

BRIEFING PAPER:

Cities in developing countries
and their development in
response to climate change and
resource scarcity



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SECTION 1

Introduction

Future Fit is a DFID Executive Management Committee initiative, to produce a vision and strategy for DFID's response to the challenges and opportunities that climate change and resource scarcity pose for poverty reduction and development. The Future Fit strategy asks the question what strategic shifts in front line sectors – Food, Water, Energy, and Cities are needed to protect development gains and respond to the challenge of climate change and resource scarcity. Answers to this question will feed into the review of the DFID business model and resource allocation. As part of this strategy DFID are undertaking a basic analysis around cities in developing countries and the potential for increased attention to cities in DFID as a response to climate change and natural resource scarcity. In this context this paper contributes to the analysis as a quick and brief overview.

The paper is structured with an overview of climate change in poor cities, including vulnerability and management challenges, followed by a problem analysis, on-going initiatives, including who helps to accelerate progress and example of the most urgent actions to accelerate progress. The final section describes key global partners in the Sector.

The paper has been prepared in a very short time span and hence, not all references have been cross-checked, so that evidence referred to in the paper may be inaccurate. Mitigation is largely left out, as this, to a great extent, should be supported through means other than bilateral assistance.



SECTION 2

Setting the scene

More than half the world's population already live in cities, and the number is headed for close to three-quarters of the population by 2050. The fastest growth has been in developing countries, where many cities already struggle to provide access to water, sanitation, and power for the poorest, as well as safety from natural disasters. In Asia and Latin America more than 60% of the population live in urban areas and in sub-Saharan Africa 50% of the population is anticipated to live in urban areas by 2020. Towns and cities in developing countries are growing at rapidly and settlements are often developed in marginalised areas, vulnerable to climate change and where poverty is high.¹

Few local or national governments plan for the growth of their low-income populations. In many urban settlements in low-income countries, the majority of residents live in informal settlements that exist largely outside the planning system, or contravene planning and building regulations. Partly as a result, they have inadequate protection of their rights through the operation of the law, including regulations and procedures regarding civil and political rights, environmental health, and protection from forced evictions. Many cannot get on voters registers, because this requires a legal address.

Although urbanization in low-income nations is normally associated with economic growth and caused by rural-urban migration that responds to the concentration of new economic opportunities in urban areas, an increasing share of government officials are concerned about what they consider to be “excessive urbanization.” Many are concerned that providing land and services to the urban poor will encourage more rural-urban migration, although there is little evidence for this in nations with successful slum upgrading programmes.²

¹ DFID (2012); UN-Habitat (2011); World Bank (2010); Danida (2008);

² Danida (2008) and others.



SECTION 3

Climate change challenges for cities in developing countries

Climate change and urbanization create one of the greatest challenges of our time and cities in developing countries with large numbers of poor people are the most vulnerable to environment and climate change impacts.³

3.1 Vulnerability

Cities only occupy about 2% of the earth's land, but account for 60-80% of the energy consumption and emit about 75 % of carbon emissions.⁴

Climate change threatens all countries, with developing countries being the most vulnerable. Developing countries are likely to bear 75 percent of the costs of damage produced by climate change. Even a 2 °C warming above preindustrial levels could result in GDP reductions of 4 to 5 percent in Africa and South Asia.⁵

Climate change is just one of the serious environmental issues facing cities today. Biodiversity loss and nitrogen pollution exceed safe planetary limits, even more than climate change. In addition, poverty is a more pressing and acute problem than climate change⁶.

Cities are particularly vulnerable in that the complex network of infrastructure on which a modern city depends, makes adjusting habitation patterns (e.g. planning informal settlements) all but impossible in the short term. Infrastructure such as bridges, subway systems, buildings and roads, the historic sense of place, and rootedness of residents are critical attributes of cities. These strengths of place can, however, become liabilities if the local ecosystems that they are based on are unable to adapt to the climate-induced changes.

