

Chapter 11

Local Contexts: Rural and Urban Settings

This chapter discusses key similarities between urban and rural settings and the implications for adaptation. In particular, it looks at the fact that adaptation is already happening; it underscores the strong link between poverty alleviation and adaptation; it states the need for “good development” and “good governance”; and it examines the roles, comparative advantages and limitations of local governments, the role of communities and civil society as well as the role of the private sector. Finally, it discusses the key differences between rural and urban settings and their implications for adaptation.

About three-quarters of the world's absolute poor (those living on less than one US dollar a day) live in rural areas, which are generally understood to be sparsely settled areas typified by agricultural activities, small towns and resource-dependent livelihood activities.¹ A strong agricultural sector is key to reduce poverty (and therefore enhancing adaptive capacity) in rural areas. However, agricultural productivity in many developing countries is either stagnant or declining. Recent decades have seen declining levels of public investment in agriculture. Changing global trading conditions have made it harder for the poorest countries to take advantage of world markets to bolster economic growth and diversification. Stressors such as HIV/AIDS and the degradation of environmental resources, such as water, topsoil and ecosystems, are reducing the productive capacity of rural areas. Climate change threatens to exacerbate these negative trends unless measures are taken to build adaptive capacity in rural areas.

Urban areas have also undergone dramatic transformations in the last few decades. Since 1950, there has been a sevenfold increase in the urban population of low- and middle-income nations and a much-increased concentration of people and economic activities in low-lying coastal zones or other areas at risk from flooding and extreme weather events. Most of the world's urban population and most of its largest cities are now in low- and middle-income nations. In addition, the United Nations Population Division suggests that almost all of the world's population growth up to 2025 will be in urban areas in low- and middle-income nations (UNPD, 2006). The way in which this very large and rapidly growing urban population is served and governed has major implications for development and for reducing vulnerability to climate risk.

Rural and urban settings must not be considered in isolation of each other. They are linked by interdependent functions and complementary flows of people, goods, wealth, employment, information, and technology. Urban areas are important markets for rural enterprises, and rural productivity influences the prices and availability of food, fuel and many industrial inputs in urban areas. Rural-urban links are typically most important for the poorest, as people may live in one setting but work or rely on opportunities and assets in the other to diversify and accumulate livelihood assets. For example, low-income rural dwellers may rely on off-farm jobs and remittances from relatives that have migrated to urban areas, while urban dwellers may rely on seasonal farm jobs or rural relatives for social support. The impact of climate change on rural systems will have profound socio-economic implications for urban areas and vice versa. Impacts on agriculture, for example, may increase food prices and disrupt food supplies to urban areas or degrade key ecosystem services upon which urban areas rely (such as water purification).

11.1. Key similarities between urban and rural settings and the implications for adaptation

In addition to these general trends and understanding of urban and rural dynamics, there are some important similarities and differences that are worth highlighting within the context of climate change adaptation. These will have implications for how adaptation is integrated at the local level.

11.1.1. Adaptation is already happening

Rural communities have a long history of responding to climate variability and change, but with varying levels of success. These short-term coping strategies can form the basis of successful long-term adaptation strategies. However, care needs to be taken

as some of these coping strategies could prove to be unsustainable over time as climate change progresses, leading to a greater risk of maladaptation. For example, short-term adaptation strategies in response to a decrease in rainfall could include over-exploitation of groundwater resources, which could actually exacerbate vulnerability over the longer term. Innovative approaches and new technologies and monitoring of the effectiveness of strategies in light of changing circumstances are needed to make sure that coping and adaptation strategies remain appropriate. Rural communities can therefore be seen as “living laboratories” for adaptation, and hard-won lessons can be learned, communicated and fed into adaptation decision making at higher levels.

Urban centres are also already adapting to change. All successful urban centres are constantly adapting to changing economic and political circumstances – and do so through the choices and investments of their populations and enterprises as well as their governments. Their built environment and infrastructure has also adapted to cope with extreme weather events. So in one sense, urban areas already have adaptation processes under way. It is these adaptation processes that need to be adjusted to cope with the increased and/or new risks that climate change is bringing or will bring.

