



THINGS TO KNOW ABOUT
URBAN
ADAPTATION

From the USAID Adapt Asia-Pacific Urban Climate
Change Adaptation and Resilience Training Course



USAID
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Adaptation Finance
Knowledge Series
No. 5 | March 2016

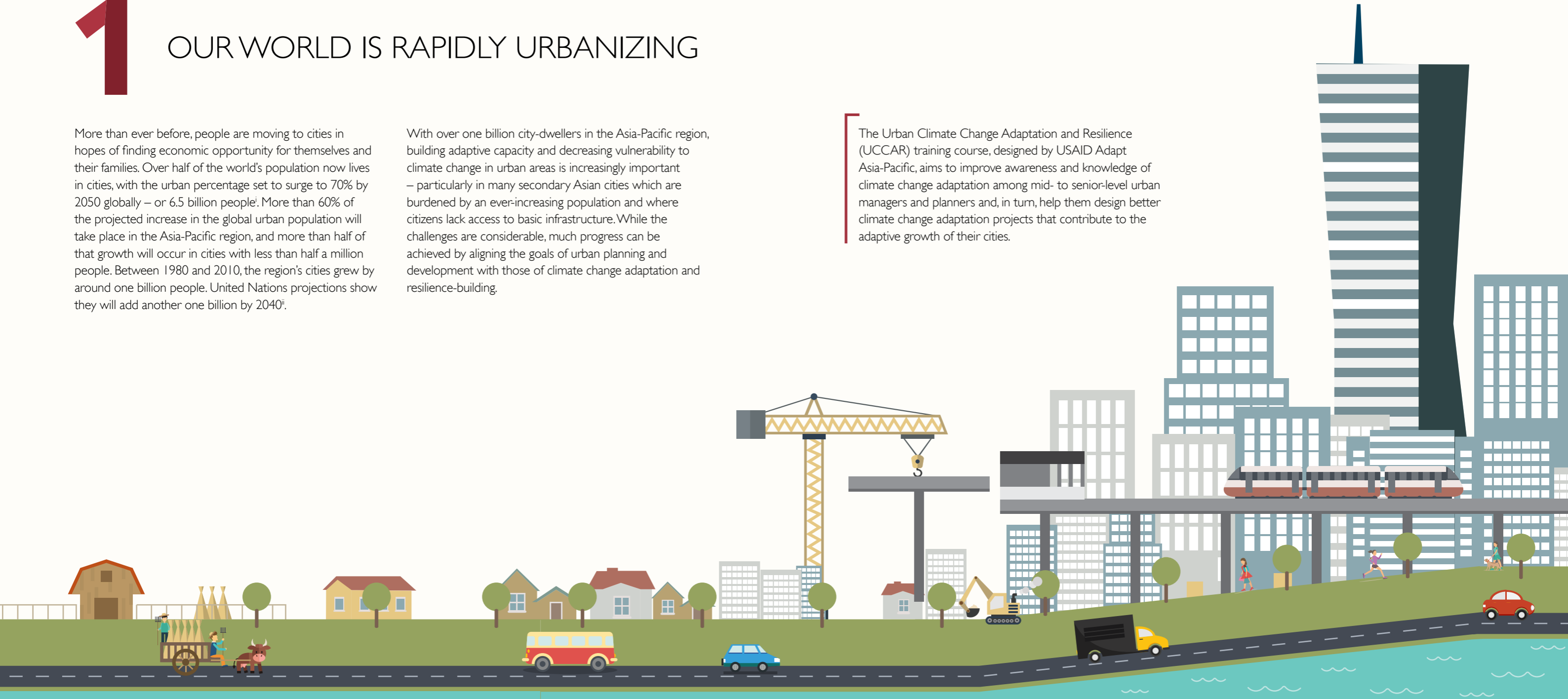
1

OUR WORLD IS RAPIDLY URBANIZING

More than ever before, people are moving to cities in hopes of finding economic opportunity for themselves and their families. Over half of the world's population now lives in cities, with the urban percentage set to surge to 70% by 2050 globally – or 6.5 billion people¹. More than 60% of the projected increase in the global urban population will take place in the Asia-Pacific region, and more than half of that growth will occur in cities with less than half a million people. Between 1980 and 2010, the region's cities grew by around one billion people. United Nations projections show they will add another one billion by 2040².

With over one billion city-dwellers in the Asia-Pacific region, building adaptive capacity and decreasing vulnerability to climate change in urban areas is increasingly important – particularly in many secondary Asian cities which are burdened by an ever-increasing population and where citizens lack access to basic infrastructure. While the challenges are considerable, much progress can be achieved by aligning the goals of urban planning and development with those of climate change adaptation and resilience-building.