The cities' most vulnerable people are the urban poor living in slums. They are at particularly high risk from the impacts of climate change and natural hazards as they often live on the most vulnerable lands (slopes and low lying areas) within cities, typically areas that are deemed undesirable by others and are thus more affordable. Residents are exposed to the impacts of landslides, sea-level rise, flooding, and other environmental hazards. Exposure to risk is exacerbated by overcrowded living conditions, lack of adequate infrastructure and services, unsafe housing, inadequate nutrition, and poor health. These conditions can turn natural and environmental hazards or change in climate into a disaster, and result in the loss of basic services, damage or destruction to homes, loss of livelihoods, disease, disability, and loss of life.⁷


³ E.g. World Bank (2011b); DFID (2012)

⁴ E.g. DFID (2012)

⁵ World Bank (2010)

⁶ World Bank (2010) and others.

⁷ Danida (2008)



The urban poor face multiple environmental burdens. Locally, the urban poor have typically faced a range of very serious environmental health problems in and around their homes and workplaces, including poor sanitation and drainage, inadequate water supplies, overcrowding, indoor air pollution and waste accumulation.

Many cities already encounter notable challenges in shaping adaptation. In general, cities throughout the world report that they are having difficulty obtaining financial resources, allocating staff time, communicating the nature of the program, generating interest among political officials and business, mainstreaming, and gaining the commitment of local elected officials and government departments. Municipal authorities often believe that their national governments have limited understanding of the challenges they are facing, and most have limited access to financial support from local, regional, national, and international sources.⁸

Several references⁹ summarise cities vulnerability to climate change as:

1: Vulnerability due to ineffective or non-existent land use planning and underinvestment in infrastructure:

- Many informal settlements in coastal cities are in low-lying areas, making them vulnerable to the effects of increased storm activity in the immediate term. Over the longer term, they are the first areas affected by sea level rise.
- Informal settlement on steep slopes is common. Vulnerability to storm events is more pronounced with the anticipated rise in extreme weather.
- Informal settlements are very deficient in infrastructure, including roads, drainage, potable water supplies, and sewerage. In the event of flooding, mobility is reduced, shelter is put at greater risk, and public health impacts are amplified, resulting in higher morbidity and mortality rates.

2: Vulnerability based on low quality housing with poor disaster resistance

- Much low-income housing is of poor quality, reflecting the lower incomes of the inhabitants.
- For informal settlements, investment is lower still since insecure tenure and poor land titling discourages investments.
- Even where actual investment in housing is significant, design, materials, and construction methods are often inappropriate for the increasing exposure to extreme weather and flooding.

3: Vulnerability based on low information and insufficient resources

- Low-income residents often have sparse information on vulnerability and market alternatives.
- Lacking information on the risks inherent in threatened informal settlements, they are uniquely subject to exploitation in the housing market.
- Given the costs of adaptation in urban areas, middle and upper income families can easily outbid the poor in the competition for public investment in infrastructure to adapt to climate change effects.

⁸ MIT (2012)

⁹ UN-Habitat (2011); International Housing Coalition (2011) World Bank (2010); IIED (2007/8) and others



- Heat island effects, which accentuate temperature increase in urban areas, may make cooling technology that much more critical, an added cost of urban living that will be unaffordable to most.
- Poor urban residents typically lack the resources to respond effectively in a crisis creating greater dependency on the poorly funded public and non-profit sectors.

The Organization for Economic Cooperation and Development (OECD) looked at the future vulnerability, of 136 port cities around the world in a recent study, based on current growth and development projections. Kolkata, India, heads the list of the top 10 cities at highest risk by 2070 in terms of population exposure to storm activity and sea level rise. Mumbai, India follows right behind, and Miami, Florida is the only city in the top 10 located in a developed country. The other cities listed are Dhaka, Bangladesh; Guangzhou, China; Ho Chi Minh City, Vietnam; Shanghai, China; Bangkok, Thailand; Rangoon, Myanmar; and Hai Phong, Vietnam respectively.¹⁰

3.2 Urban Management and Service Provision

Some major urban challenges related to environmental impact and climate change:¹¹

Urban planning in general and mainstreaming of environment and climate change in particular.

That most poor people live in unplanned (and often illegal) settlement is indicative of poor urban planning. Many local governments do nothing to provide unplanned settlements with infrastructure services, such as paved access, drainage, power, formal water supply, sanitation and solid waste collection etc. These limitations in local governments are, in turn, influenced by the tasks, responsibilities, powers, resources and structures they are permitted by higher levels of government. It is therefore important to understand the “bundle” of environmental, economic, social and political stressors that influence these.¹² Local Governments are generally under pressure to deliver on large backlogs in provision for infrastructure and services and to improve education, health care and security.

