



INCENTIVES FOR REDUCING DISASTER RISK IN URBAN AREAS

Experiences From Da Nang (Viet Nam),
Kathmandu Valley (Nepal), and Naga City
(Philippines)

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Tel +63 2 632 4444; Fax +63 2 636 2444
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Urban areas in Asia are the engines of their national economies. They are also centers of increasing disaster risk. The rapid growth of these urban areas has often resulted in the siting of poorly designed infrastructure and assets in hazard-prone areas, increasing disaster risk. A high proportion of the population most affected by extreme weather events lives in urban areas. The intensity and, in some cases, frequency of climate-related hazards are increasing, further exacerbating the disaster risk. In addition, many Asian cities are exposed to earthquake risk with buildings and informal settlements vulnerable, due in part to the lack of enforcement of building regulations. The combination of this rapid and unregulated growth increases disaster risk, threatening existing and planned investment and, ultimately, the future of the residents of cities in the region. However, investments to reduce disaster risk remain limited for reasons discussed in Box 1.

Box 1: Why Is There a Lack of Investments in Disaster Risk Reduction?

Notion about “natural” disasters results in viewing disasters as an externality that needs to be managed separately rather than an issue to be managed as part of development. While hazards are natural, there is nothing *natural* about disasters. Disaster risk is shaped from the interaction of hazards, socioeconomic and physical vulnerabilities, and exposure of people and assets to the hazards—the latter two being largely related to development decisions. For example, disasters occur, because infrastructure has been sited along a fault line increasing its exposure to earthquakes; because deforestation in the headwaters of a drainage basin has increased the exposure to flooding risk of people living downstream; and because lack of access to affordable credit has resulted in poor construction of housing in the informal settlement along the coasts, increasing its vulnerability to tropical cyclone risk. This limited understanding of disasters as a development issue results in a lack of investment in disaster risk reduction.

Lack of firsthand experience of disaster losses (especially from less-frequent events such as earthquakes) may result in **discounting low-probability risks** and ultimately investment in risk reduction. The lack of availability of historical disaster impact data and the assessment of the likely future losses that the area could experience (especially due to changing hazard patterns with climate change), further limiting investment decisions.

Investments in disaster risk reduction receive **weak political support** as they do not necessarily generate tangible, immediate outcomes or produce positive revenue flows. In addition, certain investments (such as the relocation of informal settlements from hazard-prone areas) may damage the popularity of the government, imposing a political cost on incumbent leaders.^a

Limited budgetary resources result in favoring investments that generate immediate, tangible outcomes rather than risk reduction endeavors that may not reap benefits for many years. This limits public and private sector willingness to bring financing, because it requires setting a present value on a future reduction in losses and then monetizing that to create a commercial transaction. It imposes higher opportunity costs because it can take limited available resources away from other priorities.^a

On top of limited capacity (particularly at the local level) to prepare convincing arguments for investments and relatively weak political standing of agencies working directly on disaster risk reduction, disaster risk is often **concentrated disproportionately on poorer households**, the segment of society **with limited political voice**.

^a ADB. 2013. *Investing in Resilience: Ensuring a Disaster-Resistant Future*. Manila.

Source: Authors.

Securing an inclusive sustainable future for cities in Asia requires all urban stakeholders—governments, private sector, communities, and households—to view disaster risk as a core development issue, able to be addressed within the context of wider urban development and through actions that shift the focus from managing disaster events to managing disaster risks.

While better understanding of disaster risk by urban stakeholders and the use of this information by governments to develop policies, regulations, and financing that prioritize risk reduction are key to increasing public and private investment in risk reduction, there is also a need to offer inducements—or **incentives**—to encourage investment.

This document summarizes experiences of three case study areas—Da Nang in Viet Nam, the Kathmandu Valley in Nepal, and Naga City in the Philippines—in incentives for disaster risk reduction. Targeted at national and city governments, this summary document

- (i) sets out what incentives are and how they are currently used in the three case study urban areas to encourage investment in disaster risk reduction;
- (ii) identifies actions to establish and foster an enabling environment for a successful incentive program; and
- (iii) sets out the key considerations for the design of a successful incentive program, where to start, and what to do when.

A number of terms are used throughout this document. Their meanings have been set out in Box 2.

Box 2: Glossary of Key Terms Used in This Document

A **hazard** is a dangerous phenomenon, substance, human activity, or condition that may cause loss of life, injury or other health impacts, property damage, loss of livelihoods and services, social and economic disruption, or environmental damage.^a

Exposure includes the people, property, systems, or other elements present in hazard zones that are thereby subject to potential losses.^a

Vulnerability points to the characteristics and circumstances of a community, system, or asset that make it susceptible to the damaging effects of a hazard.^a

Disasters are a serious disruption of the functioning of a community or a society involving widespread human, material, economic, or environmental losses and impacts, which exceeds the ability of the affected community of society to cope using its own resources.^a

Disaster risk is the potential disaster losses, in lives, health status, livelihoods, assets, and services, which could occur to a particular community or society over some specified future period of time.^a

Disaster risk reduction 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 improved preparedness for adverse events.^a

continued on next page

Box 2 *continued*

Incentive is an encouragement or motivation to change behavior or practice and/or a reward for improved performance. In this context, any inducement to urban stakeholders to take action to reduce exposure and vulnerability to natural hazards is considered an incentive. An incentive may be monetary or nonmonetary.

A **disincentive** is an inducement to urban stakeholders not to take action.

A **perverse incentive** is one that is intended to produce an action, but flaws in its design or execution result in undesirable consequences.

Investment, in the context of this document, means the outlay of funds and/or a wide range of other resources and their application to an array of structural and nonstructural instruments and mechanisms to identify and assess, reduce, and/or manage residual risk.^b

Zoning is a section of an area or territory or city restricted to a particular type of building, enterprise, or activity—for instance, a residential zone.^c Zoning overlays can restrict land use in hazardous areas, for instance flood risk zones or sensitive open space protection zones.^d

Density bonuses are a zoning tool that permits developers to build more housing units, taller buildings, or more floor space than normally allowed, in exchange for provision of a defined public benefit, such as dedication or donation of land in areas subject to hazards.^d

Development rights are a property owner's entitlement to develop land in accordance with local land-use regulations.

An easement is the legal right afforded a party to cross or to make limited use of land owned by another. A **conservation easement** restricts a landowner to land uses that are compatible with long-term conservation and environmental values.^e

Disclosure is the act of making something (such as information) known or revealed. **Disclosure laws** set out what information must be made public or shared with people who need to know that information.

Capacity is the ability that exists at present.

Capability is the ability that is able to be achieved.

Sources:

^a UNISDR. Terminology on Disaster Risk Reduction. <https://www.unisdr.org/we/inform/terminology>

^b ADB. 2013. *Investing in Resilience: Ensuring a Disaster-Resistant Future*. Manila.

^c The Gale Group. 2008. West's Encyclopedia of American Law, edition 2. <http://legal-dictionary.thefreedictionary.com/Zoning> (retrieved 16 March 2016).

^d L. Ward Lyles, P. Berke, and G. Smith. 2013. Do Planners Matter? Examining Factors Driving Incorporation of Land Use Approaches into Hazard Mitigation Plans. *Journal of Environmental Planning and Management*. 57(5). pp. 792–811.

