exchange mechanism that facilitates the integration of climate change adaptation into national and regional economic and development policies, processes and plans, strengthening linkages with the development agenda and enhancing research and institutional capacity.

The Adaptation Platform is financially supported by the Swedish International Development Cooperation Agency (Sida) and initial partners are the Stockholm Environment Institute (SEI), the Swedish Environment Secretariat for Asia (SENSA), the United Nations Environment Program Regional Office for Asia and the Pacific (UNEP ROAP) and the UNEP/Asian Institute of Technology (AIT) Regional Resource Centre for Asia and the Pacific (RRC.AP).

Geographical focus: Thirteen countries are identified as focal countries for the platform's first three years of operation (Cambodia, China PR, Lao PDR, Myanmar, Thailand & Viet Nam, Bangladesh, Bhutan, Indonesia, Malaysia, Nepal, the Philippines & Sri Lanka). Of these, five (Cambodia, Thailand, Viet Nam, Bangladesh and Nepal) are identified as pilot countries to be targeted in 2009.

The activities implemented in 2009-the inception period for a firm foundation for the future development of the Adaptation Knowledge Platform was laid with the following main outcomes:

Activities have been initiated in the five pilot countries, Bangladesh, Cambodia, Nepal, Thailand and Vietnam, with local partners mobilized, scoping reports prepared, the existing policy and institutional environment appraised and key knowledge and capacity gaps identified.

The management arrangements for the long-term development of the Platform are in place, the operational modalities for coordination between the partners have been developed and the structure of the regional knowledge sharing mechanism has been defined.

Effective communications are initiated, culminating in the high-profile launch of the Adaptation Knowledge Platform on October 3rd 2009.

Capacity development activities include training for officials and researchers from the region and progress has been made in the inventorying of existing and generation of new knowledge products.

Sharing of knowledge on climate change adaptation has been initiated, focusing on the impacts of climate change on high altitude ecosystems.

Linkages and collaboration with other relevant initiatives has been initiated, with the agreement reached with the Asia Pacific Adaptation Network and the Southeast Asia Network of Climate Change Focal Points for delivery of country needs on climate change adaptation in South and South-East Asia.

The most significant outcome of the inception year was the strategy for future development of the Adaptation Knowledge Platform. The strategy details the activities that will be undertaken for each of the three components identified in the programme framework, along with a number of specific communications activities.

For Disaster Risk Reduction:	For Climate Change:
	Secretariat Adaptation Knowledge Platform AIT/United Nations Environment Programme Regional Resource Center for Asia and the Pacific Asian Institute of Technology Outreach Building, PO Box 4, Klong Luang, Pathumthani 12120, Thailand Tel: + 66 2 524 5386/5384 Email: info@climateadapt.asia http://www.climateadapt.asia

1.5.7. Asia Regional Center of Excellence on Climate Change and Development

The creation of an Asia Regional Center of Excellence on Climate Change and Development (ARC) will link leading U.S. and Asian scientific, technical, and policy institutions to develop and promote innovative solutions to climate challenges throughout the Asia region. Through its coordination and partnership-building role, the ARC is expected to expand the impact of the U.S. Government technical agencies that have a role to play in promoting

global climate change solutions in Asia. Planning for the ARC is being led and coordinated by USAID's Regional Development Mission for Asia, which has a mandate to provide technical leadership and knowledge-sharing in support of development activities across the region.

All aspects of the ARC's structure, scale and function will be informed by a feasibility assessment process that includes consultations both with U.S. agencies and institutions, and regional organizations throughout Asia. The focus of the initial consultations will be both to receive input on major goals and functions of the ARC, and equally importantly, to receive input on organizations and institutions in Asia that should be engaged during the regional phase of the assessments. It is currently envisioned that the ARC will be organized as a loose network of institutions, or hubs, in strategic locations across the region, including South Asia, Southeast Asia, East Asia, and the Pacific. Additionally, the ARC will support regional technology exchange and science cooperation, and in doing so will be well-positioned to provide spillover benefits beyond the countries in which its work actually occurs.

