



Development in Partnership

the World Bank's activities in Thailand and other news related to development

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At Last, a Practical Guide to Climate-Proof Our Cities

What do Bangkok, Jakarta, Shanghai, and Hanoi have in common? These mega Asian cities are now facing greater risks from extreme weather events, thanks to climate change.

The world's urban centers – many are coastal – are increasingly exposed to rising sea levels and other consequences of climate change. These changes threaten the property and the lives of billions of urban citizens. Damage inflicted could even undermine the world's economic gains of the past few decades, experts warn.

Now the good news: cities' vulnerability to climate change-induced disasters *can* be reduced. Policy-makers responding to the greater risks will find support from international development institutions including the World Bank. Cities that have already responded are also willing to share good lessons with others, especially those

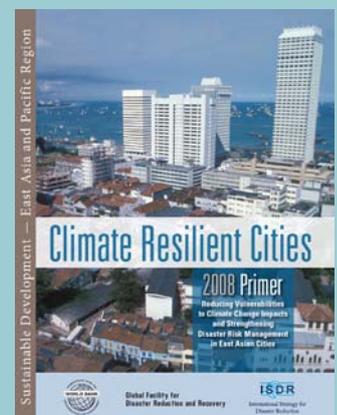
in poorer countries. Technical and financial assistance for local governments is also available.

However, most of the necessary measures must be taken by the cities themselves. To help local governments do just that, the World Bank joined with the United Nations International Strategy for Disaster Reduction (UN/ISDR) and the Global Facility for Disaster Reduction and Recovery (GFDRR) to publish an interactive report entitled, "***Climate Resilient Cities***."

The world's 10 most populous cities (by population)

City	Population*	Country
Mumbai	13,662,885	India
Karachi	12,991,000	Pakistan
Istanbul	11,372,613	Turkey
Delhi	11,325,124	India
São Paulo	10,886,518	Brazil
Moscow	10,452,000	Russia
Seoul	10,356,202	South Korea
Shanghai	10,231,000	China
Mexico City	8,609,347	Mexico
Jakarta	8,576,788	Indonesia

* In million



The report is being launched today throughout the East Asia and Pacific Region.

A Primer on reducing cities' vulnerability to climate change disruption and strengthening disaster risk management, ***Climate Resilient Cities*** should prove a useful tool for city managers the world over. After all, eight of the world's 10 most populous cities are located near rivers or sea and are already exposed to hazards (flooding, earthquakes, typhoons, and low-quality infrastructure).

With the trend toward more frequent and extreme weather events, city managers should plan for these impacts now rather than later.

"Ultimately, the cities hardest hit by climate change will be the ones least prepared," said **Neeraj Prasad**, the Lead Environmental Specialist of the World Bank in East Asia and Pacific.

The stakes are high. Cities form the center of the economy in many countries, so climate change's impact on urban populations also damages the nation.

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For every 1-meter rise in sea levels, an economic loss equals to 2% of GDP can be expected

For every one-meter rise in sea levels, **Climate Resilient Cities** estimates a loss of 2% in national Gross Domestic Product due to shortage of fresh water, damage to agriculture and fisheries, disruption of tourism, reduced energy security, and other consequences. Concentration of people in the cities also increases their vulnerability to climate change disruption. By 2030, the world’s urban centers will be home to almost 4 billion people. As a result, making cities more climate-resilient must be a priority for city planners and managers around the world today.

“The vulnerability is real in East Asia,” said **Jitendra J. Shah**, who coordinates the World Bank’s environmental program in Cambodia, Lao PDR, Malaysia and Thailand. *“Four out of the top 10 most vulnerable cities are in this region. We have seen events like the 2004 tsunami, and recently Cyclone Nargis in Myanmar and a typhoon in the Philippines. Local governments are facing the challenge of dealing with that.”*

Dealing with the impact of climate change at the city level requires better understanding of what makes any

city vulnerable. To this end, **Climate Resilient Cities** offers a tool to help policy-makers identify characteristics that make the city a “hot spot,” create strategies to increase their resilience to impacts of climate change, and establish the link between climate change, disaster risk reduction, and city planning as well as management.

The report uses a dual track approach to encourage cities to develop strategies for adaptation to climate change and plans to mitigate the consequences of future natural disasters, as well as find ways to reduce greenhouse gas emissions in the first place.

Some of the measures are as simple as increasing public awareness of the consequences of climate change; providing more green space; using bicycles or walking more; and increasing the use of energy-efficient public transport vehicles. Others require legislative support and public investment, including providing alternatives to fossil-fuels, and improving the quality of public infrastructure and buildings. The report provides sound practices from cities that have taken the climate change challenges seriously, among them Milan, Tokyo, New York, China’s Dong Tan, Hanoi, Singapore, and a few cities within the Metro Manila area. This affords the cities still defining their own climate change strategy a wide range of mitigation and adaptation options.

“Every city is different. You have to respond based on what your city is,” Mr. Prasad said. *“There is no cookie-cutter solution to climate change impacts. It’s important that you are able to anticipate the likely impacts on your city and make the decision to deal with that.”*

To download the full report, visit www.worldbank.or.th

For more information about disaster risk reduction in Asia Pacific, contact Angelika Planitz, UN/ISDR, email: planitz@un.org

Poor Chon Buri Village Benefits from 1st WB-Supported Carbon-Finance Project in Thailand

The quality of life at a poor village in this coastal province of Thailand is about to get better, thanks to a community benefit plan supported by the World Bank.