^e WebFinance, Inc. DictionaryOfConstruction.com. <http://www.dictionaryofconstruction.com/definition/conservation-easement.html> (16 March 2016).



2

Background

This document sets out summary findings of Addressing Disaster Risk through Improved Indicators and Land Use Management, a regional technical assistance project of the Asian Development Bank (ADB). The project involved studying three case study areas to explore the reasons why investments in disaster risk reduction have been limited and to identify opportunities for applying incentives to support disaster risk reduction in the urban context.

The case study areas focused on three urban environments: Da Nang in Viet Nam, the Kathmandu Valley in Nepal, and Naga City in the Philippines—each of a different size, with different governance structure, of different political and economic importance within the country, and with varying levels of exposure and vulnerability to a range of different hazards (Box 3).

Each case study sought to identify existing incentives (as well as disincentives and perverse incentives) focused on disaster risk reduction as well as incentives targeting broader urban development that might indirectly contribute to risk reduction. Each case study was informed by interviews with national and city governments; planners, architects and engineers; large, medium-sized, and small businesses (including, but not limited, to investors and developers); community-based organizations; and households. Knowledge sharing sessions and focus groups were also conducted in each of the three urban areas.

In addition to the three case study areas, an overview of the use of incentives for disaster risk reduction as well as four resources papers¹ were prepared to inform the research. A regional workshop, held in Manila in September 2015, brought together researchers and resource people to consider the outcomes of the case studies and discuss opportunities for the application of incentives to support disaster risk reduction for further development.

¹ See AECOM (2015), Brunsdon (2015), Sembieda (2015), and Wilkinson (2015) for details.

Box 3: Case Study City Profiles

Da Nang, Viet Nam

Located in the central region of Viet Nam, Da Nang, with a population of approximately 1 million, is one of the five largest cities in Viet Nam and one of the country's most important ports. With its strategic location, well-developed infrastructure, strong local economy, and well-trained human resources, Da Nang provides the right setting for investment. According to the National Urban Development Strategy of Viet Nam, Da Nang is one of the three biggest economic growth cores of the country. In recent years, the development strategies adopted by the city government have gained remarkable results in attracting investments and human resources, tourism development, and environmental protection.

Due to its geographical location, Da Nang is prone to natural hazards such as floods and tropical cyclones. Under future climate conditions, the intensity and frequency of extreme climate events are likely to increase. While the rapid urbanization in recent years has contributed significantly to the economic growth of the city, it has also created new and/or exacerbated existing disaster and climate-related risks, for example by allowing the city to expand in the lowland areas and permitting development on floodplains.

Focus of case study: Incentives to attract private investments in Da Nang and their contribution to disaster risk reduction

Kathmandu Valley, Nepal

The Kathmandu Valley, the national capital region of Nepal, covers an area of 722 square kilometers and comprises 22 municipalities and 8 village development committees. Being the political, commercial, education, administrative, and cultural center, the Kathmandu Valley has been the most important urban concentration in accommodating a total population of 2.43 million and almost 50% of the total urban population within the country.^a

The Kathmandu Valley is considered globally as one of the most vulnerable areas to natural hazards such as earthquakes, landslide, and floods, as witnessed in the April 2015 earthquake, which resulted in 8,600 casualties and affected 8 million people. The issue of flooding in the valley is gaining more attention in the present context considering the change in rainfall patterns in recent years and environmental degradation. Over the years, the Kathmandu Valley has experienced rapid population growth, haphazard urban development, and degradation of environmental resources, increasing disaster risk.

Focus of case study: Incentives to strengthen building control and planning

Naga City, Philippines

Naga City is located in the center of the Bicol region, on the southeastern tip of the Philippine island of Luzon. The city has a population^b of 174,947 within a geographic area of 84.5 square kilometers, making it one of the most densely populated cities in the Bicol region.^c It is a major employment base in the region and serves as a key hub for business and education in southern Luzon.^d It is classified by the Department of Finance of the Philippines as a second-class city, meaning that it has an annual average income of between \$6.8 million and \$8.5 million.

continued on next page

Box 3 continued

The city is vulnerable to natural hazards such as earthquake, floods, and tropical cyclones. It experiences on average 2–3 tropical cyclones every year.^e The city could also be impacted by a possible magnitude 8 earthquake originating from the Philippine Trench, which could affect the Bicol region.^f The city's location in the Bicol River Basin, exposes it to flooding risk. Disaster risk in the city is exacerbated by physical changes within Naga City and its surrounding area due to population growth and rapid urbanization. For example, the watershed areas of Mount Isarog, east of the city, have been greatly reduced due to unregulated logging and the conversion of forestland for farming, settlements, and other uses, thereby increasing flooding risk.

Focus of case study: Incentives to promote sustainable inclusive urban development, including disaster risk reduction

Sources:

- ^a Government of Nepal. 2011. Central Bureau Of Statistics. Nepal.
- ^b Philippine Statistical Authority. Philippine Standard Geographic Code Interactive. <http://www.nscb.gov.ph/activestats/psgc/municipality.asp?muncode=051724000®code=05&provcode=17> (accessed 21 September 2015).
- ^c Naga City Government. 2011. *Naga City Comprehensive Development Plan 2011-2020*. Naga City, Philippines.
- ^d WWF Philippines and BPI Foundation. 2014. *Business Risk Assessment and the Management of Climate Change Impacts: 16 Philippine Cities*. Manila.
- ^e Naga City Government. City Profile –Topography. <http://www.naga.gov.ph/cityprofile/topo.html> (accessed 21 September 2015).
- ^f Manila Bulletin. 2015. PHIVOLCS Warns of Magnitude 8 Quake in Bicol. 4 February.

Naga City Case Studies: Risk-sensitive Land Use Planning and Incentives for Urban DRM

TA 7929 (REU): Addressing Disaster Risk through Improved Indicators and
Land Use Management (45295-001)

5 March 2015, Thursday

Blue Room, Raul S. Roco Library, Naga City Hall
Naga City, Philippines



What Are Incentives?

An incentive is an encouragement or motivation to change behavior or practice and/or a reward for improved performance. In the context of reducing disaster risk in urban areas, an incentive is any inducement offered to stakeholders to take action to reduce exposure and vulnerability to natural hazards in a city.

Incentives typically operate on the principle that actions that exceed the minimum level of compliance—or “business as usual”—are rewarded with a bonus which may increase as the level of performance improves. The promise of the bonus—or reward—provides an incentive to act. Depending on the context, the bonus or reward may be awarded before or after the action has been taken. In environments in which the basic level of compliance is not the norm, stakeholders may require the reward to enable them to act.

Incentives typically fall into one of two categories: financial incentives or nonfinancial incentives.