Major questions to be addressed by the assessment

What should be the goals of the ARC in order to best address regional climate challenges? (e.g., conducting and supporting cutting edge research; piloting and scaling-up innovative solutions; strengthening regional science and technology capacity; knowledge transfer to the public and private sectors; strengthening local decision making capabilities; improving the impact of USG and partner investments)

What should be the major core functions and operational mechanisms of the ARC? (e.g., facilitating intellectual exchange between scientists, policymakers, practitioners, and the public sector; training and workshops directed at a wide array of recipients; developing and promoting decision support tools; funding research; data and knowledge sharing; professional development, including academic exchanges, curricula development, and distance learning)

- How should the ARC be organized and managed?
- What institutions should be members or participants in the ARC network?
- How many hubs should be created and where should they be located?
- How should the ARC be operationalized and sustainably financed?
- Assessment Structure and timeline

The ARC assessment process was launched November 16-18 with a series of consultations in Washington, DC, for USG stakeholders. Following the November consultations, the Feasibility Assessment team will meet with RDMA and selected stakeholders located in Bangkok, Thailand, to report on the initial findings and identify relevant stakeholders to be contacted in the remaining consultations. In January, there will be a more extensive series of consultations in Washington, which will further engage the US academic community, NGOs and development institutions addressing climate change and science capacity-building in Asia, and participants from throughout the USG. In February, Tetra Tech and RDMA will hold regional workshops in Thailand and (probably three) other countries in Asia, to be selected in part based on input from the previous consultations. The regional workshops will include countries facing the most serious challenges in terms of reducing greenhouse gas emissions and

adapting to climate impacts. The outcome of the full assessment process will be described in a report providing recommendations on the priorities, structure, scale, budget, operational procedures, and roll-out plan for the ARC.

For Disaster Risk Reduction:	For Climate Change:
Michael Farbman, USAID/RDMA at mfarbman@usaid.gov	

1.5.8. Wetlands Alliance

The Wetlands Alliance is an alliance of development partners committed to a process of regional collaboration to strengthen local level capacity for sustainable poverty-focused wetlands management. Based on their many years of experience working in the Mekong region, the Alliance partners believe that one of the most effective means of addressing poverty is through locally led management of wetlands and aquatic resources and building local capacity to manage wetlands for livelihood improvement. While the Wetlands Alliance does not have a separate initiative for climate change, it addresses climate change impacts as part of adaptation to environmental changes in general. At the local level change to the environment caused by large (water resources) infrastructure or climate change requires the same response; adaptation to the change, minimizing negative impacts and risks, and take advantage of opportunities. As such addressing impacts of climate change is mainstreamed in the Alliance's work.

For Disaster Risk Reduction:	For Climate Change:

1.6. List of Organizations with CCA and DRR activities covering Asia Pacific

Organization	Geographical Coverage	Adaptation Activities
United Nations Framework Convention on Climate Change (UNFCCC)	All regions	Capacity building, Climate-resilient development planning, Development and transfer of technologies, Research and systematic observation, Knowledge management, Pilot adaptation programs/projects, Communications and awareness-raising, Disaster risk reduction
World Meteorological Organization (WMO)	All regions	Capacity building, Climate-resilient development planning, Disaster risk reduction, Education, Knowledge management, Risk/vulnerability mapping, Training
United Nations Environment Program (UNEP)	All regions	Capacity building, Climate-resilient development planning, Communications and awareness-raising, Disaster risk reduction, Early warning systems, Knowledge management, monitoring and evaluation, Pilot adaptation programs/projects, Risk/ vulnerability mapping, Training
United Nations Development Program (UNDP)	All regions	Capacity building, Climate-resilient development planning, Communications and awareness-raising, Early warning systems, Education, Financial support Knowledge management, Monitoring and evaluation, Pilot adaptation programs/ projects, Risk/ vulnerability mapping, Training
United Nations International Strategy for Disaster Reduction (UNISDR)	Africa and the Arab States, Asia and the Pacific, Caribbean and Central America, Europe, South America	Communications and awareness-raising, Disaster risk reduction, Monitoring and evaluation
Food and Agriculture Organization of the United Nations (FAO)	Africa and the Arab States, Asia and the Pacific, Caribbean and Central America, Least Developed Countries, Small Island Developing States, South America	Capacity building, Climate-resilient development planning, Communications and awareness-raising, Disaster risk reduction, Early warning systems, Education, Financial support, Humanitarian assistance, Knowledge management, Monitoring and evaluation, Pilot adaptation programs/projects, Risk/vulnerability mapping, Training
World Bank (WB)	All regions	Capacity building, Climate-resilient development planning, Communications and awareness-raising, Disaster risk reduction, Financial support, Humanitarian assistance, Knowledge