Currently, Moo 10 village, in Chon Buri’s Koh Chan District, has only very basic infrastructure and limited social services. There is no clean drinking water, no lighting on the streets. Poor children cannot afford education. Deteriorating soil quality has led to

declining sugar cane production, further compounding poverty.

The community benefit plan will bring change. A facility to produce clean drinking water will be installed, so will street lights. Scholarships will be provided to poor students. A pilot project to help villagers increase their income and improve living conditions will also be developed and implemented – by the villagers themselves.



This community benefit plan is one component of the new **Thailand AEP Livestock Waste Management Project** – the first carbon-finance project in Thailand being supported by the World Bank. Livestock production is an important element of the Thai economy. However, livestock waste also causes major health and environmental impacts, and also contributes to the country’s annual greenhouse gas emissions. The Project will support the Thai Government’s effort to reduce greenhouse gas emissions by utilizing swine manure to generate electricity.

Under this Project, a system to process livestock waste will be installed at 10 pig farms in Chon Buri and Ratchaburi Provinces, located near the Mae Klong and Tha Chin river basins. Together these farms own a total of 131,000 pigs, producing a significant amount of swine manure each day. From the waste, biogas will be produced and then used to generate electricity for the farm.

The Project is expected to generate a combined total of 6,250 kWh of electricity per day and reduce annual carbon dioxide emissions by a combined total of 58,000 tons. This emission reduction is marketable as carbon credits. The credits will then be purchased by the Community Development Carbon Fund (CDCF), administered by the World Bank.

This is a unique project because it enables smaller pig farms to take part in what is known as the Clean Development Mechanism (CDM) – by bundling the carbon emission reduction by all 10 farms, then selling it as one unit in a complex carbon market.

“This pilot project sends a signal to smaller swine farms throughout Thailand that they, too, can participate in and benefit from the CDM,” said **Sirithan Pairoj-Boriboon**, Executive Director, Thailand Greenhouse Gas Management Organization (Public Organization). *“I hope it will pave way for more projects like this to come in the future.”*

This is also the first carbon-finance project being supported by the World Bank. It builds on Thailand’s experience as the beneficiary of the Livestock Waste Management in East Asia project, launched in 2006 and funded by the Global Environment Facility (GEF),* said **Ian Porter**, the World Bank’s Thailand Country Director.



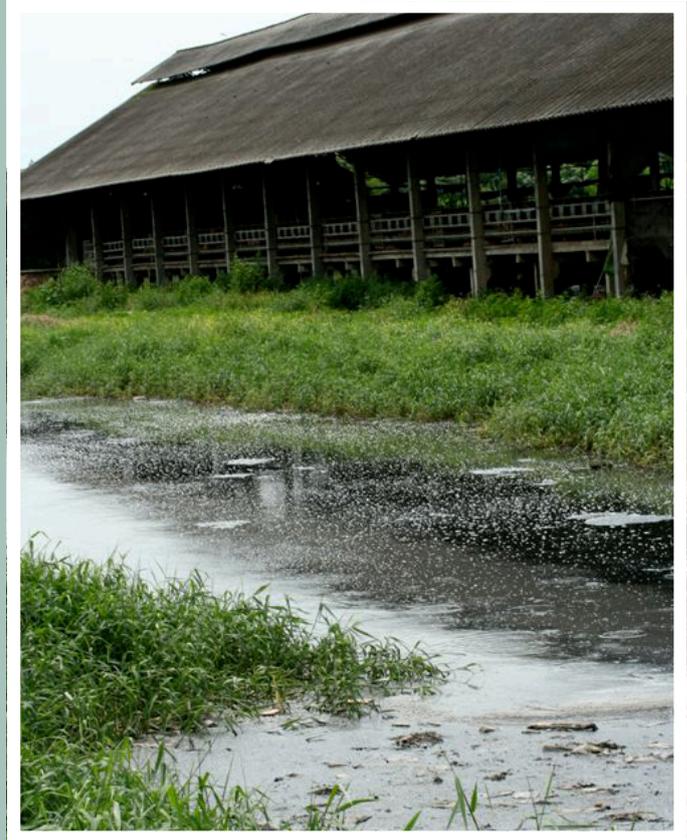
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"This Project is very much part of the broader partnership in environment between the Royal Thai Government and the World Bank Group," Porter said, referring to the Country Development Partnership in Environment (CDP-E).

On Monday, the World Bank signed the agreement to purchase carbon credits with Advance Energy Plus Co. Ltd. (AEP), a consortium formed by a group of Thai experts with experience in energy and environmental projects. AEP will also act on behalf of the farmers to collectively document and market the resulting carbon credits, thus generating the added income to make participation advantageous to each farm.

Apart from the environmental benefits, villagers living near the farms, like those in Chonburi's Moo 10 village, will be able to improve their quality of life with support from the community benefit plan – a required component of any carbon-finance project funded by CDCF. Of the \$7.72 million project cost, about \$230,000 will be spent on community development initiatives at selected low-income villages with limited infrastructure and social services.

Financial support to the Project comes from the CDCF, the GEF, and Methane-to-Markets, an international program set up to reduce methane emission. The Thai Government-owned Energy Conservation Fund also contributes to this project, through the Energy Research and Development Institute, Chiang Mai University. Participating farmers are also contributing to the investment cost.



For more information on World Bank's carbon finance operations, contact Pongtip Puvacharoen at (0) 2686-8300, email: ppuvacharoen@worldbank.org

For more information on the AEP Livestock Waste Management Project, visit www.worldbank.or.th



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