Financial

Financial incentives offer a monetary reward for a change in behavior or practice, and/or improved performance. Examples of financial incentives include the following:

- Grants: intergovernmental, or government to person or company
- Personal or company tax credits
- Personal or company tax rebates
- Subsidies
- Discounts: on prices or insurance premiums
- Conditional cash transfers or vouchers
- Bonds and sureties
- Access to concessional loans or credit
- Rebates on fees for development approvals and services

The case studies suggest that the financial incentives most frequently used to incentivize stakeholders on wider urban development-related issues—and most familiar to city governments—are grants, company tax credits and company tax rebates (when targeted at large businesses), subsidies, discounts, and conditional cash transfers (when targeted at households). The existing use of these incentives and the familiarity this suggests present an opportunity to cities considering the use of incentives to reduce disaster risk. However, the use of financial incentives to motivate urban stakeholders to act to reduce exposure and vulnerability to hazards remains limited (Box 4) and depends on the capacity and capability of the institutional environment.

Box 4: Example of Financial Incentive Supporting Disaster Risk Reduction in Naga City, Philippines

The Performance Challenge Fund is an incentive program to promote good governance among local governments in the Philippines. Administered by the Department of the Interior and Local Government, the Performance Challenge Fund provides grant funding for projects that are geared toward the attainment of the Millennium Development Goals, that promote local economic development, and that support climate change adaptation and disaster risk reduction. Naga City has received P2.946 million (\$64,000) from the fund to implement a project entitled Lined Canal Project at Concepcion Pequena, Naga City. The construction of the lined canal will help reduce flooding in the local area. While the grants provided through the Performance Challenge Fund are not adequate to fund large-scale infrastructure, they can act as a catalyst to demonstrate disaster risk reduction investments and/or act as supplementary financing to strengthen disaster resilience of larger projects.

Source: EMI. 2015.

Nonfinancial

Nonfinancial incentives offer a nonmonetary reward for a change in behavior or practice, and/or improved performance. Nonfinancial incentives and their potential rewards may include, but are not limited to, the following (Box 5):

Box 5: Example of Nonfinancial Incentive to Promote Disaster Risk Reduction in Naga City, Philippines

The Seal of Good Local Governance (formerly the Seal of Good Housekeeping) is an example of a nonfinancial incentive. The seal (award) is an initiative of the Department of the Interior and Local Government of the Government of the Philippines and contributes to the Philippine Development Plan's goal of inclusive growth and poverty reduction through enhanced local participation and good governance.

The reward for recipient cities is recognition for good governance, which means they can access concessional loans (such as loans from the Land Bank of the Philippines or Development Bank of the Philippines) and additional funds (such as from the Performance Challenge Fund described in Box 4). It incorporates disaster preparedness as one of the six core criteria to assess the performance of local government units, alongside good financial management, economic competitiveness, social protection, environmental management, and peace and order.

By incorporating disaster risk reduction as an element of good governance and tying funding mechanisms to good governance achievements, the national government can promote investments in risk reduction. Naga City, a recipient of the Seal of Good Housekeeping, has been rewarded with funds from the Performance Challenge Fund that the city was able to invest in disaster risk reduction.

Source: EMI. 2015.

Urban planning initiatives:

- incentives zoning to avoid hazard-prone areas *resulting in* a density bonus
- transfer of development rights from hazard-prone areas *resulting in* a permit to build a higher-density development
- conservation easements over hazard-prone areas *resulting in* reduced risk for adjacent developments
- disclosure laws *resulting in* access to disaster risk information, thereby encouraging risk-informed decision making

Urban development initiatives:

- resettlement resulting in access to secure land tenure in less exposed locations, thereby reducing vulnerability
- access to code-compliant building and infrastructure designs *resulting in* disaster-resilient development
- free advice on design and construction and/or retrofitting of housing in hazard-prone area *resulting in* disaster-resilient housing
- free or low-cost building materials and tools *resulting in* compliance with building codes

Technical capability and capacity:

- provision of guidance and/or training on the preparation of risk-sensitive land use plans, policies, and procedures *resulting in* risk-sensitive urban development
- training of tradespeople in disaster-resilient construction *resulting in* access to knowledge and access to construction opportunities
- competency-based assessment and registration *resulting in* access to skilled and knowledgeable engineers
- training in livelihood diversification *resulting in* disaster-resilient communities

Access to technology:

- technology transfer *resulting in* access to new, locally appropriate disaster-resilient technology

Access to information:

- access to reliable and credible information about current and future risks resulting in informed risk-sensitive decision making
- access to knowledge of the city's investment in risk reduction resulting in increased investment by businesses and households

Awards or certification by an internationally recognized organization and/or endorsement of good practice:

- recognition for expertise in good risk reduction practice *resulting in* access to credit, concessional loans, and/or assistance program
- awareness building *resulting in* informed decision making

Participation by urban stakeholders in decision making:

- participation in decision making *resulting in* the potential to favorably influence disaster resilient development

The experience of the case study urban areas shows that different stakeholders have different needs and are looking for different rewards for their actions to reduce risk. The case studies have demonstrated that, in many cases, a combination of financial and nonfinancial incentives will be needed to meet the needs of the different urban stakeholders.

The experience of the three case study urban areas suggests that, in the context of disaster risk reduction, nonfinancial incentives (e.g., technical capacity, access to information, etc.) are likely to be at least as valuable as, if not more valuable than, financial incentives for governments wishing to encourage investments in risk reduction.

How Are Incentives Used in the Case Study Urban Areas?

Research into the three case study urban areas highlighted the limited way in which incentives are currently used in these cities to reduce disaster risk. The research from the case study areas found

- there were limited incentives that were designed with the primary purpose of reducing disaster risk,
- there were some urban development-related incentives that indirectly contributed to reducing disaster risk,
- there were a number of urban development-related incentives that were able to be modified to directly contribute to reducing disaster risk, and
- there were a number of urban development-related incentives that acted as disincentives to action to reduce disaster risk.

Box 6 provides examples of the four abovementioned different typologies of incentives.

Box 6: Examples of Incentives Currently in Use and Their Links to Disaster Risk Reduction

Example of an Incentive with the Primary Purpose to Reduce Disaster Risk

The Disaster Management Assistance Fund of the Government of the Philippines, which provides concessional loans to support disaster risk reduction objectives of local governments, is an example of a financial incentive. For training, capacity building, and other nonstructural interventions, these loans are limited to P20 million (\$434,590) for provinces and P10 million (\$217,295) for cities and municipalities. For equipment and infrastructure projects, these loans are limited to 60% of the borrowing capacity of the provincial or city government. (The borrowing capacity of the provincial or city government is determined by the Department of Finance.) The fund provides concessional loans with a 0%–1.5% interest rate (lower than market rate) for structural and nonstructural interventions. The requirements for repayment specify that loans must be repaid within the term of the local chief executive. The reward for city governments is access to subsidized loans for investment in risk reduction measures.

continued on next page

Box 6 *continued*

Example of an Urban Development-Related Incentive That Contributes to Reducing Disaster Risk

Access to intergovernmental grants and cash awards for municipal and city governments complying with minimum building performance measures in Nepal are examples of financial incentives. In addition to the intergovernmental grants that all municipalities receive for compliance with a set of minimum conditions (15 indicators) and performance criteria (40 indicators), the top three performing municipalities each receive cash awards of NRe100,000 (\$900). The next three top-performing municipalities each receive a cash award of NRe75,000 (\$700). A few performance criteria are directly related to improving building performance through design contributing to risk reduction. The remainder are associated with good governance, transparency, and service delivery.

