

# Executive Summary

*Climate Resilient Cities: A Primer on Reducing Vulnerabilities to Climate Change Impacts and Strengthening Disaster Risk Management in East Asian Cities* is prepared as a guide for local governments in the East Asia Region to better understand the concepts and consequences of climate change; how climate change consequences contribute to urban vulnerabilities; and what is being done by city governments in East Asia and around the world to actively engage in learning, capacity building, and capital investment programs for building sustainable, resilient communities. The Primer is applicable to a range of cities – from those starting to build awareness on climate change to those with climate change strategies and institutions already in place. An accompanying CD-ROM of City Profiles is included to assist cities to understand in more detail what other cities are doing today.

**It is now undeniably evident that the global climate is changing as a result of human-induced greenhouse gas (GHG) emissions.** Increased levels of heat trapped in the atmosphere have set off a process that is modifying weather patterns, which in turn affect temperatures, sea levels, and storm frequencies. This will impact cities and other urban areas, especially those in coastal zones. Asia already experiences the greatest number of flood events worldwide. Since the beginning of the 21st century, Asia has experienced more than 550 floods affecting over 850 million people.<sup>2</sup> Out of China's estimated urban population of 400 million, 130 million live in coastal cities that are vulnerable to sea-level rise.<sup>3</sup> The high incidence of hydro-meteorological and other disasters affecting urban areas, particularly in vulnerable regions, is a challenge to local officials and their communities in being prepared and proactive in reducing their GHG emissions and in addressing increasingly frequent and extreme climate change events.

**The world is at a unique moment in time.** Three major movements are coming together: *urbanization, decentralization and the rise of domestic capital markets.* The way cities are managed to deal with their growth and the increase of their vulnerabilities is very important in this context. Many East Asian cities are also experiencing very rapid urbanization and increasing decentralization. In 2004, for example, 40 percent of the world's cement and 27 percent of its steel went primarily to build China's cities.<sup>4</sup> Most East Asian cities therefore have much greater responsibility for their increasing

populations to prepare them for the consequences of climate change, offer mitigation alternatives to current levels of GHG emissions, and devise the capital improvement projects necessary for resilient cities. The traditional sources of finance to cities from national government grants and allocations for budget support are insufficient and inefficient. Due to their increasing decentralization and increasing populations, most East Asian cities have much greater responsibility with limited traditional financial resources, but with unprecedented opportunity for domestic capital markets to make cities less dependent on national government for financial support. The access of funds through capital markets has begun to be recognized as an important adaptation initiative.

**The most adverse impacts of climate change are likely to be in urban areas where people, resources, and infrastructure are concentrated.** “In absolute numbers, Asia is the epicenter of the current urbanization surge. China will add at least 342 million people to its cities by 2030... and Indonesia, 80 million.”<sup>5</sup> An estimated 46 million people living in cities are at risk yearly from flooding from storm surges in the East Asia Region.<sup>6</sup> The responsibility of responding to climate change impacts and consequences will fall to city governments and their communities. Therefore a strong local commitment and organization is required to deal with behavior and technological change to reduce carbon emissions and the disasters climate change consequences and regional threats represent. The response to climate change impacts are in their essence urban governance and management issues. Immediate action to reduce emissions will reduce future impacts but will not eliminate those already initiated.

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**There are important linkages between sustainable development, climate change impacts, and disaster risk management issues each city confronts.** Dealing with climate change has initially focused on national or regional plans to reduce the contributions to global warming. But reducing GHG emissions is only one of the important efforts cities must understand. Disasters that result from and/or can be made worse by climate change can undermine decades of growth through a single catastrophic event. Management of urban areas and their growth and spatial planning requires the consideration of disaster risk management and the climate change agenda as essential components of urban development. Climate change will increase the frequency of disasters in cities. Effective disaster risk management is an important component of climate change adaptation.

**Climate change will require concerted actions by local governments and their partners to manage a changing and more invasive environment.** The need to promote changes in technologies, citizen participation, and urban growth patterns are equally important parts of the behavior of the urban populations that contribute to global warming and create vulnerabilities to disasters. Mainstreaming these issues into policy and practice leads to a holistic rather than sectoral engagement in climate change. Climate change and disaster risk management require concerted international cooperation and city partnerships. Indeed, this Primer reflects joint cooperation between three international agencies – the World Bank, the Global Facility for Disaster Reduction and Recovery, and the UN’s International Strategy for Disaster Reduction. This team hopes the Primer increases awareness, highlights successful practices that can be adapted to East Asian cities, and initiates a dialogue for action. The World Bank and its partners stand ready to assist client countries and their cities with technical and financial assistance as they move toward creating institutions, strategies, and infrastructure to combat climate change and natural disasters.