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**Background Paper for Working Group 5:
The Role of Communities in Addressing Climate Change**

**1. Introduction: The Challenges of Climate Change for Communities
in the Region**

Asian Pacific cities with high concentrations of people and buildings will be adversely affected by climate change in the future. In many Asian Pacific countries, cities are located in coastal areas, beside rivers, on steep slopes and other risk-prone areas. In addition, the infrastructure of these cities; such as roads, water networks, transmission lines, schools and hospitals that support the necessary services for urban populations, are vulnerable to extreme climatic events such as floods, storms or landslides. Cities located in coastal areas are particularly vulnerable to cyclones and there has been an increase in the number and intensity of these in the past three decades. The Fourth IPCC Assessment Report predicts a continued increase in the future, which will pose even greater risks to coastal settlements. In addition, salt water intrusion will limit the availability of fresh water in coastal areas and jeopardize food security as once-fertile land becomes barren due to high salt content.

Direct impact of these events on cities is the destruction of the infrastructure and facilities, affecting among others the regular provision of water supplies, drainage system and solid waste networks. Sea water inundation and severe floods from other side always tend to mix water systems and endanger the health of inhabitants and livelihood. Densely settled and intensively used low-lying coastal plains, islands, and deltas are especially vulnerable to coastal erosion and land loss, inundation and sea flooding, upstream movement of the saline/freshwater front, and seawater intrusion into freshwater.

International studies have projected the displacement of millions of people from the region's coastal zone in the event of a 1-m rise in sea level. It is estimated that more than 238 million people currently living in cities in Asia in the Low Elevation Coastal Zone (areas below 10 metres elevation) would be affected by a rise in sea level of 10 metres, see The State of Asian Cities Report, (SAsCR, 2010).

This report also shows that the current rates of urbanization in many Asian countries will more than likely double by the middle of the century. The report further indicated that 75% of all people living in areas vulnerable to sea-level rise are in Asia, with poorer nations most at risk. Mumbai, Shanghai, Jakarta and Dhaka – all with populations exceeding 5 million – are at particular risk. Bangladesh is projected to lose 17.5% of its land area if the sea level rises by 1 metre (IPCC, 2008). Millions of people would be displaced in Dhaka, the national capital, and most of the country's agricultural and transportation network would be lost. A 1-metre rise in sea level in Shanghai would flood a third of the city, displacing as many as 6 million people.

Many Asian cities are on coastal plains, which will suffer more frequent flooding from tidal surges and storm damage. The Maldives and Sri Lanka, which are small island nations, face energy shortages and have unique adaptation needs. Other large cities away from the coastal zone will be vulnerable to an increase in the frequency and severity of droughts, which will induce shortages in clean drinking water, sanitation risks, and high temperatures combined with high air pollution.

Scientific assessments project changing patterns of runoff and river flows in the region in the next decades, as well as increase in water management costs and increases of poor people affected by water stress. In particular, a reduction in flow of snow-fed rivers, coupled with increases in peak flows and sediment yields, may have serious impacts on hydropower generation and water supply, which are important commodities for urban areas. Availability of water from snow-fed rivers could increase in the short term but decrease in the long term. Runoff from rain-fed rivers may change in the future, although a reduction in snowmelt water would result in a decrease in dry-season flow of these rivers. Urbanization and increasing demands in the agricultural, industrial, and hydropower sectors will put additional stress on water resources. Pressure will be most evident on drier river basins and those subject to low seasonal flows. Hydrological changes in island and coastal drainage basins are expected to be small, apart from those associated with sea-level rise. However, national studies suggest for both gains and losses due to projections of increased runoff in some river basins in response to increasing rainfall. For example, water stress in the Mekong Delta rises, and water shortages in the Philippines may rise of fall.

The Asia Pacific Region also bears an increasing share in Green House Gas emissions. In the future, governments of the Asia Pacific region are expected to join international agreements, following the Kyoto Protocol, which they were not previously part of. One of the main issues which will have to be addressed is that of affordable and secure energy sources. Projections by the Asia-Pacific Energy Research Center (APEREC) of the Asia-Pacific Economic Cooperation (APEC) forum, in Tokyo, show a fourfold increase in total carbon-dioxide emissions - the major greenhouse gas - from 2002 to 2030 produced by energy production and consumption in part of the region.