Second and third tier cities are the fastest growing and struggle with planning due to limited capacity and hence, have the lowest capacity to act on environmental challenges.¹³

There are good examples of city governments taking steps to reduce vulnerability, such as in the cities of Manizales in Colombia and Ilo in Peru. Local Governments here acted on one of the most difficult issues: avoiding rapidly growing low-income populations settling on dangerous sites – including those that will be most at risk from any increase in the frequency or intensity of extreme weather events.¹⁴

Flooding from upstream water bodies

Floods are among the most common causes of disasters in cities.¹⁵ The frequency of more intensive rainfall events in many parts of the world has increased, causing severe floods, landslides, and debris and mud flows while the number of rainy days and total annual amount of precipitation may have decreased.¹⁶ When storms or floods hit cities, it is generally low-income groups that are hit the hardest in terms of death and injuries. This is

¹⁰ World Bank (2010)

¹¹ IIED (2007/8); World Bank (2010); UN-Habitat (2011); World Bank (2011a); DFID (2012)


¹² E.g. IIED (2007/8); International Housing Coalition (2011)

¹³ DFID (2012)

¹⁴ IIED (2007/8)

¹⁵ Satterthwaite (2013)

¹⁶ IIED (2007/8)



especially true when they live in informal settlements. The devastation caused by storms and flooding to cities is not an inevitable result of climate change. A city government's ability or failure to manage city growth, to ensure that risk-reduction infrastructure is in place and that low-income groups can find shelter on safe sites, is key. Having early warning systems in place when storms approach, and measures to ensure those most at risk can and do move to safer locations when needed is also critical e.g. as in Mozambique supported by the Nordic Development Fund.¹⁷

Resource Scarcity (fresh water availability, food, energy)

Resource scarcity for a city can be defined by its catchment area where the city's resources are at risk, including scarcity of water, food, natural habitat (e.g. forests)¹⁸. The larger the city the larger the catchment from where city resources will be drawn and hence influenced by climate change. The infrastructure to provide these resources therefore needs to be extended, e.g. piping water from more distant rivers; food processing industries and associated transportation infrastructure etc.

Evidence shows¹⁹ that water stress affects increasing numbers of urban centres and their surrounding regions. In some regions, this is linked to long-term trends in decreased precipitation or to reduced river flows. But, in most regions, the contribution of climate change is not known and, at least at present, is likely to be more the result of rapidly growing demand and inadequate water management. In coastal areas sea level rise and pressure on groundwater resources increase salt water intrusion into coastal aquifers.

Climate change may affect food systems in several ways ranging from direct effects on crop production (e.g. changes in rainfall leading to drought or flooding, erratic rainfall in e.g. Tanzania or warmer or cooler temperatures leading to changes in the length of growing season), to changes in markets, food prices and the length of the supply chain. The relative importance of climate change for food security differs between regions. Urban and rural planning based on effective urban-rural linkages is therefore key to ensure food security to cities.²⁰

In Durban the productivity of dry land maize (a key subsistence crop) will drop to almost zero under projected climate change conditions. As a result, suitable replacement crops are being sought. This process includes: an assessment of community level food security requirements; field trials to test the productivity of identified alternative crops; a social assessment of the suitability of the alternative crops; an assessment of long-term feasibility; and the development of a food security action plan.²¹

Poor access to modern and efficient energy services has become one of the most critical infrastructure constraints to economic growth in many developing countries. With shifting rain patterns and reduced water flow hydroelectric schemes in some regions will affect electric power available to cities and consequently affect economic development.

In Tanzania 94% of the population relies on biomass fuels for cooking, primarily wood fuel, but also cow dung and other agriculture residues. In unplanned settlements as much as 70% of the total primary energy consumption is supplied by, often inefficient, biomass energy. The scale of market for wood fuel alone is in the magnitude of USD 650 million per year. Given the massive demand for charcoal in Dar es Salaam, pressure on natural woodlands


¹⁷ Nordic Development Fund (2011)

¹⁸ DFID (2012)

¹⁹ Satterthwaite (2013); IIED (2007/8) and others.

²⁰ e.g. FAO (20??)