Example of an Urban Development Related Incentive That Has the Potential to Reduce Disaster Risk

In Da Nang in Viet Nam, investors are able to access planning information on the city government's web portal, including the Da Nang City Master Plan and information about unoccupied land waiting for development. Users can search for locations, areas, and use of unoccupied land, as well as planning regulations, by street or area, and administrative information such as fees. While risk information is currently not available to investors on the web portal, there is both an opportunity and a mechanism for the city government to make such information available.

Example of a Possible Disincentive to Reducing Disaster Risk

In the Kathmandu Valley, developers need to obtain planning and building approval for high-rise apartments from six different government agencies. If a development does not pass the initial environment examination (25–50-meter structure) and environmental impact assessment (taller than 50 meters), the developer cannot apply for a planning permit from the Kathmandu Valley Development Authority. Building designs (and a detailed report) need to be reviewed by several teams of experts, including engineers. Final approval is only granted by the municipal government or village development committee after all of these approvals have been obtained. Coordination among approval agencies is inadequate. The building bylaws have requirements for ground coverage, floor area ratio, building setbacks, and road accessibility, but they do not specify the light penetration, air, and view of the neighboring sites. The requirements can be unclear and the time taken to obtain these approvals can take from 6 months to 36 months. The approval authorities are not always able to carry out regular monitoring of the construction works due, in part, to inadequate human resources. Some developers do not inform the authorities before commencing construction work, such as laying down of iron bars, casting reinforced concrete slabs, columns, and beams. The complexity of the process, the lack of clarity of requirements, and the time taken to obtain approvals all act as disincentives if they encourage developers to forego the formal approval process.

Source: EMI. 2015; ISET. 2015; Y.K. Parajuli and B.K. Shrestha. 2015.

Experience in the case study urban areas suggests that certain incentives for urban development are more commonly used by national governments to incentivize city governments, as well as by city governments to incentivize businesses, community-based organizations, and households. In some cases, these commonly used incentives may also be used to incentivize urban stakeholders—local governments, businesses, and households—to invest in reducing risk.

Incentives Used by National Governments to Incentivize City Governments in Support of Disaster Risk Reduction

Access to grants: In Nepal, the national government’s Minimum Conditions and Performance Measures (MCPM) system provides grants to municipal and city governments based on their performance against a number of indicators. The purpose of the MCPM system is to ensure good governance, transparency, and efficient service provision at the local level. Under the system, municipal and city governments are evaluated on the basis of their compliance with a set of mandatory minimum conditions (MC) and a set of performance measures (PM), which determine the size of the grant. Performance is measured annually and grants are adjusted accordingly. Among the many minimum criteria, four clauses contribute directly or indirectly to disaster risk reduction: Clause MC10 spells out the provision of building permits; Clause PM25 spells out requirements for repair and maintenance work; Clause PM30 spells out requirements for bylaws, working procedure, and directives; and Clause PM39 spells out requirements for emergency services and disaster management. Obtaining a building permit (MC10) requires compliance with building codes, thereby indirectly contributing to disaster risk reduction. Clause PM39 has led to municipal and city governments in the Kathmandu Valley establishing disaster management committees at the ward level, allocating budget to public awareness of local hazards (for street dramas, documentaries, rallies, and radio programs), as well as establishing networks (involving women, youth, and others) to share knowledge, activities, and disaster preparedness plans with other committees within the municipality and beyond.

In this example, city governments are incentivized to meet or exceed minimum requirements by rewarding them with a grant.

Access to loans: In the Philippines, the national government’s Disaster Management Assistance Fund provides concessional loans—up to 1.5% interest rate—to city governments for investment in disaster risk reduction as well as in activities such as risk assessments, risk reduction infrastructure, and/or capability and capacity building. To encourage action to be taken, these loans must be repaid within the term of the city government.

In this example, city governments are incentivized to invest in risk reduction by rewarding them with concessional loans. However, the requirement for loans to be repaid within the government’s term may deter some cities from accessing this opportunity.

Use of awards: In the Philippines, the Gawad KALASAG² award is implemented nationally by the National Disaster Risk Reduction and Management Council and the Office of Civil

² *Kalasang* is the Filipino word for “shield”. The KALASAG acronym in the award stands for Kalamidad at Sakuna Labanan, Sariling Galing ang Kaligtasan, which can be translated to mean “our own efforts are what will save us from disasters.”

Defense. The award program was originally intended to recognize outstanding performance of organizations in providing humanitarian assistance during disasters. However, since 2008, it has also focused on local-level disaster risk reduction. Naga City won the Gawad KALASAG award in 2004 and was awarded a \$1,000 grant. While the local stakeholders value the importance of Gawad KALASAG in terms of recognizing and rewarding the efforts of the local governments, the small amount of the grant awarded does not necessarily provide direct support for reducing disaster risk.

In this example, the city governments are incentivized to strengthen disaster risk governance by rewarding them with recognition and a token financial award.

Incentives Used by City Governments to Incentivize Large and Medium-Sized Businesses

Use of urban planning initiatives: In Da Nang, the city government has simplified investment approval processes in an effort to attract business investors to the city. This simplification of processes defers the strategic environmental assessment and/or environmental impact assessment until after the investment proposal has been approved.

In this example, large developers are incentivized to invest in the city by rewarding them with a simplified investment approval process, which reduces the time required for approvals and saves money. However, by allowing these developers to undertake the strategic environmental assessment and/or environmental impact assessment after the investment proposal has been approved, a perverse incentive may be created, rendering these assessments “tokenistic” and enabling developers to avoid investments that would reduce disaster risk.

Incentives Used by City Governments to Incentivize the Private Sector to Follow Risk-Sensitive Development

Incentives zoning to avoid hazard-prone areas: In the Kathmandu Valley, the existing building bylaws include two types of incentives for developers that encourage them to avoid hazard-prone areas. To facilitate construction of well-managed new housing and commercial buildings in residential zones, town extension zones, or in the urbanizing village development committees, developers are given extra floor area as an incentive. Real estate companies or developers constructing individual houses or commercial buildings in zones other than planned development area do not qualify for such an incentive.

In this example, developers are incentivized to register land and buildings by rewarding them with a reduction in registration fees. They also receive a reduction in land and building registration fees depending on the type and size of building. Women who own property receive a further reduction in registration fees.

Technical capability and capacity: In Nepal, recipients of the national government’s MCPM grants have conducted training in earthquake-resilient construction for masons and carpenters in partnership with the National Society for Earthquake Technology Nepal, the Society of Nepalese Architects, educational institutions, and development partners. Training has also been provided to municipal engineers. This training has strengthened their knowledge of earthquake-resistant construction in the Kathmandu Valley and provided masons and carpenters with opportunities for enhancing their income.

In this example, masons and carpenters are incentivized to build disaster-resilient buildings by providing them with access to training in earthquake-resistant construction and access to income-generating opportunities.

Incentives Used by City Governments to Incentivize Community-Level Actions on Disaster Risk Reduction

Technical capability and capacity: In Naga City, the Least Economically Resilient Communities Program, a city government program, aims to eradicate poverty through values formation—good citizenship, respect for others, and the environment—as well as low-cost, resilient housing, jobs, and access to potable water and power. The program makes use of participatory planning to directly engage program beneficiaries as a means to building community awareness and empower community members. In addition, the program includes training on disaster risk reduction so that as their economic opportunities expand, they invest more in their own safety.