Organization	Geographical Coverage	Adaptation Activities
		management, Monitoring and evaluation, Pilot adaptation programs/projects, Risk/vulnerability mapping, Training
Asian Development Bank (ADB)	Asia and the Pacific	Capacity building, Climate-resilient development planning, Communications and awareness-raising, Disaster risk reduction, Financial support, Knowledge management, Monitoring and evaluation, Pilot adaptation programs/projects, Risk/vulnerability mapping, Training
Global Change SysTem for Analysis, Research and Training (START)	Africa and the Arab States, Asia and the Pacific	Capacity building, Climate-resilient development planning, Communications and awareness-raising, Disaster risk reduction, Education, Knowledge management, Pilot adaptation programs/projects, Risk/vulnerability mapping, Training
International Union for Conservation of Nature (IUCN)	Africa and the Arab States, Asia and the Pacific, Caribbean and Central America, Europe, Least Developed Countries, North America, Small Island, Developing States, South America	Capacity building, Disaster risk reduction, Knowledge management, Monitoring and evaluation, Pilot adaptation programs/projects
Institute of Development Studies (IDS)	Global	Eldis Climate Change Resource Guide and online climate change community: to provide a central platform for all IDS Knowledge Services on Climate Change
Asian University Network for Environment and Disaster Risk Management (AUEDM)	All regions	Promoting environment and disaster management in higher education (focusing on, but not restricted to, post-graduate education), Broaden the scope of education and learning in the environment and disaster management field through collaboration with other stakeholders like NGOs and local governments.
UNESCO - World Heritage Centre	All regions	Capacity building, Climate-resilient development planning, Communications and awareness-raising, Disaster risk reduction, Knowledge management, Monitoring and evaluation, Pilot adaptation programs/projects
United Nations Economic and Social Commission for Asia and the Pacific (UNES-	Asia and the Pacific	Capacity building, Communications and awareness-raising, Disaster risk reduction

Organization	Geographical Coverage	Adaptation Activities
CAP)		
United Nations Institute for Training and Research (UNITAR)	All regions	Capacity building, Climate-resilient development planning, Communications and awareness-raising, Education, Financial support, Knowledge management, Monitoring and evaluation, Pilot adaptation programs/projects, Risk/vulnerability mapping, Training
Conservation International (CI)	All regions	Capacity building, Climate-resilient development planning, Communications and awareness-raising, Disaster risk reduction, Early warning systems, Education, Financial support, Monitoring and evaluation, Pilot adaptation programs/projects, Risk/vulnerability mapping, Training
Convention on Biological Diversity (CBD)	All regions	Capacity building, Communications and awareness-raising, Knowledge management, Risk/vulnerability mapping
Forum for Rural Welfare and Agricultural Reform for Development (FORWARD)	Asia and the Pacific	Capacity building, Climate-resilient development planning, Communications and awareness-raising, Disaster risk reduction, Knowledge management, Pilot adaptation programs/projects, Training
Hadley Centre for Climate Change /Met Office	All regions	Capacity building, Communications and awareness-raising, Early warning systems Education, Knowledge management, Risk/vulnerability mapping, Training
Institute for Global Environmental Strategies (IGES)	Asia and the Pacific	Capacity building, Climate-resilient development planning, Communications and awareness-raising, Disaster risk reduction, Education, Knowledge management, Monitoring and evaluation, Training
Institute for Social and Environmental Transition (ISET)	Asia and the Pacific, North America	Capacity building, Climate-resilient development planning, Disaster risk reduction, Knowledge management, Monitoring and evaluation, Pilot adaptation programs/projects, Risk/vulnerability mapping, Training
International Centre for Integrated Mountain Development (ICIMOD)	Asia and the Pacific	Capacity building, Communications and awareness-raising, Disaster risk reduction, Early warning systems, Education, Knowledge management, Training
International Crops Research Institute for the Semi-Arid Tropics (ICRISAT)	Africa and the Arab States, Asia and the Pacific	Capacity building, Climate-resilient development planning, Communications and awareness-raising, Disaster risk reduction, Pilot adaptation programs/projects, Training
International Fund for Agri-	Africa and the Arab	Capacity building, Climate-resilient develop-