²¹ IIED (2010)



and forests within 200 kilometers of the capital is high, and rates of deforestation and degradation are increasing. Deforestation (particularly around watersheds and water sources) has further knock-on effects due to reduced water flows.²²

3.3 Gender Vulnerability

Within poor communities, women and children tend to be particularly vulnerable to environmental degradation and natural disasters²³, because they have limited access to resources; restricted rights, limited mobility and a muted voice in shaping decisions.

In cities, the gender dimension of the impacts of climate change can be clearly observed. For instance, there is a gender imbalance in fatalities during disasters (e.g. floods and major erosions), because some social groups – most of them women and children – are not reached by early-warning information, cannot escape due to their responsibility for family care and constrained mobility, more likely to be in the home and shelters are not adequate to accommodate them safely.

On the other hand, the co-benefits of climate policies can have an immediate positive impact at the local level, when policies to enhance resilience imply improving infrastructure and services that are geared towards sustainable development with a strong emphasis on social aspects and participation, including the gender dimension. Therefore, both women and men need to be equally and meaningfully involved in planning and decision-making when adapting to climate impacts.²⁴

²² World Bank (2009)
²³ OECD (2009)
²⁴ Nordic Development Fund (2011)



SECTION 4

Gaps in understanding, coverage, knowledge, investment, leadership and policy direction

Understanding

There is much evidence, of which the above-mentioned studies comprise a small selection, on the specific vulnerability of poor people in urban areas to climate change. There is a widespread understanding of impacts, vulnerability and challenges posed by environmental degradation and climate change in cities. Almost all references indicate a clear link between climate change adaptation and poverty alleviation. So, reducing vulnerability to climate change and environmental health in the most vulnerable areas is generally where the urban poor live: in marginalised areas most prone to flooding, with limited drainage, unpaved access roads, poor water supply (salt water intrusion), limited sanitation and poor or no solid waste management.²⁵ In addition the poorer segments of a city cook their meals on wood fuel or kerosene, and mostly indoors, often causing respiratory diseases.²⁶ The poorest will also be hardest hit during heat waves.

There is also a wide acceptance and understanding that residents of cities, especially the rich, are the largest contributors to climate change and will be required to adjust their current lifestyles to mitigate climate change. Cities in developing countries, also have a segment of rich people that provide opportunities to change lifestyle to address mitigation, despite the overall political negotiation argument of the “polluter pays” principle.²⁷ Focus on urban transportation and heating/cooling of buildings, to reduce consumption of fuel and decrease the level of air pollution are examples. Addressing more efficient use of wood fuel (and hence addressing deforestation) will contribute to mitigation of climate change.

Coverage

Environmental management (and climate change adaptation) in developing country cities is poorly covered by both national and local governments as it is for most development partners.

Though many nations have published a NAPA, (National Adaptation Plan of Action) funds to implement this (should it cover cities) are often insufficient. Local governments have poor capacity to deal with environmental hazards and adaptation and limited resources are spent on infrastructure and services. But even competent and accountable national and city governments will only engage with climate change adaptation if it is seen as supporting and enhancing the achievement of development goals. Development partners need to learn how to be more effective in working with local governments. Despite growing recognition of the importance of supporting good governance, this rarely focuses on good *local* governance.²⁸


As a consequence of the above, gaps exist in both planning and investment of infrastructure to improve environmental services and invest in climate change adaptation.

²⁵ UN-Habitat (2011); World Bank (2011b); IIED (2007/8)

²⁶ Danida (2008)

²⁷ World Bank (2010)

²⁸ IIED (2007/8)



Most of the literature cited above describes responses to disasters. But several ²⁹ note the need to focus on disaster preparedness and disaster risk reduction; including early warning systems. This has great relevance but, as yet, has not influenced many city and national policies³⁰.

Knowledge

A wealth of information is available on cities and climate change, but there is a great need for improving guidance to cities in making use of this information. There needs to be balance between environment, social and economic objectives, turning the information into operational actions. Institutional structures will need to change as at present, city staff have limited capacity to deal with cross-sectoral issues, such as environmental hazards and climate change.