The Urban Climate Change Adaptation and Resilience (UCCAR) training course, designed by USAID Adapt Asia-Pacific, aims to improve awareness and knowledge of climate change adaptation among mid- to senior-level urban managers and planners and, in turn, help them design better climate change adaptation projects that contribute to the adaptive growth of their cities.



2 CITIES ARE ENGINES OF GROWTH AND DEVELOPMENT

The concentration of people and ideas in cities makes them centers of economic and social development. In the Asia-Pacific region, cities represent the hopes and aspirations of their nations, while simultaneously serving as drivers of technology, innovation and growth. As of 2015, Asia alone accounts for more than half of the world's 29 megacities, with populations exceeding 10 million peopleⁱⁱⁱ. The metropolis of Jakarta, for example, spurs Indonesia's economic and social development, accounting for approximately 25% of Indonesia's GDP, with its port handling roughly 40% of Indonesia's container traffic^{iv}. Globally, cities account for about 85% of all economic

output^v; in the future, secondary and tertiary cities will account for a rising share of this number.

The same characteristics that make cities engines of growth and development, also make them particularly vulnerable to climate change. Some examples include:

The ever-increasing **supply of human resources** in cities creates a large pool of thinkers, workers and customers to drive economic growth. However, when population density increases rapidly, it stresses urban systems. City governments are often unable to provide for the needs of the population, particularly in the event of a disaster or other sudden shock to the system.

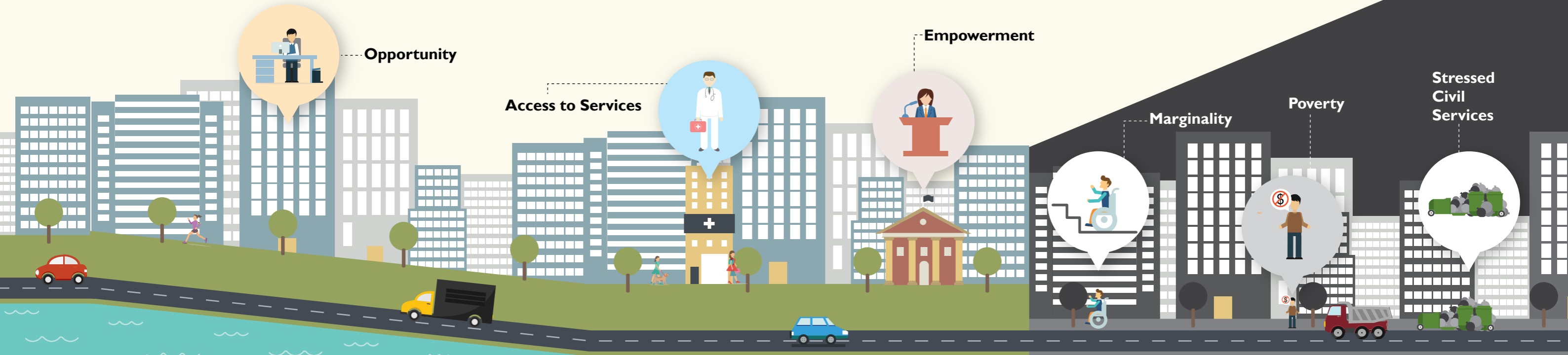
The location of cities **near coasts or along river systems** has historically been beneficial for transportation and trade. Their geography also makes cities particularly vulnerable to climate change impacts, including riverine flooding, sea-level rise, and strong tropical storms. Davao City, Semarang, Songkhla, Chittagong, Suva, Nha Trang and dozens of other urban areas throughout the Asia-Pacific region are located in these hazardous areas.

The **strong industrial base** in cities means that there are massive concentrations of public and private investments in the facilities and critical infrastructure vital for economic development. Smart public-sector spending and a critical mass of private investments have contributed to the progress of many Asian cities. However, the heavy concentration of assets and investments in one location also makes them vulnerable to shocks and disasters. The vast majority of these investments have not taken climate change into account, exposing them to the risk of loss and

potentially paralyzing the entire economy of the country in the event of severe climatic events.

The **efficiency and cost-effectiveness** in the delivery of goods and services in urban areas is a result of the dense clustering of people and businesses in a relatively small area. Cities are hubs of easily accessible education and healthcare facilities, serving a large number of people at relatively low marginal costs. This same efficiency applies to the negative impacts of climate change in cities, where massive numbers of people and assets can be affected by climatic events in a short expanse of space and time.

The UCCAR course is specifically designed for the growing second- and third-tier cities across the Asia-Pacific region. The material is meant to be customized for local delivery throughout the region, with features such as a "city profile" specific to the site of delivery.