Organization	Geographical Coverage	Adaptation Activities
cultural Development (IFAD)	States, Asia and the Pacific, Caribbean and Central America, Least Developed Countries Small Island, Developing States, South America	ment planning, Communications and awareness-raising, Disaster risk reduction, Early warning systems, Financial support, Knowledge management, Pilot adaptation programs/projects, Risk/vulnerability mapping, Training
International Institute for Sustainable Development (IISD)	All regions	Capacity building, Climate-resilient development planning, Knowledge management, Monitoring and evaluation Pilot adaptation programs/projects, Risk/vulnerability mapping, Training
International Research Institute for Climate and Society (IRI)	Africa and the Arab States, Asia and the Pacific, Caribbean and Central America, Least Developed Countries, Small Island, Developing States, South America	Capacity building, Climate-resilient development planning, Communications and awareness-raising, Disaster risk reduction, Early warning systems, Education, Knowledge management, Monitoring and evaluation, Pilot adaptation programs/projects, Risk/vulnerability mapping, Training
International Water Management Institute (IWMI)	Africa and the Arab States, Asia and the Pacific, Least Developed Countries	Capacity building, Climate-resilient development planning, Communications and awareness-raising, Disaster risk reduction, Risk/vulnerability mapping
Kyoto University Graduate School of Global Environmental Studies	Asia and the Pacific	Capacity building, Climate-resilient development planning, Disaster risk reduction, Education, Knowledge management, Pilot adaptation programs/projects, Training
Local Governments for Sustainability (ICLEI)	All regions	Capacity building, Climate-resilient development planning, Communications and awareness-raising, Disaster risk reduction, Early warning systems, Education, Humanitarian assistance, Knowledge management, Monitoring and evaluation, Pilot adaptation programs/projects, Risk/vulnerability mapping, Training
Mountain Research Initiative (MRI)	Africa and the Arab States, Asia and the Pacific, Europe, North America, South America	Capacity building, Disaster risk reduction, Education, Monitoring and evaluation, Pilot adaptation programs/projects, Risk/vulnerability mapping, Training
North South University, Bangladesh (NSU)	Asia and the Pacific	Capacity building, Climate-resilient development planning, Communications and awareness-raising, Disaster risk reduction, Education, Knowledge management, Pilot adaptation pro-

Organization	Geographical Coverage	Adaptation Activities
		grams/projects, Risk/vulnerability mapping, Training
Population Action International	All regions	Climate-resilient development planning, Communications and awareness-raising, Pilot adaptation programs/projects, Risk/vulnerability mapping
Secretariat of the Pacific Regional Environment Program (SPREP)	Asia and the Pacific, Least Developed Countries, Small Island, Developing States	Capacity building, Climate-resilient development planning, Communications and awareness-raising, Disaster risk reduction, Early warning systems Education, Financial support, Knowledge management, Monitoring and evaluation, Pilot adaptation programs/projects, Risk/vulnerability mapping, Training
World Federation of Engineering Organizations (WFEO)	All regions	Capacity building, Climate-resilient development planning, Communications and awareness-raising, Disaster risk reduction, Early warning systems, Education, Knowledge management, Monitoring and evaluation, Pilot adaptation programs/projects, Risk/vulnerability mapping, Training
World Food Program (WFP)	All regions	Capacity building, Climate-resilient development planning, Communications and awareness-raising, Disaster risk reduction, Early warning systems, Humanitarian assistance, Knowledge management, Monitoring and evaluation, Pilot adaptation programs/projects, Risk/vulnerability mapping, Training
United Nations University Environment and Sustainable Development Programme (UNUESD)	Africa and the Arab States, Asia and the Pacific, Caribbean and Central, America, Europe, South America	Communications and awareness-raising, Disaster risk reduction, Monitoring and evaluation
United Nations Institute for Training and Research (UNITAR)	All regions	Capacity building, Climate-resilient development planning, Communications and awareness-raising, Education, Financial support, Knowledge management, Monitoring and evaluation, Pilot adaptation programs/projects, Risk/vulnerability mapping, Training

Annex 2 – List of Regional DRR and CCA Initiatives

Lead Institution	Project Title
ABU	Promoting Broadcaster's Engagement in Disaster risk reduction
ADB	Promoting Climate Change Adaptation in Asia and the Pacific
ADB	Support for Strengthening the Tsunami Development Assistance Database
ADB	Greater Mekong Subregion Flood and Drought Risk Management and Mitigation
ADB	Supporting Investments in Water-Related Disaster Management project
ADB	Developing a Disaster Risk Financing Capability
ADB	Development of Catastrophe Risk Insurance Mechanisms
ADB	Natural Catastrophe Risk Insurance Mechanisms for Asia and the Pacific
ADB	Regional Partnerships for Climate Change Adaptation and Disaster Preparedness
ADB	Enabling Climate Change Responses in Asia and the Pacific
ADB	Addressing Climate Change in Asia and the Pacific
ADB	Enabling Climate Change Interventions in Central and West Asia
ADB	Strengthening the Capacity of Pacific Developing Member Countries to Respond to Climate Change
ADB	A Regional Review of the Economics of Climate Change in Southeast Asia
ADB	Economics of Climate Change and Low Carbon Growth Strategies in Northeast Asia
ADB	Regional Economics of Climate Change in South Asia
ADB	Managing Climate Impacts on Health in Water and Agriculture and Disaster Risk Reduction
ADPC	Asian Urban Disaster Mitigation Program (AUDMP)
ADPC	Managing the Psychosocial Aspects of Disasters and Complex Emergencies
ADPC	Capacity Building of National Focal Points for Effective Dissemination of Natural Hazard Early Warning
ADPC	Program for Hydro-Meteorological Disaster Mitigation in Secondary Cities in Asia (PROMISE)
ADPC	Support to the Implementation of the Hyogo Framework of Action through Mainstreaming of DRR into Development Planning and Implementation: Advocacy and pilot project implementation in Education sector in 3 SEA RCC member countries - Phase 1 and II (MDRD-EDU I and II)
ADPC	Program for Enhancement of Emergency Response (PEER) - Stage 1-3
ADPC	End-to-end early warning of tsunamis and other natural hazards for disaster preparedness and mitigation in the Indian Ocean and Southeast Asia: Phase I and II
ADPC	Mainstreaming DRR into Development - RCC Program
ADPC	Capacity Building for Planning and Implementation of Flood Preparedness Programs at Provincial and District levels in the Lower Mekong Basin
ADPC	Asian Program for Regional Capacity Enhancement for Landslide Hazard Mitigation (RECLAIM)
ADPC	Partnerships for Disaster Reduction in Southeast Asia (PDRSEA) 1-4