11.1.2. Strong link between poverty alleviation and adaptation

Both urban and rural contexts experience poverty-related challenges and trends. As noted above, rural areas have more poor people but the number of poor people living in urban areas has increased. Poverty is an important determinant of vulnerability to climate change. Lower-income groups are hit hardest by the combination of greater exposure to climate hazards (*e.g.* those living in makeshift housing on unsafe and/or remote sites), less capacity to cope (*e.g.* lack of assets and insurance), less adaptive capacity, less state provision to help them cope, and less legal protection. There are strong complementarities between reducing poverty and reducing vulnerability – in part because poverty reduction involves better provision of infrastructure and services, and because higher incomes increase the adaptive capacity of households.

But poverty must be understood in a more multi-dimensional, disaggregated terms if local-level adaptation is going to be effectively supported. Levels of poverty range from the “productive” or “active” poor (people who are poor and experiencing food insecurity but are able to take advantage of development opportunities), to the “transient poor” (those who are poor for a short period of time, often as a result of an external shock), to the severely and/or chronically poor (those falling far below the poverty line, having few or no assets and opportunities, and/or those who remain poor for most or all of their lives (Chronic Poverty Research Centre, 2005)). For example, rural households can range from large-scale commercial agricultural households and enterprises, to subsistence agricultural households and micro-enterprises, to chronically poor rural households that are no longer economically active (OECD, 2006a). The way in which these different households experience climate change and the measures that will help them adapt to its impacts will reflect the different livelihood strategies, asset bases, social networks, and access to markets and services that characterise their respective circumstances.

The tendency towards higher rates of poverty among women relative to men, and a more severe poverty experienced by women than by men, also need to be taken into account - for female household heads, and among women and girls living within male-headed households because of unequal intra-household distribution of power and resources, such as food and property (Kabeer, 2008; Demetriades and Esplen, 2008).

Where women and girls have fewer capabilities and resources than men, this undermines their capacity to adapt to existing and future impacts of climate change.

11.1.3. Need for “good development” and “good governance”

Adapting to climate change in rural and urban settings often consists of strategies and activities already being undertaken under the rubric of “good development”. In rural areas, for example, sustainable natural resource management and improved market access may be key to building adaptive capacity, while in urban areas the emphasis may be on provision of piped water or more robust and better situated infrastructure. Climate change is calling on development actors to think about what needs to be done more urgently or differently to meet these and other development objectives. Everything from information needs, infrastructure design, and technology use, to social networks, institutional arrangements, and management approaches must be considered. How can they be strengthened or adjusted to increase resilience to climate risks? The application of a *climate lens* may lead to adjustments to current practices, such as changing building codes, land subdivision regulations, land-use management and infrastructure standards. The sum of all these adjustments over time can build greater resilience without significant financial costs.

Making the necessary adjustments to support local adaptation will require “good governance” – that is, an agreement among all of the relevant components of local government to engage in this process, clarity in what each should do either independently or collaboratively, as well as efforts to partner with members of civil society and the private sector as appropriate. In urban areas, for example, this will mean involving a great range of government divisions and departments, some of which may be semi-autonomous public agencies. It will often need to involve many government agencies that work within sub-city or municipal levels and at higher (provincial/state and national) levels. Box 11.1 highlights the way in which co-operation and close partnership have allowed communities to adopt climate risk management strategies that support poverty reduction, and increased food security at the local level.

11.1.4. Roles, comparative advantages and limitations of local governments

“Local government” generally refers to the level of formal state governance closest to the people, and can consist of locally elected representatives, central government-appointed representatives, and publicly accountable decision-making and service-delivery organisations (Tyler, 2006). Local governments provide for the health, safety and welfare of communities through accountable decision making and service delivery. They oversee planning processes; construct, manage and deliver public services; establish and enforce policies and regulations; and educate, mobilise and respond to local opinion. Depending on the type or degree of decentralisation taking place within the country (deconcentration vs. devolution of authority), their authority in the planning and delivery of public services can vary.