3 CITIES ARE COMPLEX SYSTEMS

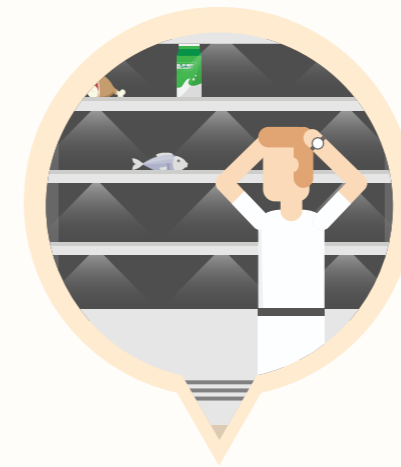
Urban areas are aggregations of complex and interlinked systems and services that are dependent on multiple inputs and outputs. Impacts on one small aspect of this network can have **cascading impacts** across the whole city. With globalization and the proliferation of business taking place across borders, impacts can rapidly spread beyond the city to the broader region, country and beyond. The 2011 floods in Bangkok affected the global production chains

for large international companies like Honda and Apple, impacting people and businesses around the world.

Climate change is also mired in complexity. The manifestations of climate change in any one city are a function of global and regional climatic processes and local geographic characteristics. It is difficult to predict precisely how changes to the overall system will manifest in one particular area and to what degree people will be impacted.

Those impacts could be sudden and direct, like the flash flooding of a neighborhood disrupting food delivery services. Impacts could also be creeping and indirect, like gradually decreasing food security as a result of more frequent droughts affecting nearby agricultural lands. When climate change is added to the urban mix of complex interconnected systems, these impacts can be exacerbated in unpredictable ways.

The UCCAR course adopts a systems approach to urban thinking, presenting urban areas as sites of complex interaction between places, people, institutions and physical infrastructure. The course provides participants with an overview of the models and assumptions used to develop climate change projections and the complexity of predicting how climate change will be felt at the local level.



4

ADAPTING TO CLIMATE CHANGE IS AN INHERENTLY LOCAL ENDEAVOR

Efforts to mitigate global warming involve similar activities all over the world. From New Delhi to Phnom Penh, similar mitigation actions are undertaken to reduce carbon emissions. Climate change adaptation, on the other hand, is inherently local, with actions varying significantly from place to place.

Each city has a unique “threat profile” based on its physical location and an equally unique “vulnerability profile” based on location-specific socio-economic and political factors. Cities in low-lying areas, for example, are more exposed to the threat of flooding than those situated in higher areas. Within the boundaries of the city, certain neighborhoods

may suffer more than others due to higher levels of vulnerability caused by poverty and limited access to services.

Local communities have a great understanding of the specific vulnerabilities of people and assets in their area, and can provide detailed information about their specific adaptive capacities. Communities have decades and sometimes centuries of experience with their specific locations and are better positioned than central government authorities to understand the intricate details of what happens when there is a prolonged drought, for example. Gathered through lived experience, communities will have a better sense of the patterns of vulnerabilities, who the most vulnerable groups are and what key assets need protecting.

Local governments need to be mindful that there are no pre-packaged solutions for adaptation; just as cities develop in their own unique ways, so do their climate change vulnerabilities.

The UCCAR course introduces participants to techniques for understanding the nature of vulnerability in their city and assessing how it varies across the urban area. Participants then develop locally-specific descriptions of the threats and vulnerabilities impacting across their respective municipality or region and generate a portfolio of strategies to systematically address the identified vulnerabilities.



5 CLIMATE CHANGE CREATES OPPORTUNITIES FOR ADAPTIVE GROWTH

Cities are constantly changing and growing in response to economic and social pressures. As the negative impacts of climate change become more severe, past models of urban management and planning will not be sufficient to address the combination of changing climate pressures and socio-economic and demographic challenges. While cities have historically been the first to adapt to new realities and innovate in the face of crisis, urban planners and engineers will need to tap into the wealth of urban resources and innovation to create a new paradigm for urban

development and management in the face of a changing climate.