In this example, communities are incentivized to participate in a program to eradicate poverty by providing them with infrastructure improvements, livelihood programs, and disaster risk reduction training.

Incentives Used by City Governments to Incentivize Households to Invest in Disaster Risk Reduction

Urban development initiatives: In Naga City, the Kaantabay sa Kauswagan (Partners in Development Program), a city government program, aims to address the absence of secure land tenure and the lack of basic infrastructure and facilities. The program is financed by the city government using 10% of the annual Urban Poor Trust Fund, a city government program. Qualified program beneficiaries are provided with land for housing and relocation through on-site and off-site redevelopment, usually in areas that are not hazard-prone. The city government also provides an allowance for building materials and endorsement of beneficiaries so they can access other social development programs. Beneficiaries cover the cost of construction and, through the program, have access to guidelines on housing construction.

In this example, households are incentivized to resettle by rewarding them with secure land tenure in less exposed areas, access to basic infrastructure, an allowance for building materials, guidelines on housing construction to reduce vulnerability, and endorsement for other social development programs.

Thus, while incentives are being used—by the national government to incentivize city governments and by city governments to incentivize a range of stakeholders—there is limited awareness of the potential for these to reduce disaster risk. This is primarily due to limited understanding of the level of exposure and vulnerability to local hazards and insufficient understanding of the fiscal risks posed by disasters to the city. The project research has found that the use of incentives to motivate investment in disaster risk reduction was likely to be limited if there was a gap in

- the understanding of disaster risk, including associated financial risks;
- the capacity and/or capability of the city government, particularly in relation to urban planning and/or development;

- the understanding of the motivators of urban stakeholders in regards to risk reduction; and/or
- the potential to leverage existing investment programs.

The project research has concluded that these four factors are key preconditions for the design of an incentive program for disaster risk reduction and for establishing and fostering an enabling environment.



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Designing an Incentive Program for Disaster Risk Reduction

Key Principles

Experience in the case study urban areas and discussions at the regional workshop suggest that two key principles underpin a successful incentive for disaster risk reduction: acceptance of incentives and participation in decision making

Acceptance of Incentives Principle

Experience suggests that an incentive program will only work if urban stakeholders believe they will benefit from their participation.

The acceptance of incentives principle suggests that for an incentive to succeed, urban stakeholders need to be shown that an incentive works to reduce disaster risk and that they will benefit. If a household does not believe that reducing the vulnerability or exposure of their house will benefit them—that is, there is no apparent reward from reducing their disaster risk—then there is no incentive.

In cases where urban stakeholders do not believe there is a benefit from reducing risk, an awareness-raising program may be needed first to demonstrate to them the benefit of investing to reduce their exposure and/or vulnerability.

Participation in Decision Making

Public consultation and engagement around issues of disaster risk in urban development have been shown to promote greater awareness and sharing of information about these issues.

In order to participate in decision making, the following are likely to be necessary:

- an understanding of the costs versus the long-term benefits of investing in disaster risk reduction, i.e., the result of awareness-raising and/or education programs; and
- an understanding of the importance of investing in risk reduction to a city's long-term socioeconomic development.

This would require research on cost of different types of measures to reduce disaster risk and their potential net returns in order to demonstrate the importance of such investments. Existing cost-benefit analyses can also be collated and placed in the public domain.

What to Do and When

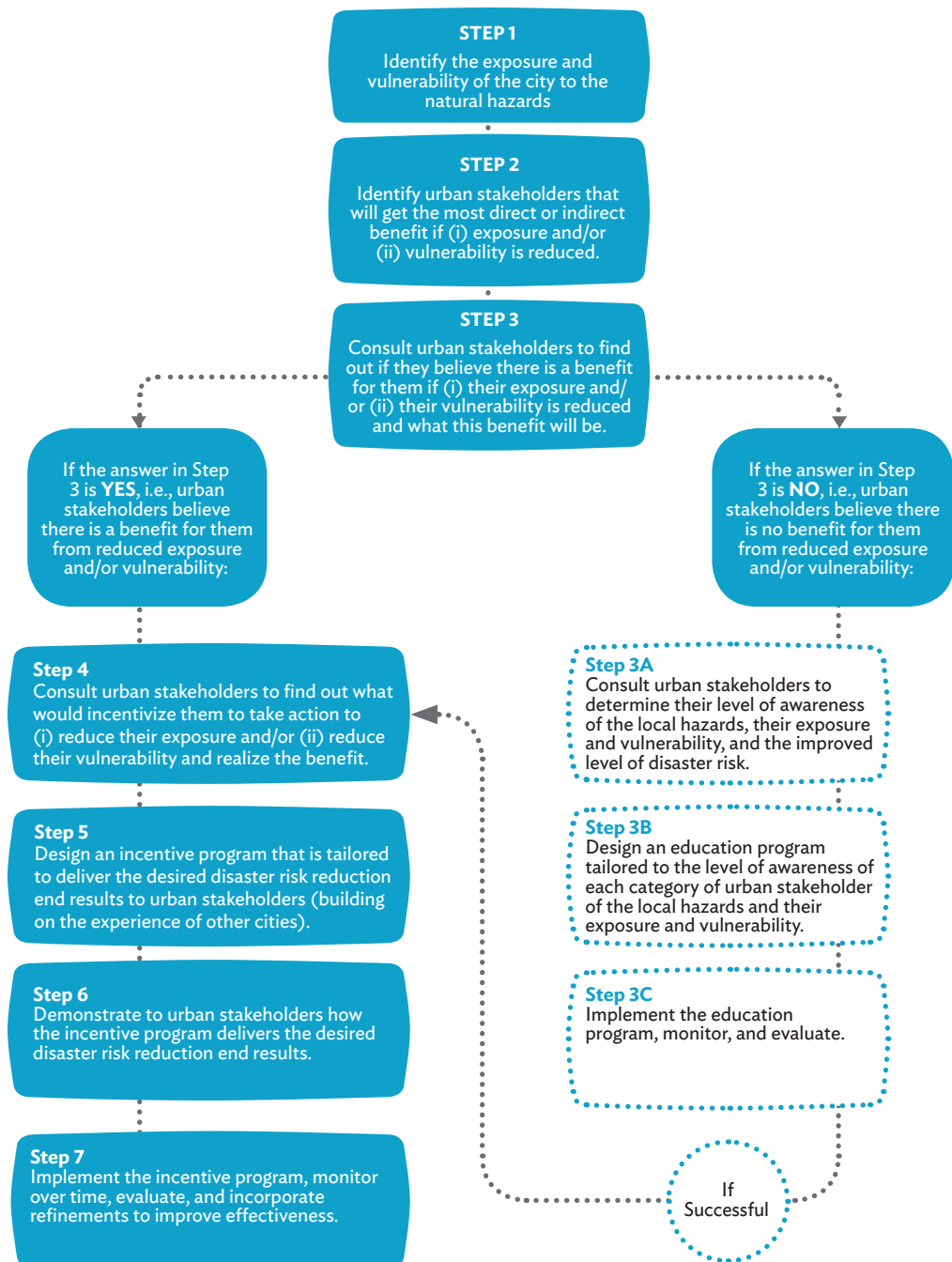
Experience suggests that city governments may need to follow a different sequence of steps depending on the following:

- their understanding of the risks faced by the city;
- the exposure and vulnerability of urban stakeholders, assets, and businesses to hazards;

- their understanding of other urban stakeholders;
- their awareness of the risks they face; and
- their motivation to reduce risk.