Knowledge and understanding of the private sector's ability/willingness to fund adaptation in developing country cities is poorly known. Some authors³¹ state that the private sector does little in climate change adaptation and others³² are firm believers that the private sector can make a significant difference. OECD recognizes that although public-private partnerships can enhance the impact of adaptation-friendly regulatory frameworks, the potential to establish public-private partnerships in low- and middle-income countries may be limited.³³

Investment


Only a fraction of the funds needed for investments in climate proofing is available. In low and middle-income countries alone, this is estimated to require between USD 10 billion and USD 40 billion per year. And this may well be under-estimated. A significant proportion of these investment needs are for cities to adapt or to build new and resilient infrastructure and services for informal settlements. It should be noted that even if funds at the international level were raised, cities would still not have direct access to these funds.³⁴

Leadership and policy directions

National and local policy in developing countries rarely reflects an integrated approach to climate adaptation. Therefore policy directions are needed with attention to the social and economic characteristics of resident populations to reduce, rather than reinforce, inequalities. Because resources are limited, national governments may give priority to infrastructure where development partners would give priority to poverty alleviation. Care should therefore be taken to identify who bears the greatest vulnerability to climate induced disasters in a given area and to develop policies with the goal of minimizing this burden. Increasing the participation of groups who have been typically marginalized – whether indigenous groups, low-income groups, women and/or racial minorities – can help to both reduce the distributional impacts of climate change and broaden the knowledge base used to tackle climate change.

Local leadership is crucial for bringing about changes in cities³⁵. And, although there is a growing awareness among larger city leaders that it is necessary to take action on environment and climate change³⁶, smaller (second and third tier) city leaders still have a

²⁹ World Bank (2012); Nordic Development Fund (2011); World Bank (2010); IIED (2007/8);
³⁰ IIED (2007/8)
³¹ E.g. IIED (207/8)
³² OECD (2009)
³³ OECD (2009)
³⁴ IIED (2009)
³⁵ Danida (2008)
³⁶ 3GF (2012)



wide knowledge gap on climate change and policy directions. The tendency is still to consider the approach sectorally. Policy-makers need to accept that climate change no longer should be considered a solely environmental challenge, addressed in isolation from other social and economic issues. Climate change in urban areas interferes with a wide range of existing and emerging policy challenges, among them poverty eradication, water supply and sanitation, scarcity of food and water, and population growth. When climate change is embraced as an integral part of these challenges, solutions can be designed to more adequately reflect and address its myriad impacts upon cities.³⁷

But also leadership from international agencies is limited. Most international agencies deliberately avoid urban initiatives, a decision usually justified by questionable assumptions about the relative scales of urban and rural poverty; disaster management is left to specialist disaster agencies; acting to reduce risk often requires actions undertaken in collaboration with many different agencies and most agencies like to operate in isolation; development agencies primarily work with national governments and long-term processes.³⁸

³⁷ UN-Habitat (2012)

³⁸ IIED (2007/8)



SECTION 5

Current development and knowledge

5.1 Who is helping to accelerate progress

City governments are the drivers for addressing risks through ensuring basic services.³⁹ Local governments play a vital role in financing and managing basic infrastructure and service delivery for all urban residents and basic services are the first line of defence against the impacts of climate change and natural hazards. To do so, institutional capacity needs to be strengthened and good governance promoted to deliver basic services and reduce vulnerability to climate and disaster risks is key. Local governments often do not have adequate staffing, technical skills or financial resources to address environment and climate change impacts.⁴⁰ But, they may have opportunities for own-source revenues.

The urban poor and civil society are on the front line.

The poor are particularly vulnerable to climate change and natural hazards due to where they live within cities, and the lack of reliable basic services.⁴¹ Since they are the hardest hit, they are needed in the process of understanding and implementing the most appropriate interventions. Their civil society representatives may help accelerate progress. This is demonstrated in e.g Karachi, where the Urban Resource Centre (a small NGO) influences urban planning by creating information sources upon which everyone can draw. This has shown how the questioning of government plans in an informed manner can force local government to listen and make modifications to its plans, projects and investments⁴². But also the earlier mentioned Durban process⁴³ demonstrates the importance of involving the vulnerable in the process of planning.

National Governments and Private Investors at the backline.

Evidence to demonstrate that National Governments and/or the private sector are drivers and accelerators in adaptation to urban environmental hazards, were not found in this short survey. Though it should be mentioned that some national agencies e.g. the water sector in Mozambique and local government authorities in Tanzania are used as mechanisms to channel funds to the local level⁴⁴.