Box 11.1. Climate risk management through Kenya's Arid Lands Resource Management Project (ALRMP)

Home to 10 million people, Kenya's arid and semi-arid lands have the lowest development indicators and highest incidence of poverty in the country. Over 60% of inhabitants currently live below the poverty line. Increasing population pressures, overgrazing and recurring conflicts between pastoralists and farmers all pose serious development challenges. These will be exacerbated by climate change, which is expected to bring increased frequency and severity of both floods and droughts.

In response to the devastating effects of past droughts — and the prospect of more frequent and/or extreme droughts as climate change intensifies — Kenya's Ministry of State for the Development of Northern Kenya and Other Arid Lands initiated the Arid Lands Resource Management Project. The objective of this project is to enhance food security and the delivery of social services, and to reduce livelihood vulnerability in 28 drought-prone arid and semi-arid area districts in Kenya. To build adaptation to climate change into this initiative, the Arid Lands Resource Management Project partnered with the Nairobi-based Centre for Science and Technology to implement strategies specifically designed to reduce the vulnerability of communities in the semi-arid district of Makueni to the impacts of climate change. As part of this initiative, climate and weather forecasts are being downscaled and communicated to farmers to help them select appropriate planting times. Local production systems are being diversified through the use of drought-tolerant crop varieties and better systems for collecting and storing seeds. Farmers have been trained in soil and water conservation; selection of seeds to fit climatic and land conditions; and early land preparation and planting. Also, such technologies as sand dams and drip irrigation have been introduced to improve access to water. Credit systems are being strengthened, allowing community members to pursue diversified or alternative livelihood activities.

Taken together, these interventions have built the resilience of the communities of Makueni to current climate variability and long-term climate change, helping to ensure that the development objectives of the Arid Lands Resource Management Project are achieved in the face of climate change. Integrating adaptation into this project has meant modest adjustments to ongoing activities (*e.g.* selection of new seed varieties), or the introduction of new activities already familiar in rural development programmes (such as building sand dams). Moreover, project implementation has relied upon co-ordination between different government divisions and partnerships with civil society. For example, the project has called for improved communication between government agencies responsible for agricultural extension, rural livelihood creation and seasonal forecasting. Academic researchers have assisted with specific activities, such as the selection of drought-tolerant seeds and the promotion of micro-credit opportunities, while community-based organisations (*e.g.* farmer associations) have been instrumental in community mobilisation and the actual implementation of field activities. The process shows how co-operation between local communities, district officers and researchers can enhance rural adaptive capacity to climate change by integrating climate risk management strategies that support poverty reduction and food security.

Local governments create an enabling environment for local adaptation action. They should provide a supportive framework of norms, standards, financial incentives, and other types of knowledge, services and capacities to help individuals, households and community organisations take decisions that reduce their exposure to climate risks. Local governments can play several roles in helping communities understand and reduce climate risks – *i.e.* as educator, planner, regulator, enforcer and manager. This largely involves building on their core functions, which include:

- *Political representation* of local population in provincial or national decisions. Local governments can act to ensure that grassroots socio-economic and environmental priorities are understood and adequately reflected in regional and national decision making and policies.
- *Strategic development planning* for infrastructure, housing, land use and allocation, and regulation of natural resources. Rural development planning and enforcement processes offer some of the most concrete entry points for integrating climate change adaptation, as highlighted in Chapter 12. The incorporation of adaptation issues in these processes can lead to the identification of new development priorities, revised strategies, supporting by-laws, and law-enforcement mechanisms, as well as monitoring and evaluation frameworks. The more participatory the planning processes, the greater the opportunities for addressing the conditions that shape vulnerability to climate risk and adaptive capacity.
- *Delivery of public service.* Local governments have a role to play in the provision of services such as water and sanitation, health, law enforcement, education, emergency response, social protection, energy, and engineering and public works, such as road repairs and maintenance. These services, if delivered efficiently and equitably, can go far in building the adaptive capacity of communities, particularly if the delivery mechanisms (especially infrastructure and technology) are selected or designed with a climate lens.
- *Raising and managing local revenue* (depending on the form and extent of decentralisation in the country). Through actions such as collecting taxes or charges (including licences) and allocating the finances to identified budget items, local governments are able to generate the revenue needed to support adaptation efforts. However, local governments in developing countries are often faced with financial constraints. Nonetheless, in cases where local governments are given the authority to raise revenues and allocate them to development priorities, addressing climate change adaptation may call for different levels and sources of local revenue, as well as for modified budget allocations.
- *Co-ordination of more localised development plans.* In some rural contexts, because the local government jurisdiction is vast, covering settlements over a large area, development planning at the grassroots level may be encouraged. The formulation of village-level development plans or micro-plans may help local governments in their own strategic planning processes. Civil society actors, who tend to operate more regularly at the grassroots level, can play an important role in ensuring that climate change adaptation is integrated into these localised plans and in making sure that these plans are adequately considered in district development planning processes.
- *Local administration.* Local governments are usually responsible for local administration, including human resources, which often includes the registration system for births, deaths, and marriages. Some of the information gathered and organised by local government administrations can be useful to the monitoring and evaluation of adaptation.