Current urban management practices in Asia inhibit integrated and sustainable urban planning, and hinder cities from adequately adapting to climate change. For example, narrow, sector-based planning and multiplicity of administrative authority leaves some areas overregulated while other areas are neglected. Depending on characteristics of national political and administrative

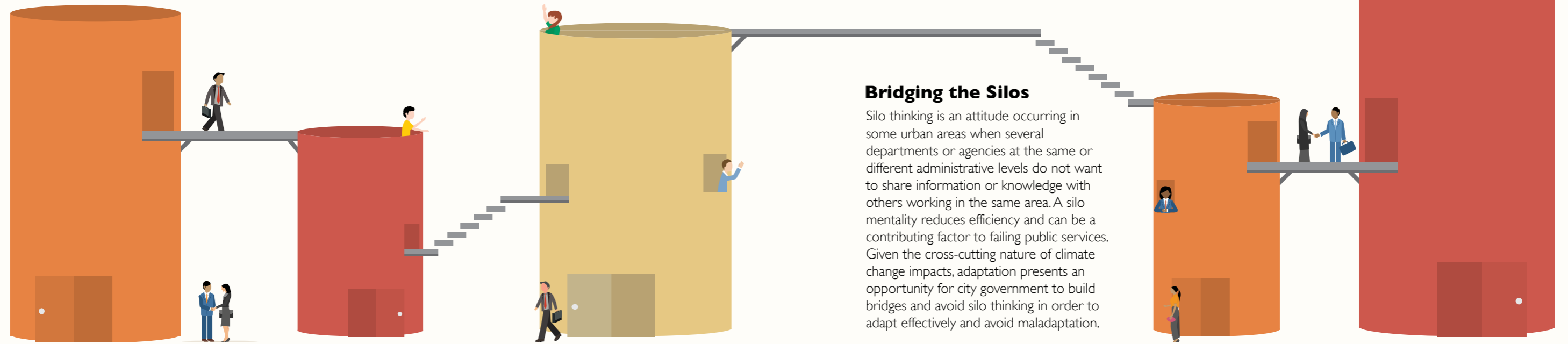
systems, responsibility for different aspects of urban governance may fall under the authority of the municipal, provincial, or even national government. When these jurisdictions and bureaucratic entities fail to coordinate planning and development, it can severely hinder efforts to integrate urban systems across sectors and regions.

Working in siloes can also result in maladaptation, in which strategies designed to address climate vulnerability over the short term end up increasing vulnerability over the long term. Since cities are often economic engines for national governments, a vulnerable city usually translates into a vulnerable country, as in the case of Thailand during the 2011 floods in Bangkok.

In the next 30 years, urban populations in Asia are projected to double. As such, Asia-Pacific cities are poised to take advantage of adaptive growth, not by stifling the urban economic engines, but rather by helping cities to

grow sustainably. When cities mainstream adaptation into an integrated model of adaptive and resilient urban growth, they can plan, build and continually evolve to anticipate and react to internal and external changes to the environment and society.

The UCCAR course discusses techniques for engaging diverse city stakeholders for integrated adaptation. The course covers the process of city-wide mainstreaming of resilience into the city government apparatus to ensure the sustainability of adaptation efforts, enhance development outcomes and protect existing city investments into the future.



Bridging the Silos

Silo thinking is an attitude occurring in some urban areas when several departments or agencies at the same or different administrative levels do not want to share information or knowledge with others working in the same area. A silo mentality reduces efficiency and can be a contributing factor to failing public services. Given the cross-cutting nature of climate change impacts, adaptation presents an opportunity for city government to build bridges and avoid silo thinking in order to adapt effectively and avoid maladaptation.

6 CITIES CAN LEVERAGE EXISTING RESOURCES TO BUILD RESILIENCE

As centers of economic growth and development, cities are also inherently centers of innovation, creativity, education, knowledge, and finance. In other words, cities have copious resources to effectively address climate change. Rich in human capital, cities foster the creativity to solve difficult challenges, such as climate change.

Employing the principles of resilience (detailed below), cities can draw upon their existing resources to proactively address climate change with strategies that account for the inherent uncertainty in predicting future conditions. Employing the principles of resilience also decreases the

potential of implementing maladaptive strategies that increase the overall vulnerability of urban systems in the long run. Well-implemented adaptation measures make cities more attractive places to live and work due to the co-benefits that effective adaptation provides. Adaptation strategies that harmonize with other development priorities are far more likely to be successful and sustainable than those that don't.

While the international community is contributing some resources to help developing countries and cities make the necessary investments to build resilience, much of the

work for adaptation will be left to communities themselves. Fortunately, with all the resources available in cities, these gaps can often be filled locally, within the existing structures of governance.

Cities have significant untapped capacity to finance climate change adaptation and resilience-building activities, especially if these activities have co-benefits for other local development priorities. Big cities like Manila and Mumbai are better positioned to attract private investments to fuel innovation than national governments. Cities that pursue climate change adaptation more aggressively have also been successful in attracting funding from state and national level funding institutions. In general, cities with stable revenue flows and responsible borrowing history are viewed as lower financial risk and therefore attractive investment and lending opportunities by both the public and private sector. Secondary cities, from Lampung to Ludhiana, are drivers of regional economies and are similarly situated to attract investments for their regions. Institutions, regulations, and

enforcement can all send powerful signals to investors and contribute to comprehensive resilience-building projects.