ADPC	Development of RCC Regional Training Course on Mainstreaming DRR into Development
ADPC	Regional Integrated Multi-Hazard Early Warning Systems (RIMES) for Africa and Asia (Indian Ocean Rim Countries)
ADPC	Strengthen Implementation of the Flood Preparedness Program at Provincial, District and Commune Levels in the Lower Mekong Basin
ADPC	Mainstreaming Disaster Risk Management (MDRM) into the development policy, planning and implementation in Asia
ADPC	Climate Forecast Applications project (CFA)
ADPC	Regional Analysis of Socio-Economic Impacts of the December 2004 Earthquake and Indian Ocean Tsunami
ADRC	Capacity Building Courses in ASEAN
ADRC	Sentinel Asia
ADRRN	Building Resilience to Tsunamis in the Indian Ocean (Project Selamat)
ADRRN	Capacity Building on Disaster Risk Reduction and Climate Change Adaptation
AFP	The Pacific Community Focused Integrated Disaster Risk Reduction (PCIDRR) Project
APEC	Women in Times of Disaster: The Integration of Gender Issues and Gender Perspectives in Disaster Management Project
APEC	Study Course on Disaster Emergency Response and Recovery
ARC	Pacific and Papua New Guinea Red Cross Strategic Engagement Program
ASEAN	Public Education and Awareness Program
ASEAN	Online Southeast Asian Maps (OSA-Map)
ASEAN	Online Southeast Asian Disaster Inventory (OSADI)
ASEAN	Disaster Information Sharing and Communication Network (DiscNet)
ASEAN	ASEAN Day for Disaster Management
ASEAN	ASEAN Regional Programme on Disaster Management (ARPDM)
ASEAN	Regional Disaster Emergency Response Simulation Exercise (ARDEX)
ASEAN	Development of Tool Kit for Disaster Recovery Practitioners (TGLL)
ASEAN	ASEAN Agreement on Disaster Management and Emergency Response (AADMER) Work Programme 2010-2015
ASEAN	ASEAN-UNISDR Technical Cooperation for the Implementation of HFA in ASEAN Member States
ASEAN	The Rehabilitation and Sustainable Use of Peatland Forests in South East Asia Project
ASEAN	ASEAN initiative on Environmentally Sustainable Cities (AIESC)
ASEAN	ASEAN Plan of Action for Energy Cooperation (APAEC) 2010-2015
ASEAN	ASEAN Strategic Plan of Action on Water Resources Management
ASEAN	ASEAN Climate Change Initiative (ACCI)
ASEAN	Cool ASEAN, Green Capitals Initiative
ASEAN	ASEAN Multi-Sectoral Framework on Climate Change (AFCC) and Food Security (AFCC-FS)