5.2 What helps to accelerate progress

Significant financial support

Significant financial support to the local level is a main driver to accelerate progress in addressing environmental hazards and climate change adaptation. Since local governments rarely have direct access to global funds they need to leverage other existing and new

³⁹ E.g. World Bank (2010); DFID (2012)


⁴⁰ World Bank (2012)

⁴¹ World Bank (2010)

⁴² IIED (2007/8)

⁴³ IIED (2010a)

⁴⁴ Nordic Development Fund (2011); <http://www.worldbank.org/projects/P111153/tanzania-strategic-cities-project?lang=en>



resources to meet the shortfalls in service delivery and basic infrastructure adaptation.⁴⁵ Financial support for infrastructure is essential, but also support to capacity development is critical to make the right investments and to sustain these.⁴⁶

Mainstreaming of climate change into urban planning and infrastructure development

Good governance at the local level is essential to achieve sustainable results in environmental management and climate change adaptation⁴⁷. A first step in such a process could be to use a participatory process, involving relevant stakeholders from local government level to civil society and the private sector, to prepare a City and Community-based Adaptation Programme of Action. Only in a participatory process and by balancing environmental, social and economic objectives will cities be able to develop support from communities and city stakeholders for sustained program of action.⁴⁸

Areas where the poor live will pose special challenges. Adapting to climate change will require many cities to substantially improve their capacity in precisely those areas where past deficiencies have resulted in the proliferation of informal settlements.⁴⁹ These are: climate sensitive land use and urban planning; institutional coordination mechanisms and capacity support; drainage, flood and solid waste management; water demand and conservation systems; emergency management and early warning systems; responsive health systems; resilient housing and transport systems; strengthening of ecosystem services; diversification and protection of climate-affected livelihoods; and education and capacity building of citizens.⁵⁰

One of the most powerful measures of the quality of urban governance is the extent to which it reduces or removes the differentials in risk from serious injury, illness or premature death between high- and low-income groups in regard to both disasters and environmental hazards.⁵¹

An example of a successful climate change adaptation planning process is demonstrated in Durban, in two stages⁵²:

1. The municipality's Environmental Planning and Climate Protection Department encouraged and supported three pilot sectors (instead of a cross-sectoral approach) to develop their own municipal adaptation plans. This more sectoral approach encouraged greater interaction among the sectors and provided each with a clearer understanding of their needs and roles from an adaptation perspective (i.e. leading to a more cross-sectoral approach). It also highlighted how climate change adaptation could be used as a tool to address development priorities. A key reason for adaptation achieving such prominence in Durban is that adaptation or resilience-focused interventions offer the potential for development-linked co-benefits that are responsive to a context of poverty and underdevelopment.
2. Work has also begun on community-based adaptation planning (including support for reforestation projects that provide "green jobs") and on responses to slow onset disasters, food security and water constraints.

⁴⁵ World Bank (2010)

⁴⁶ E.g.:Nordic Development Fund (2011); World Bank (2010); IIED (2012); IIED (2009)

⁴⁷ World Bank (2010); IIED (2007/8)

⁴⁸ DFID (2012), World Bank (2010)

⁴⁹ International Housing Coalition (2011)

⁵⁰ IIED (2012)

⁵¹ IIED (2007/8)

⁵² IIED (2010a)



Flood control

A most pressing need for cities⁵³, and in particular for vulnerable areas, is flood control, by investing in early warnings and infrastructure (erosion control and drainage canals, storm-water drains, all-weather roads, solid waste management) etc. with focus on vulnerable areas. In Beira, Mozambique, flooding is an annual reoccurring event. The Mayor of Beira is therefore driving development of a new drainage canals (with investment support from the World Bank and capacity development support from Nordic Development Fund) and early warning systems to reduce impact from flooding.⁵⁴

In the Philippines five cities have demonstrated how federations or networks of grassroots organizations formed by dwellers in unplanned settlements are working in partnership with local governments to address disaster risks from floods (erosion and flooding).⁵⁵ At the other end of the range is a GIS Tool for Urban Adaptation to Climate Change and Flood Risk in Mozambique.⁵⁶

Upgrading of informal settlements

Most successful efforts to improve conditions in informal settlements build on existing efforts by the dwellers themselves, and are undertaken in collaboration with local government agencies.⁵⁷

Ignoring adaptation issues will, for many cities, simply mean a further deterioration of urban conditions.⁵⁸ In a holistic and participatory process of improving infrastructure in informal settlements, first steps therefore will include development of understanding of climate proofing and integrating this knowledge into development of the identified infrastructure needs; these may include water supply; sanitation; solid waste management; electrification; improved wood fuel stoves; all weather access storm-water drains; and, tenure, to secure improvements to housing with the opportunity to purchase insurance.