Motor vehicles - another major source of carbon-dioxide emissions - are set to keep filling the roads of cities in this region. In urban areas, growing car ownership continues to congest cities and harm the atmosphere and community health through vehicle exhaust. Better public-transport systems - from buses to rail overhead and underground systems - are clearly critical but are generally only planned for the region's more affluent countries.

The UN-HABITAT's Global Report on Human Settlements shows that the region has a great potential to contribute to greenhouse gas emission reduction, and that the costs to the region and globally of taking no early action against climate change could be very high. The basic policy message is that efforts must be made to apply all feasible and economically viable adaptation and mitigation measures as key elements of a sustainable development strategy for Asia Pacific countries. An ADB (2009) report argues that the current global economic crisis offers the region an opportunity to start a transition towards a climate-resilient and low-carbon economy by introducing green stimulus programs that can simultaneously shore up economies, create jobs, reduce poverty, lower carbon emissions, and prepare for the worst effects of climate change.

The above highlights the need for both adaptation and mitigation measures, whereby regional and national action will only be effective if local government and community action is harnessed.

2. Major Initiatives, Best Practices and Experiences in the Region

Many of the Asian Pacific countries were able to prepare their **National Adaptation Programme of Action (NAPA)**, starting 2006. These NAPAs contain initiatives that meant to enable different communities to cope with climate change. The steps for the preparation of the NAPAs include synthesis of available information, participatory assessment of vulnerability to current climate variability and extreme events and of areas where risks would increase due to climate change, identification of key adaptation measures as well as criteria for prioritizing activities, and selection of a prioritized short list of activities. The development of a NAPA also includes short profiles of projects and/or activities intended to address urgent and immediate adaptation needs of Least Developed Countries. Upon completion, the NAPA is submitted to the UNFCCC secretariat and the LDC Party becomes eligible to apply for funding for implementation of the NAPA under the LDC Fund. A copy of the NAPA is also sent to the Global Environment Facility (GEF). Hence it is important for the Asian Pacific countries to include community-based adaptation projects into their NAPA to enable funding them.

Important initiatives to refer is the work of **Rockefeller Foundation** in the region, their network, the Asian Cities Climate Change Resilience Network (ACCCRN, 2009), aims to create partnerships between cities, institutions, financiers and consultants to catalyse information-sharing, funding, and action on increasing the resilience of poor and vulnerable people to climate change. The intention is to create models and methodologies for assessing and addressing risk through the active engagement and analysis of various cities. Institutions in four countries – Indonesia, Thailand, India and Viet Nam – provide important resource centres to support the development of the network. Three cities in **India** and three in **Vietnam** are currently involved in developing climate-mitigation strategies with the assistance of the network (ACCCRN, 2009). The approach provides a new model on climate-change mitigation and adaptation in Asian cities based on the concept of 'mass collaboration' (Tapscott and Williams, 2006). Mass collaboration uses holistic and collaborative approaches to addressing complex business, social and environmental problems.

Bangkok city conducted a vulnerability and risk assessment that highlighted flooding, storm surges, drought, and risks to the security of the water supply. This work could be easily replicated in the region as it would raise awareness of possible events and equips the city with proper scheduled/planned actions as part of adaptation interventions. More adaptation measures will include capacity-building activities, improved communication between scientists and city officials, encouraging the development of climate change risk assessments at the local level, and raising awareness of climate change in homes and communities. The main goal of ACCCRN is to engage the community-based organizations and vulnerable stakeholders, as well as local, national partners, internal climate, urban adaptation, and disaster risk reduction experts. In **Indonesia** ACCCRN lead partners are Mercy Crops and Urban Regional development Institute (URDI). URDI, independent not-profit organization, has worked with many local governments across the countries, providing assistance and policy advocacy, as well as community level assistance.