The following steps are those that city governments are likely to need to take in sequence depending on whether or not stakeholders believe there to be a benefit for them from reduced exposure and/or vulnerability (Figure 1):

Figure 1: Steps for Designing an Incentive Program



What to Be Aware Of

In designing an incentive program, it is important to avoid creating disincentives or perverse incentives (Box 7).

Box 7: Examples of Disincentives and a Perverse Incentive in the Kathmandu Valley, Nepal

In the Kathmandu Valley, a series of incentives exist for owners of homes in historic core areas (including World Heritage sites). The Department of Archaeology offers a 50% discount on the purchase of timber and 10% of the cost of cornice design. The relevant municipality offers reimbursement of a significant portion of the costs required for maintaining brick facades and timber door and window frames, and exemption from house and land taxes. To qualify, renovation or construction works need to follow building bylaws.

The long bureaucratic process to obtain these incentives and the quantum of the benefits are disincentives to eligible homeowners. In addition, these incentives have created a perverse incentive to demolish traditional houses in favor of new construction. The majority of new structures have ignored many bylaws. Failure to punish those that demolish traditional houses has also encouraged others to develop two set of drawings: one for submission to the municipality to obtain a building permit and another for the construction of houses on the site.

Source: Parajuli, Y.K. and Shrestha B.K.(2015).



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Preconditions for Design of an Incentive Program for Disaster Risk Reduction

While the three case study urban areas typically have in place the key elements of an enabling environment (Box 8) for an incentive program, there are a number of preconditions for design. Experience indicates that there are four preconditions for the design of a successful incentive program to reduce disaster risk. The case studies suggest that city governments meet some but not all of these preconditions, albeit not to the extent likely to be required. The case study urban areas also reveal that inputs from both national and city governments are likely to be needed if the city is to develop the required understanding and/or capability in the following four areas:

- An understanding of the disaster risks, including associated financial risk faced by the city, as well as the exposure and vulnerability of urban stakeholders, assets, and businesses to natural hazards
- A capable city government with the capacity to make use of disaster risk information to reduce exposure and vulnerability and to motivate urban stakeholders to invest in reducing risk
- An understanding of urban stakeholders, the awareness of the risks they face, and their motivation to reduce risk
- An understanding of existing investments in the city that are able to be leveraged to reduce risk

Box 8: Features of Enabling Environments for Establishing Incentives for Disaster Risk Reduction

For national and city governments wishing to use incentives to motivate urban stakeholders to invest in reducing risk, an effective enabling environment will be key. Experience from the case study urban areas suggests that there are a number of features of enabling environments that will support the establishment and fostering of an incentive program for disaster risk reduction.

These key factors can be grouped into four categories:

Political

- Alignment of national and city government goals
- Coherent and coordinated urban development and disaster risk reduction-related legislation, regulations, and policy across the national and city governments
- Secure political tenure

continued on next page

Box 8 *continued*

Institutional

- Urban planning policies, development control regulations, and procedures
- Building code and regulations, and development control procedures
- Mechanisms for monitoring compliance with urban land use plans and development regulations (including building codes)
- Incentives code and/or act and guidelines for implementation
- Investment promotion strategy that explicitly encourages “hard” and “soft” investments to reduce disaster risk
- Collaborative intergovernmental and/or institutional arrangements and decision-making processes
- Mechanisms for enabling local agenda setting with communities (or bottom-up planning)
- Mechanisms for professional development and capacity building within the government
- Disaster risk assessment information and data
- Disaster risk management policy clearly setting out roles and responsibilities of different stakeholders
- Regulations on postdisaster nature and levels of public support
- Financial risk information and data

Legal

- Security of land tenure
- Urban and/or land use planning and building acts
- Intellectual property licenses that enable data to be processed, used, and redistributed without cost

Socialcultural

- Communities mobilized and organized, able to make collective decisions
- Communities able to build constituencies and networks as well as collaborate with the government
- Communities with knowledge and practices to adapt livelihoods and protect natural resources and exchanges and/or academies exist to facilitate knowledge sharing
- Communities with access to secure livelihoods
- Women, the young, the elderly, and people with disabilities recognized and participate in collective decision making

Source: Authors.

Experience in the field of disaster risk reduction (more broadly) suggests that the following factors may also be preconditions for the design of an incentive program for disaster risk reduction:

- alignment of national and city government goals for risk reduction and, more broadly, inclusive and sustainable urban development, and
- an understanding of the city as a system, a dynamic and complex environment made up of a number of interrelated systems.

The experience of the case study urban areas shows that before embarking on the design and implementation of a successful incentive program, investment in understanding the risks that face the city and in building the capacity and capability within the city government to make use of risk information will be required. Furthermore, experience also suggests that the scale of this investment should not be underestimated.

An Understanding of the Risks

Understanding the risks faced by the city—the exposure and vulnerability of urban stakeholders, assets, and businesses to prevailing hazards—is a precondition for incentivizing investment in disaster risk reduction. Experience shows that urban stakeholders who understand the potential risks from local hazards are more likely to avail themselves of incentives to avoid developing risk-prone areas, and make decisions on investment or construction solutions to respond to changing disaster risk. Additionally, awareness of risks increases business and community support for city-level risk reduction efforts.

While city governments are increasingly recognizing the need for reliable and credible information on disaster risk, they face a range of challenges when it comes to obtaining sufficiently detailed information on local risks and being able to make use of this information locally, to inform planning and investment decisions. City governments may, for example, have access to detailed regional risk assessments but not detailed information on local risks. They may have access to local risk information, but it may be too technical, or in a format and using terminology that is not understood by those city government agencies and officials who need it to guide planning and/or investment decisions. Detailed information on local risks may exist but may not be shared with urban stakeholders by the city government due to concerns that this information may deter new investors to the city. Without sufficient information on risk, it is difficult for the government to discuss, let alone design, incentives to encourage urban stakeholders to invest in risk reduction measures, be it through urban planning or broader urban development initiatives.

Based on the experience of the case study urban areas, city governments should consider the following and ensure the message on disaster risk is conveyed in a simple and transparent manner (Box 9):

- Take into consideration hazards beyond the boundaries of the city, if these are likely to increase the exposure and/or vulnerability of urban stakeholders and assets.
- Capture risks, both current and future risks, to facilitate long-term planning and risk-informed decision making.

- Document local risk assessments in a format that is able to be used and understood by all city government agencies as well as incorporated into investment decisions at a local level.
- Develop guidance on the use of local risk information, including how this information can be used to inform planning approvals and investment decisions.
- Disclose information on risks together with details of risk reduction measures within the city to manage any risks of disclosure for investment.
- Make local risk information available to all urban stakeholders so they can assess the risks for themselves and make risk-informed investment decisions and rational risk management decisions.
- Communicate local risk information to raise awareness within the city by publishing on web portals and in mass media.
- Dedicate resources to keep local risk information updated to ensure that it incorporates changing risk nature and scale of disaster risk.