⁵³ IIED (2010c)
⁵⁴ Nordic Development Fund (2010).
⁵⁵ IIED (2010b)
⁵⁶ Nordic Development Fund (2011)
⁵⁷ Danida (2008)
⁵⁸ International Housing Coalition (2011)



SECTION 6

Key global partners in the sector

The enormity of the task at hand calls for a broad coalition of partners among international agencies, cities, and communities at large. And, according to several influential sources⁵⁹ the time is ripe to deepen the work being carried out jointly by active partners. The Cities Alliance is one of such, through which a coalition of cities and their development partners promote the developmental role of local governments and helps cities of all sizes obtain more coherent international support. The members include local authorities and development partners in Brazil, Canada, Chile, Ethiopia, France, Germany, Italy, Japan, Netherlands, Nigeria, Norway, Philippines, South Africa, Sweden, United Kingdom and United States of America, as well as Asian Development Bank, European Union, UNEP, UN-HABITAT and the World Bank.

The World Bank suggests that additional partnering is needed, including partnerships with the private sector, OECD, municipal associations such as C40, UCLG and ICLEI, the academic community, and leading-example cities. The private sector is emerging as a key partner in the climate change agenda. Such trade associations as the World Business Council for Sustainable Development, World Economic Forum, and individual firms with credible in-house urban research departments are developing innovative support programs with cities. The magnitude and urgency of climate change encourages an “all hands on deck” response.⁶⁰

Overall key partners supporting cities in climate change are:

United Nations Framework Convention on Climate Change (UNFCCC) under which the four funds specifically address adaptation: Least Developed Country Fund; Special Climate Change Fund; Global Environment Facility Trust Fund Special priority on Adaptation (under which the Pilot Program for Climate Resilience (PPCR) is administered) and the Adaptation Fund.

The World Bank has developed its own Climate Investment Fund to support effective and flexible implementation of country led programmes and investments. In addition the World Bank manages another ten funds and facilities.

Some networking projects include:


The **Rockefeller Foundation's** initiative called **Asian Cities Climate Change Resilience Network**, which aims to “catalyse attention, funding and action on building climate change resilience for poor and vulnerable people by creating robust models and methodologies.”⁶¹

UN-Habitat Cities and Climate Change Initiative, set up to promote policy dialogue, development tools, and implement pilot activities in a selected number of cities. The Cities

⁵⁹ World Bank (2012); World Bank (2010); IIED (2009); Danida (2008)

⁶⁰ World Bank (2010)

⁶¹ <http://www.acccrn.org/category/document-keywords-additional/asian-cities-climate-change-resilience-network-initiative>



Alliance and others are partners in this initiative, funded by the Government of Norway and UNDP.⁶²

The International Council for Local Environmental Initiatives (ICLEI) provides a framework to enable local governments to integrate climate protection policies addressing municipal concerns through its **Cities for Climate Protection Campaign**.⁶³ USAID has provided support to this effort.

The most prominent independent research institution identified on cities and climate change as part of this paper is the **Institute for Environment and Development (IIED)** and their Human Resettlement Groups publications on Environment & Urbanization⁶⁴.

⁶² <http://www.unhabitat.org/categories.asp?catid=550>

⁶³ <http://www.iclei-europe.org/ccp>

⁶⁴ E.g.: IIED (2012); IIED (2010a-c); IIED(2009); IIED (2007/8)



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DEFINITION:

Definition of resilience: Resilience is a product of governments, enterprises, populations and individuals with strong adaptive capacity. It indicates a capacity to maintain core functions in the face of hazard threats and impacts, especially for vulnerable populations. It usually requires a capacity to anticipate climate change and plan needed adaptations. An entity's resilience to climate change and variability interacts with its resilience to other dynamic pressures including economic changes, conflicts and violence.⁶⁵

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