Another good practice is the **Dhaka** Metropolitan Development Plan which intended to meet many climate adaptation needs. At the scale of the city, large-scale flood protection measures are an essential component of an adaptation response. Dhaka has been vulnerable to flooding for many years. Since 1989, an extensive system of embankments has been constructed, and further investments of this type are currently planned. Canals and drainage systems are currently being recovered, and the banning of polythene bags has helped to reduce the clogging of the city's drainage system. A composting project initiated by the NGO Waste Concern in Dhaka illustrates how adaptation responses in urban areas can simultaneously generate mitigation benefits. In

common with many cities in low-income countries, a high proportion of Dhaka's solid waste is organic – 80 percent of the city's waste consists of organic substances with a high potential for use as compost. The project, titled 'Composting of Organic Waste in Dhaka' generates employment for less educated women who collect and sort the waste, and reduces methane emissions by diverting organic waste from landfills to a composting plant. In addition, the general process of improving solid-waste management can prevent blockages in drainage channels, thereby reducing the risk of flooding and disease transmission, both of which are expected to become more serious challenges as a result of climate change.

In **Philippines** many low-income urban residents groups live in high-risk sites and have poor quality housing, have responded in a variety of ways seeking to recover from disasters and to build resilience to future shocks and stresses. The Homeless People's Federation of the Philippines (HPFP) is a national network represents communities and their savings groups from 18 cities and 15 municipalities. The Federation and its community associations are engaged in a wide range of initiatives to secure land tenure, to build or improve homes and to increase economic opportunity. The Federation's responses to disaster events provide relevant insights for community-level responses to future climate threats. The principles behind, and processes of disaster risk reduction and climate change adaptation have many similarities. Both address the hazards that will affect particular locations and individuals, and they share an acknowledgement of the importance of addressing root causes of vulnerability.

The UN-Habitat's Cities and Climate Change Initiatives in **Sorsogon - Philippines**, where various stakeholder communities worked together with local government to conduct a vulnerability and adaptation assessment and related priority action programme. This experience could spearhead methodologies and tools for replication in many other cities in the Region.

The above are a few examples of interventions that have a strong focus on community issues. They confirm that the region is highly vulnerable to climate change and demonstrate that a wide range of adaptation measures are already being applied.

3. Harnessing local and national experiences for consolidating regional cooperation

Climatic events and climate change patterns are affecting wide areas of the Region. This makes the need for collaborative interventions more imminent at local level with prospects for integration of communities in neighbouring cities. Climate change is predicted to worsen the environmental conditions of the Asian and Pacific cities, for some time to come. Avoiding the worsening of these conditions or even to improve them, can be expected once better urban environmental planning and management practices are adopted, as economic benefits of growth become more widespread. For example, unsafe housing that cannot resist extreme weather events, located on land that is at risk to a range of climate-related hazards, is often at the core of vulnerability for low-income urban residents. Such situation requires the communities, local and national governments should have a vital role in climate change adaptation. Based on this a number of factors will drive communities, local and national governments to take action to address climate change, air and water pollution and to improve communities' quality of life in these cities.

In urban areas in low-and middle-income Asian Pacific nations, community-based adaptation (CBA) will require a greater focus on the assets used by the urban poor. Enhancing the variety of options that are available to low-income urban residents is a key component of community-

based adaptation in towns and cities (Sabates-Wheeler *et al.* 2008). Moser and Satterthwaite 2008, suggested that asset-based approach helps to identify the asset vulnerability to climate change of low-income communities, households and individuals in urban areas, and considers the role of assets in increasing adaptive capacity. At the household/neighbourhood, they suggest precautionary measures to limit damages relevant to pre-disaster, immediate post-disaster and rebuilding stages, i.e. disseminating early warnings, reducing risk in affected areas and rebuilding homes in a way that rebuild trust and collaboration. At municipal or city level they add respectively, preparing safe spaces for people to move temporally, rapid repairs to key infrastructure and services and building infrastructure for more resilient standards. Moreover their approach foresees measures for national and regional levels like upstream management at pre-disaster stage, funding and institutional support for household and municipal levels projects at immediate post-disaster and then rebuilding productive capital of region at after disaster stage.

A particularly difficult issue will be dealing with climate induced migrants within and between countries. This will be a very significant problem in countries like Bangladesh, China, India and the Pacific Island states. At the same time, these governments will also need to address poverty and the issue of food and water security, and create sustainable economic development opportunities.

The development of the rapidly growing cities in Asia and Pacific is being abtained by the old and inefficient physical and economic infrastructure is likely to remain in place for some time. Thus retrofitting of this infrastructure to make transport, industrial and energy production systems more sustainable must be a priority. This could be an incremental process, but in some cases rapid change will be necessary to address serious of environmental problems. The number and size of Asian Pacific cities and the resources needed to service them pose great challenges to governments and urban managers in making the region's cities more sustainable. Few cities in this region have the massive resources needed to reinvent themselves. They do not have the capacity to inject the vast amount of capital needed to radically transform development, production and consumption practices.