AusAID	Improving Early Warning (Weather) services in the Pacific
BOM	Building Capacity in South Pacific National Meteorological Services to Strengthen Warning Services for Tropical Cyclones and other Severe Weather
BOM	Pacific Islands Climate Prediction Project (PI-CPP)
BOM	South Pacific Sea Level and Climate Monitoring Project (SPSLCMP)
BOM	National Capacity Assessment of Tsunami Warning and Mitigation Systems in Pacific Countries
CA	Building Disaster Response and Preparedness of Caritas Partners in the Pacific
CARE	Drought Preparedness in South East Asia
CRED	Strengthening quality, reliability and sustainability of disaster databases
CRS	Drought Preparedness in India and Pakistan
DFAT	Design for Enhanced Strategic Engagement Program (ESEP)
DFAT	Pacific Tsunami Warning System (PTWS)
Duryog	Towards Operationalising of Regional Consensus on Disaster Risk Reduction in South Asia
Duryog	South Asia Policy Dialogue On Regional Risk Reduction
EU	Support to the Global Climate Change Alliance
EU	Implementation of the EU Forest Law Enforcement, Governance and Trade Action Plan in Asia (FLEGT-Asia)
EU	Promoting Sustainable Consumption and Production in Asia (SWITCH-Asia)
EMI	Cross-Cutting Capacity Development (3cd) Program
FAO	Food security and vulnerability assessment and monitoring, agricultural disaster risk mitigation and preparedness, and adaptation to climate change
FAO	Food Insecurity and Vulnerability Information and Mapping (FIVIMS) for Asia
FAO	Restructuring of Livestock Farming for Climate Change
FAO	Livestock waste management in East Asia (LWMEA)
GEF	Piloting Climate Change Adaptation to Protect Human Health
GFDRR	Action plan for reducing earthquake risk in East Asia
GFDRR	Gender and disaster risk management in south East Asia
GFDRR	Integration of DRR indicators in development and poverty reduction strategies
GFDRR	An action plan for improving weather and climate service delivery in high-risk, low-income countries
GFDRR	Capacities and knowledge of DRR, national platforms and national and regional policy makers and institutions
GFDRR	Engaging with league of Arab States to support the implementation of HFA and regional cooperation
GFDRR	Integrating disaster risk management in investment decisions in the MENA region, I and II
GFDRR	Enhanced communication of DRR solutions/approaches in Western Asia and Northern Africa
GFDRR	Capacity building of regional DRR organization - Arab Academy

GFDRR	Disaster risk reduction mainstreaming: MENA
GFDRR	Enhanced advocacy, partnerships and knowledge
GFDRR	Promote and support regional partnerships for strengthened regional capacities in DRR and preparedness
GFDRR	HFA implementation into regional policies and planning processes in Western Asia and Northern Africa
GFDRR	Building resilience - East Asia
GFDRR	Standardized tools and methodologies for DRR
GFDRR	Support national capacity development targeting high risk countries
GFDRR	GFDRR country programming for EAP
GFDRR	Mainstreaming disaster risk reduction in the gulf cooperation council countries
GFDRR	Central Asia disaster risk management and hydromet modernization
GFDRR	Promote urban disaster risk reduction in the context of climate change adaptation
GFDRR	Coordination of regional institutions in the area of DRR and HFA implementation
GFDRR	Synthesis report on ASEAN countries disaster risks
GFDRR	Development of the World Bank regional strategy for South Asia
GFDRR	Regional Intergovernmental Organizations have strengthened HFA Implementation Capacity
GFDRR	DRR technical assistance to priority countries in East Asia and the Pacific
GFDRR	Hazard Risk Management Program: SAR
GFDRR	Regional knowledge sharing
GFDRR	Disaster Risk Reduction Mainstreaming: EAP
GFDRR	Knowledge base on risk levels and risk reduction measures
GFDRR	Regional knowledge networking system
GFDRR	Strengthen regional cooperation in disaster risk management in the Pacific
GFDRR	Knowledge and Learning in East Asia and the Pacific
GFDRR	Urban disaster risk management capacities
GFDRR	Regional facilitation to raise awareness on practical approaches to DRR mainstreaming
GFDRR	Strengthening partnership with SAARC
GFDRR	Strengthened capacity for risk identification, early warning, risk management and linkages to climate change
GFDRR	Regional study for strengthening hydrometeorological services in ASEAN
GFDRR	EAP: Study on Coastal Cities and Climate Change
GFDRR	Climate Change and DRR integration in South Asia
GFDRR	Climate Change and hazard risk management in South Asia
GFDRR	Integrated approaches to foster climate change and disaster resilience
GFDRR	Sustainable management through reduced risk from disasters and climate
GFDRR	Pacific Catastrophe Risk Financing Initiative: Phase 2
GFDRR	Pacific Catastrophe Risk Pool Feasibility Study