Box 9: Getting the Message Across

Knowledge Empowers

Experience has shown that simply understanding the level and nature of disaster risk that urban stakeholders face can in many cases incentivize them to act to reduce their risk. Knowing which buildings are more or less safe, for example, means urban stakeholders know which to use as shelter or avoid during a disaster. As a minimum, knowing the level of risk empowers those at risk to take action to minimize their risk. As knowledge improves, businesses and governments benefit from access to technical expertise.

More than Just the Risks

While public awareness of localized disaster risks is important, so too is the public awareness of the city's active disaster risk reduction and preparedness measures. Flood markers, evacuation routes, warning systems, and public announcements are only effective if the public understands what the warnings mean and how to use markers and evacuation routes safely. Public awareness of the city's active disaster risk management measures may also incentivize them to invest.

Disclosure of Disaster Risk Information

Some cities provide considerable planning information on web portals. The Da Nang web portal includes maps of the Da Nang City Master Plan and information about unoccupied land awaiting development. Users can search locations, areas, and land use. Interested investors can obtain planning regulations by street or area. Administrative procedures, fees, and some regulations related to planning, such as land price and appraisal results, are also publicized to increase transparency. Risk information could be provided through the web portal, thereby encouraging investors to take risk-informed decisions.

Source: Authors.

A Capable City Government with Capacity

A capable city government with capacity is, first and foremost, one that is able to make use of risk information to motivate urban stakeholders to invest in disaster risk reduction. It is also experienced in the design and/or use of incentives. Finally, a capable city government is one that is able to implement and monitor an incentive program that motivates all urban stakeholders to invest in the reduction of risk in the city.

The case studies suggest that governments have varying degrees of capability and capacity in using risk information, in designing and/or using incentive programs, and/or in engaging with urban stakeholders in the area of disaster risk reduction. For instance, cities with existing capacity to engage with urban stakeholders may not have the capability to make use of risk information in ways that would motivate these stakeholders to act. Cities with existing capacity to generate and/or understand risk information may have no capability to design and/or use incentives, whether to stimulate economic investment in the city or to encourage sustainable and inclusive urban development.

Experience indicates that strengthening the existing capability and capacity of city governments—in the use of risk information, in the use of incentive programs, and/or in engaging with urban stakeholders in the area of risk reduction—will be needed if cities are to make use of incentives to reduce disaster risk (Box 10).

Box 10: Capability and Capacity of City Governments

In Using Incentives

In Naga City, Philippines, there is capability and capacity in the use of incentives focused on economic development and poverty reduction. While city government officials may be less familiar with the use of incentives for disaster risk reduction, this existing capability in the use of incentives for economic development and poverty reduction is likely to be relevant.

In Putting Policy into Practice

In Da Nang, Viet Nam, the city's efforts to minimize delays to investment proposal reviews and detailed site planning requirements put pressure on the city's Urban Planning Institute, which helps investors prepare detailed site plans. The limited capacity of the institute constrains its ability to respond to investors in a timely fashion. This can result in implementation getting ahead of detailed site planning.

In Disaster-Resilient Construction

In the Kathmandu Valley, Nepal, recipients of the national government's Minimum Conditions and Performance Measures grants have provided training in earthquake-resilient construction to municipal engineers. This training has strengthened the knowledge of earthquake-resistant construction in the Kathmandu Valley.

Source: EMI. 2015; ISET. 2015; Y.K. Parajuli and B.K. Shrestha. 2015.

Strengthening city government capability and capacity will need to take the following into consideration:

- Existing knowledge of the hazards to which the city is exposed and/or vulnerable, and the skills and experience to use this information
- Existing knowledge of the concept of disaster risk reduction in the urban context, and the skills and experience to use this information in land use planning, when appraising investment or project proposals, or when undertaking strategic environmental assessment
- Access to a range of technical capabilities within and across all key government agencies in the areas of risk-sensitive land use planning, risk assessment, and the use of geographic information system (GIS) and other mapping tools
- Capacity and capability of all organizations needed to participate in the process so that efforts are coordinated across the city government
- Knowledge of incentives, and the skills and experience to design and implement incentive mechanisms as well as to monitor and evaluate their effectiveness
- Existing ability to facilitate collaborative processes to develop solutions and make decisions about appropriate risk reduction measures
- Existing ability to coordinate multidisciplinary cross-sector teams and work with the national government and governments of adjoining municipalities and/or provinces
- Existing ability to coordinate investments by the public and private sectors
- Existing ability to lead disaster risk reduction planning processes

Experience shows that investment will be needed to fill the gap between the current capability and capacity and that this is needed as a precondition for a successful incentive program. The case studies suggest that peer-to-peer learning—within the country and between countries—must be a key element of any investment in strengthening the existing capacity and capability of city governments. Moreover, any investment in professional development and capacity building needs to be coupled with staff retention measures.

An Understanding of Urban Stakeholders

An understanding of urban stakeholders, their awareness of the risks they face, and what motivates them to act to reduce risk is key for cities seeking to foster an environment that incentivizes investment in disaster risk reduction. Experience suggests that urban stakeholders will have varying levels of awareness of the local risks and will be seeking varying rewards from any investments they might make in risk reduction. Box 11 provides an example from Da Nang.

Urban stakeholders with an interest in disaster risk reduction can be classified into five categories: (i) national governments; (ii) city governments; (iii) businesses (large, medium-sized, and small; new and existing; formal and informal; and land developers, industry [including construction], and service providers [planners, architects, and engineers]); (iv) community-based organizations; and (v) households. However, it should not be assumed that stakeholders in each category will have similar interests in reducing disaster risks.

Box 11: Different Interests among Different Stakeholders in Da Nang, Viet Nam

New businesses wishing to invest in the city do not typically have access to information on local hazards. Existing small businesses and households understand local hazards from firsthand experience. New business investors typically have access to funds, while existing small businesses and households may not. The incentives for these two groups of stakeholders to make decisions that reduce their exposure and/or vulnerability to natural hazards are likely to be different. New businesses wishing to invest are likely to see a benefit in access to information on local risks, so providing them with information may incentivize them to invest in reducing risk. Small businesses and homeowners may benefit most from access to funds, so rewarding those with financial resources may incentivize them to invest in reducing risk.

Understanding urban stakeholders, their varying awareness of the risks they face, and their motivations is a key precondition for designing an incentive program for risk reduction.

Source: ISET. 2015.

Specific lessons from the case study cities include the following:

- City governments need to understand the importance of disaster risk reduction in the context of sustainable and inclusive urban development.
- City governments need to understand the business cycle since business investments in risk reduction are contingent upon the returns from those investments.
- Small businesses and households may be unable to afford risk reduction investments or may systematically underestimate risks.
- Households require greater awareness and public information on disaster risk reduction.