In all cases the sustainable development and environmental management no longer have the option of "business as usual". The way Asian and Pacific countries go about the development and management of their cities in the future must change if they are to avoid a further decline in their environmental conditions. If cities in this region are to remain competitive, viable, healthy and liveable places, they must embark upon more sustainable development pathways.

Climate change certainly making the Asian Pacific cities to encounter magnified problems of congestion, pollution, inadequate infrastructure and poverty. These cities had also proven to be very dynamic and vibrant places that have demonstrated remarkable resilience and the capacity to recover from past catastrophes.

Nevertheless, given the unprecedented scale and pace of urbanization and problems added by climate change, it is clear that new approaches are needed to shape the way in which Asian Pacific cities are planned, managed and governed. Urgent actions are required at all levels of government to address pressing matters related to climate change; both mitigation and adaptation, and water security and to utilize the growing streams of urban solid waste and wastewater. The scale of these actions means that cooperation between countries, governments, business and communities will be required at a level not seen before in the region. Differences in language, politics, culture, history and the extent of economic development will impede such cooperation, but they must be surmounted if Asian cities are to become more sustainable and better places in which to live.

4. The Way Forward

Climate change is a global issue with development, security and economic implications, that can be addressed by strategic adaptation plans based on scientific pre-assessment, education, communication and awareness, networking, legislation, enforcement and risk management planning.

In this regard, it is very important to integrate community-based adaptation with local, national and regional adaptation plans. The following components have the potential to pave the way forward for Asian Pacific cities:

- Strong public awareness and information access: Knowledgeable decision makers, effective dissemination and awareness system.
- Networking and sharing of regional and global best practices: Connecting partners, stakeholders to provide and share best practices and information.
- Improving the governance of climate change: Strengthening of governance structures and the institutional capabilities of national/local to enforce environment friendly laws; addressing the increase of informal housing.
- Strengthening the adaptive capacities of cities: Building capacities and providing specific tools to address climate change adaptive interventions with and for the urban communities.
- In promoting pro-poor and affordable technological options, there is need for creation of incentives/disincentives, education and training on climate change mitigation strategies and the research, creation and promotion of new technologies that improve the environment.
- At the city level, aim for more compact and dense urban development patterns, which reduce the need for commuting and energy consumption of buildings. In cases such as community shared transport and efficient use of energy in road and public spaces.
- Involvement of Stakeholders; the youth who make a large percentage of the urban population are, for instance, a major stakeholder in the adaptation/mitigation of climate change. It is the youth that will be experience the effects of climate change more significantly in the future, if vulnerability of cities is not reduced. The youth's role includes educating others on climate change and possible mitigation measures.
- The private sector has purchasing power and should be a key part of the regional, national and city level partnerships dealing with risks and vulnerabilities resulting from climate change.
- Support communities to access financing mechanisms for mitigation and adaptation. This is necessary and could be done with the capacity to foresee access to international adaptation funds.

5. Conclusion

Climate change is affecting Asia Pacific region, and the worst is yet to come. It would seriously hinder the region's sustainable development and poverty eradication efforts if not addressed

adequately without any delay. Indeed, it suggests that on average the region is likely to suffer more from climate change than many other parts of the world, if no action is taken.

Many of Asian Pacific cities have the greatest need for adaptation, which is critical to reducing the impact of changes already locked into the climate system. A wide range of adaptation/mitigation measures are already being applied. But much more needs to be done. Adaptation requires building adaptive capacity and taking technical and nontechnical measures in climate-sensitive sectors. Further strengthening adaptive capacity requires mainstreaming climate change adaptation in development planning, that is, making it an integral part of sustainable development, poverty reduction and disaster risk management strategies.

In Asian Pacific cities, there is a clearly important role for stakeholder communities to play in tackling climate change impacts. Adaptation/mitigation intervention can not be taken properly unless communities have high awareness and strengthened adaptive capacities. Networking that implies climate adaptive and mitigative interventions requires better governance. These beside the provision of affordable relevant technologies for local communities should entail the concern of national and regional interest.