GFDRR	Integration and mainstreaming DRR- CCA in South Asia
GNS	Traditional Disaster Reduction in Pacific Island Communities
HI	Mainstreaming disability in Disaster Risk Management Initiatives
ICIMOD	Documenting Local Adaptation Strategies to Too Much and Too Little Water
ICIMOD	Satellite Rainfall Estimation (SRE)
ICIMOD	Living with Risks: Sharing Knowledge on Disaster Preparedness in the Himalayan Region
ICIMOD	SERVIR-Himalaya
ICIMOD	Management of Flash Floods - Capacity Building and Awareness Raising in the Hindu Kush-Himalayas
ICIMOD	Establishment of a Regional Flood Information System in the Hindu Kush-Himalaya (HKH-HYCOS) - Phase 1 and 2
IFRC	IFRC Global Alliance for Disaster Risk Reduction
IFRC	Enhancing Red Cross and Red Crescent capacity to build safer and more resilient communities in Southeast Asia - Phase 1 and 2
IFRC	Preparedness for Climate Change Programme (PfCC) - Phase 1 and 2
ILO	Green Jobs Initiative
IUCN	Mangrove EcoSystems for Climate change Adaptation and Livelihoods Project (MESCAL)
IUCN	Mangroves for the Future (MFF)
IWG	Emergency Capacity Building Project (ECB) - Phase 1-2
IWMI	Drought Assessment and Mitigation in Southwest Asia
JICA	Strengthening Community-Based Disaster Risk Management Project in the Pacific Region
JICA	Regional Meteorology Training for Pacific Island Countries
JICA	Operation of Earthquake Observation Network
JICA	Training on Safer Schools Against Disasters
JICA	Japan-Singapore Partnership Programme for the 21st Century (JSPP21)
KU	Indigenous Knowledge and Disaster Risk Reduction
LRC	Towards increased resilience and reduced vulnerability to natural hazards through community-based disaster risk reduction in Cambodia and Lao PDR
MRC	Flood Management and Mitigation Programme (FMMP)
MRC	Capacity Building in Flood Preparedness Planning in the Lower Mekong Basin-Phase II
MRC	The Mekong Climate Change and Adaptation Initiative (CCAI)
NIWA	South Pacific Rainfall Atlas
Oxfam	Inception and Elaboration of Civil Society Partnership Modalities in the AADMER Priorities
PA	Mainstreaming Livelihood-Centered Approaches to Disaster Management
PA	Asia Pacific Regional Contribution to the Global Assessment Report 11, and increasing stakeholder utilization of GAR 11 at national and regional level

PA	Comparative Analysis on the Gender Issues in Sri Lanka and India
PDC	The Asia Pacific Natural Hazards Information Network (APNHIN)
PDC	Natural Hazards and Vulnerability Atlas
RF	Asian Cities Climate Change Resilience Network (ACCCRN)
SAARC	Feasibility study for preparation of digital vulnerability atlas of SAARC countries
SAARC	Regional cooperation for integrating DRR and CCA in South Asia
SAARC	Regional Cooperation on Landslide Risk Management - South Asia
SAARC	South Asian Disaster Knowledge Network (SADKN)
SAARC	Study on Indigenous knowledge on disaster risk reduction in South Asia
SAARC	Development of Guidelines for Integrating Disaster Risk Reduction (DRR) with Climate Change Adaptation (CCA) in respect of Flood, Cyclone, Drought and Glacial Lake Outbursts (GLOF)
SEI	Sustainable Recovery and Resilience Building in the Tsunami Affected Region
SEI	Sustainable Recovery and Resilience Building Strategies in the Tourism Industry
SOPAC	Training in Geo-data management for disaster risk reduction
SOPAC	DM Training for Pacific Countries PDRMP-1 and 2
SOPAC	Development and Establishment of the Melanesian Volcanological Network (MVN)
SOPAC	DRM Advocacy in Pacific Countries
SOPAC	Implementation of Pacific Disaster Net
SOPAC	ACP-EU Natural Disaster Facility
SOPAC	Development of a Projects and Capacities Portal for the Pacific Disaster Risk Management Partnership Network (PDRMPN)
SOPAC	Implementation of Comprehensive Hazard and Risk Management in Pacific Countries
SOPAC	Pacific Platform for Disaster Risk Management
SOPAC	Strengthening DRM capacity through AusAID NAP Facility
SOPAC	Support for the GFDRR Regional Stocktaking nd Country Assessments in Pacific Countries
SOPAC	Strengthen Pacific DRM through AusAID NAP Facility
SOPAC	Tsunami Capacity Assessments for Pacific Countries
SOPAC	Support to PIC representatives to attend regional and international conferences and meetings
SOPAC	Disaster Awareness Planning Guide
SOPAC	Development of a Reporting Tool for the Regional DRM Framework (RFA Monitor)
SOPAC	Implementation of the Regional Early Warning Strategy (REWS)
SOPAC	Water Safety Plans (WSP) Programme
SOPAC	Hydrological Cycle Observing Systems (Pacific HYCOS)
SOPAC	Sustainable Integrated Water Resources and Wastewater Management Project in PIC's