The experience of the case studies suggests that city governments may benefit from understanding the following:

- What each stakeholder knows about their exposure to local hazards and their level of vulnerability, and what they could do (what actions they could take) to reduce their exposure and/or vulnerability
- What each stakeholder knows about the economic impact disasters as well as the financial trade-offs and consequences
- What each stakeholder believes to be the benefit of reducing their exposure and/or vulnerability, and the financial trade-offs and consequences they are prepared to accept
- What resources are available to each stakeholder to invest in reducing their exposure and/or vulnerability, and what resources each stakeholder needs or will incentivize them to act

Knowledge of Existing Incentive Programs in the City

Experience suggests there are existing investments in cities that may be leveraged to incentivize urban stakeholders to invest in disaster risk reduction. Investments in the case study urban areas included the use by national and city governments of financial and nonfinancial incentives to attract private investment, to strengthen planning and building controls, and to promote sustainable inclusive urban development (Box 12). In each case, cities had access to national funds and loans, and/or were recipients of investment programs that could be leveraged to reduce disaster risk. In Viet Nam, for example, there are many incentives to attract investors to cities, but these focus on stimulating economic investment, not reducing disaster risk, and do not factor in disaster risk reduction. In Nepal, there are initiatives in place to stimulate cities to comply with minimum building performance standards, but not to specifically target vulnerability to local hazards. In the Philippines, city governments have access to a range of funds, each with a different purpose and requirements for eligibility and use.

Box 12: Possible Incentives for Reducing Disaster Risk

Naga City Investment Incentives Code

In Naga City in the Philippines, the Naga City Investment Incentives Code of 1997 was enacted to encourage new investment in the city and complement the national government's investment incentives. Financial incentives include exemption from city taxes, charges, and fees. Nonfinancial incentives include, but are not limited to, assistance in securing permits, identifying business locations, and facilitating service connection with local utilities. Disaster risk reduction is not currently a goal of the incentives code but could be introduced.

Da Nang Web Portal

In the city of Da Nang in Viet Nam, the Da Nang web portal could be used to make available the flood maps, flash flood maps, river landslide maps, seashore landslide maps, and risk assessments to help investors make investment decisions and/or decisions on building designs to minimize disaster risk.

Science and Technology Development Fund and Disaster Protection Fund

In Viet Nam, the national Science and Technology Development Fund and Disaster Protection Fund provide funds for science and technology businesses that invest in scientific study and the application of new technologies. These funds support the study, implementation, and transfer of technologies, as well as the construction and application of environment-friendly technology, energy-saving technology, environmental treatment technology, and disaster protection technology. In Da Nang, the local university and research institutes could make a practical contribution to reducing disaster risk.

Source: EMI. 2015; ISET. 2015.

While none of these existing investments have been designed with disaster risk reduction as the primary purpose, some may be modified to contribute to reducing risk. In Viet Nam, for example, existing investment review procedures should include screening for disaster risk. By screening investment proposals for disaster risk and providing investors with the outcomes, the city government may boost investment in risk reduction. In Nepal, city governments could incentivize households to retrofit existing buildings to reduce vulnerability by providing additional financial incentives for complying with minimum building performance standards. In the Philippines, existing social development and/or poverty alleviation programs could be leveraged to encourage action by businesses and households.

Opportunities such as the following may exist and should be leveraged for risk reduction:

- Existing incentive programs under way in their cities, not least those focused on stimulating economic investment
- Existing social programs focusing on social development and/or poverty alleviation
- Existing compensation programs, rather than providing compensation for damage on a recurring basis, with a shift in policy to one of incentives for investment in reducing the risk of damage
- Other funds, such as the Science and Technology Development Fund and Disaster Protection Fund in Viet Nam

Understanding existing investments in a city is an important precondition for the design of an incentive program to reduce risk.

Alignment of National and City Government Goals

The alignment of the national and city government goals is a factor in establishing and fostering an enabling environment for incentivizing investment in disaster risk reduction. Whether an intergovernmental incentive program to shape local investment in risk reduction is likely to succeed will depend on the alignment of the goals of the national and city governments.

In cases where government goals are more aligned—for example, the national government has formulated a national building code and the city government has included in its building regulations a requirement to follow the national code—suggesting no fundamental differences between national and city government policy, incentive programs will need to focus on the capability and capacity of the city government to work toward these aligned goals. In such cases, incentives may be needed to encourage the development of city government policies consistent with the higher-level national goals. These may be financial or nonfinancial (such as technical assistance) and aimed at enhancing the city's commitment to achieving the shared goals.

In cases where government goals are less aligned, suggesting fundamental differences between national and city government policy, the provision of clear guidelines for implementation and, where possible, monitoring of compliance with these guidelines, may be needed to encourage city governments to comply with higher-level national goals.

Experience suggests that the goals of city governments across a country may differ in the extent of their alignment with those of the national government and, as such, the combination of incentive elements may need to be different for each city. A coercive intergovernmental mandate without accompanying funding does not prevent city government action to reduce local risk. Such arrangements have been shown to promote city government innovation, including leveraging other sources of funding or funding programs.

An Understanding of the City as a System

Acknowledging the city as dynamic and complex made up of a number of interrelated systems is a key feature of an effective enabling environment for investment in disaster risk reduction. Experience shows that an understanding of the interconnectedness of the systems that make up the city leads to the establishment of collaborative institutional arrangements that enable the development of risk reduction measures via collaborative means. Experience also suggests that collaborative institutional arrangements are critical in situations where financial resources for investment in disaster risk reduction are minimal.

Collaborative institutional arrangements are a feature of disaster risk reduction efforts in some countries and involve the active mixing of technical disciplines such as engineers, scientists, planners, and emergency managers, both formally and informally. Memorandums of understanding between agencies are used to define the scope and mechanisms of institutional collaboration as well as any cofunding mechanisms.

Conclusion

The use of incentives to encourage investment in disaster risk reduction in the three case study urban areas is new. The use of incentives for promoting urban development is, however, not new. In the three case study countries, both national and city governments were familiar with the use of financial and nonfinancial incentives to attract private investment, to strengthen planning and building controls, and to promote sustainable inclusive urban development.

While none of these incentives were designed with disaster risk reduction as the primary purpose, many of them have either indirectly contributed to reducing risk or, with minor modification, could directly contribute to risk reduction.

The opportunity exists, therefore, for national and city governments to leverage existing incentive and/or investment programs in their cities to encourage investment in disaster risk reduction. By taking advantage of this opportunity—to experiment, pilot, and/or test the use of incentives to encourage investment in risk reduction in urban areas—national and city governments will acquire valuable insights into the use of incentives and contribute to the emerging, global knowledge base on their use for disaster risk reduction.

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Incentives for Reducing Disaster Risk in Urban Areas

Experiences From Da Nang (Viet Nam), Kathmandu Valley (Nepal), and Naga City (Philippines)

This document summarizes experiences of Da Nang, Viet Nam; the Kathmandu Valley, Nepal; and Naga City in the Philippines in providing incentives for disaster risk reduction. It explains what incentives are, how they are currently used in the case study areas to encourage investments in disaster risk reduction, and how to foster an enabling environment for a successful incentive program. While these incentives are not designed with disaster risk reduction as the primary purpose, many of them have either indirectly contributed to reducing disaster risk or, with minor modification, could directly contribute to risk reduction.

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ASIAN DEVELOPMENT BANK
6 ADB Avenue, Mandaluyong City
1550 Metro Manila, Philippines
www.adb.org