To effectively allocate resources for adaptation, city governments need to understand the landscape of climate finance and develop the skills to design and implement technically-sound, socially-inclusive and bankable climate change adaptation projects.

The UCCAR course provides participants with the tools and techniques to establish evaluative criteria, matching pressing needs to resources available, and choose between resilience and adaptation options. The course presents an overview of financing options, including locally generated revenue, private sector support, and national and international grants and loans and then walks participants through the process of writing proposals for external resources to finance the implementation of resilience options.

Principles of Resilience



ROBUSTNESS

The city's physical or procedural strength to tolerate climate shocks without significant loss of function.



REDUNDANCY

The existence of back-up capacity within urban systems so they can absorb sudden surges in demand or a partial lack of supply.



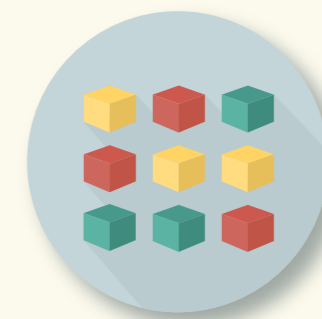
RESPONSIVENESS

The city's ability to learn quickly, adjusting policy and practice in response to new information about changing climate impacts.



DIVERSITY & FLEXIBILITY

The capability to supply urban services via multiple pathways in case one fails, using distributed resources and multifunctional equipment.



MODULARITY

The flexibility to switch over damaged pieces of an urban system without having to shut down or replace the entire system.



SAFE FAILURE

When system components are able to absorb sudden shocks or cumulative stress without catastrophic impacts that ripple through the whole system.

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USAID ADAPT ASIA-PACIFIC URBAN CLIMATE CHANGE ADAPTATION AND RESILIENCE TRAINING COURSE

Developed in collaboration with the East-West Center at the University of Hawaii, the USAID Adapt Asia-Pacific Urban Climate Change Adaptation and Resilience (UCCAR) training course is a seven-module, five-day course that starts with an introduction to climate change and climate change adaptation; provides tools and techniques for assessing climate change impacts and vulnerabilities; presents a framework for identification, evaluation, selection, and implementation of climate adaptation strategies, programs and projects; and finally looks at the options available for financing adaptation projects and methods of accessing climate change finance.

In an effort to ensure knowledge is tested and applicable in the real world, the UCCAR training course incorporates multiple case studies, tools, methodologies, and guidelines developed through USAID Adapt Asia-Pacific's engagement with national and local governments in preparing climate change adaptation projects.

The course is intended to be delivered through short courses conducted across the Asia-Pacific region, by national and local training organizations and institutions of higher learning. These partners greatly enhance the training by tailoring the course materials to local contexts, providing relevant data sets and case studies, and linking the training with national and local laws, policies, and regulatory requirements for urban climate change adaptation.

The UCCAR course materials are freely available online to cities and institutions in Asia-Pacific looking to deliver training on urban climate change adaptation project development and finance. The materials are also useful for practitioners and individuals working in related sectors looking for a comprehensive set of tools and how-to guides for urban climate change adaptation.

For course materials, visit: www.adaptasiapacific.org/uccar.

ADAPTATION FINANCE KNOWLEDGE SERIES

Since 2011, USAID Adapt Asia-Pacific has been helping countries develop bankable climate change adaptation projects and improve their access to related funding. These experiences, published in this USAID Adapt Asia-Pacific Adaptation Finance Knowledge Series, are based on work with government officials, multilateral institutions, regional organizations, consultants and other experts.

One of the ways USAID Adapt Asia-Pacific supports the region is by designing and implementing standalone capacity building programs targeted specifically at government officials. Responding to regional capacity building needs, including a lack of urban-related climate change trainings available, in 2014 USAID Adapt Asia-Pacific developed the Urban Climate Change Adaptation and Resilience (UCCAR) training course in collaboration with the East-West Center. This publication highlights the key learnings from the course.



USAID Adapt Asia-Pacific

CLIMATE CHANGE ADAPTATION PROJECT
PREPARATION FACILITY FOR ASIA AND
THE PACIFIC

The USAID Adapt Asia-Pacific project (2011-2016) is designed to help countries in Asia and the Pacific obtain financing to address climate change impacts, through a combination of technical support in project preparation, providing relevant training and developing specialized materials to build national and regional capacity for accessing finance.

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