SOPAC	Reducing Vulnerabilities of Pacific ACP States (EDF 8 and 9)
SOPAC	Supporting Disaster Risk Reduction in Pacific OCTs
SOPAC	Disaster Risk Reduction in Eight Pacific ACP States (B-Envelope)
SOPAC	Strengthening of NDMO Information Systems
SOPAC	DRM Mainstreaming Guideline
SPREP	Pacific Island Climate Change Assistance (PICCAP)
UNCRD	Reducing Vulnerability of School Children to Earthquakes
UNCRD	Housing Earthquake Safety Initiative (HESI)
UNCRD	Institutionalization of Gendered Community Based Disaster Management in the Context of Regional Development
UNCRD	Urbanization and Community Based Disaster Management (HTF VII - IX) (Urbanisation and CBDM)
UNCRD	Gendered Community Based Disaster Management (CBDM) in the Context of Regional Development (GENDER CBDM)
UNDP	UNDP Regional Crisis Prevention and Recovery
UNDP	Earthquake Risk Reduction and Recovery Preparedness (ERRRP) Programme
UNDP	Regional Programme on Capacity Building for Sustainable Recovery and Risk Reduction in Tsunami Affected Countries
UNDP	Risk mapping for strategic planning of shelter response
UNDP	Disaster Inventory System (DesInventar)
UNDP	Capacity Building for Disaster Risk Reduction and Sustainable Recovery: Glacial Lake Outbursts Floods (GLOFs) in the Himalayan belt (GLOF I)
UNDP	Regional Climate Risk Reduction Project in the Himalayan Region (GLOF II)
UNDP	National Risk Assessment Framework Development
UNEP	Asia Pacific Regional Adaptation Network
UNEP	Regional Climate Change Adaptation Knowledge Platform for Asia
UNESCAP	Strengthening regional cooperation for disaster risk reduction in Asia-Pacific
UNESCAP	Capacity building in socio-economic assessment of disaster impacts
UNESCAP	Enhancing national capacities for effective implementation of the Hyogo Framework for Action in Asia-Pacific
UNESCO	Strengthening Tsunami Warning and Emergency Responses: Training Workshops on the Development of Standard Operating Procedures for Indean Ocean and Southeast Asian Countries
UNESCO	Education for Natural Disaster Preparedness in Asia-Pacific in the context of Education for Sustainable Development (ESD)
UNHABITAT	Pro-Poor Urban Safety through Local Government Capacity Building in Asia-Pacific
UNICEF	Strengthening Humanitarian Emergency Response Management for Children & Women in the Pacific
UNISDR	Institutional and Policy Analysis of Disaster Risk Reduction and Climate Change Adaptation Initiatives & evaluation of climate change services in selected Pacific Island Countries

UNISDR	Regional stocktaking and mapping of disaster risk reduction interventions in Asia and Pacific
UNISDR	Central Asia and Caucasus Disaster Risk Management Initiative (CAC DRMI)
UNISDR	Implementation of the Hyogo Framework for Action and the Pacific Disaster Risk Reduction and Disaster Management Framework for Action 2005 - 2015
UNISDR	The 2009/11 Progress Review Process of the Hyogo Framework For Action and Regional DRM Framework for Action in the Pacific
UNISDR	Development and production of comprehensive “Strategic National Action Plan” (SNAP) to implement Disaster Risk Reduction (DRR) and Disaster Management (DM) priorities in the context of the Hyogo Framework for Action (HFA) for Cambodia, Philippines and Vietnam
UNISDR	2010/11 World Disaster Reduction Campaign: Making Cities Resilent - My City is Getting Ready!
UNISDR	Pacific Regional Collaboration in Disaster Risk Management (Year 1)
UNOCHA	Natural and Conflict Related Hazards in Asia-Pacific: Risk assessment and mitigation measures
UNSW	Integrating participatory disaster risk reduction and climate change adaptation in the Pacific
USAID	ASEAN Technical Assistance and Training Facility - Phase I and II
USFS	Incident Command System Training for ASEAN Region - Phase II
USGS	Asian Flood Network (AFN)
WHO	Strengthening Health Systems Preparedness for Emergencies through the Global Campaign for Safer Hospitals and Health Facilities in Small and Medium Cities
WHO	Roll out of the ISDR Hospitals Safe from Disasters Campaign: Strengthening Health Systems Preparedness for Emergencies through Safer Hospitals and Health Facilities
WHO	Climate Change and health in urban settings
WMO	Severe Weather Forecast Demonstration Project - South Pacific Islands (SWFDP-RAV)