It is difficult to specify the most appropriate intervention points for adaptation within local government structures. There is such diversity in the forms of local government and their relationships to higher levels of government that it is difficult, if not impossible, to

generalise in regard to: (i) how much of the functions above fall explicitly to local governments; and (ii) the extent to which local government has internally allocated responsibility for planning, constructing and maintaining the buildings and infrastructure or the provision of services, co-ordination, finance, monitoring and regulation. In many urban centres, for instance, key functions are managed at the sub-municipal level (e.g. district or ward level). Also, many large cities are formed through the merging of many separate municipalities and experience serious constraints with respect to inter-municipal co-operation.

There are no obvious generalisations with regard to the “best” local government structures for climate change adaptation. For instance, it can be argued that local governments with a high reliance on intergovernmental transfers for funding infrastructure and services are at a disadvantage because this reduces the link between local needs and local resources – but some nations that have cities with high adaptive capacity are also highly dependent on these types of financial transfers. The need to root adaptation in local contexts and realities suggests primary roles for local governments; yet local governments often focus on short-term goals and often prioritise economic growth over longer-term risk reduction.

Some of the challenges and opportunities of local governments are applicable to both urban and rural contexts (Moser and Dilling, 2007). Local governments interact more directly with the local population and tend to be held more accountable to the constituents they serve than state and federal governments. Depending on the authorities in place, this can lead to more responsive governance, which is good for adaptation decision making. Local governments can also face severe financial constraints, making the prioritisation of development objectives and activities even more crucial in the planning process. The case for prioritising and/or incorporating adaptation must therefore be compelling and sound, especially in cases where the proposed measures have significant budgetary implications. Finally, because local governments are the level of governance ideally most attuned to responding to day-to-day local realities, it can be challenging for them to take a longer-term perspective, which can be necessary for climate change adaptation planning.

11.1.5. Role of communities and civil society

“Community” refers to one or several groups of people, usually with shared economic and cultural interests, living in close proximity at the local scale. Communities are themselves aggregates of individuals, households, and other local collectivities or institutions. As such, they are complex and dynamic, with identifying factors such as geography, culture, economic status, livelihood activities, language and/or religion creating divisions or linkages between people living in the same area.

Communities are the ultimate beneficiaries of development policies and strategies. The incentives offered by government policies should encourage individuals, households and other collectivities to take decisions that will reduce their exposure to climate hazards and/or increase capacity to withstand, cope or recover from their impacts. Thus, the role of local communities in local adaptation can be understood as:

- *Documenting and sharing information* on climate change, vulnerability and adaptation: Communities are often at the front lines of observing and experiencing climate variability and change. Thus, information about hydro-meteorological conditions, growing seasons, agricultural yields, local disease

patterns, and pest outbreaks should be collected and inform broader adaptation-related policies and programming.

- *Implementing adaptation decisions and activities:* As noted before, the process of translating knowledge and decisions into action is most visibly undertaken at the local level, and usually by individuals, households and other collectivities.
- *Sharing experiences and lessons learned:* Adapting to climate change is in itself a process of adaptive management, learning by doing. As the primary agents of adaptation action, communities are an important repository of experiences and lessons learned. These must be drawn upon to inform future actions – and policies that support actions – for adaptation.

Community participation in local-level processes is often realised through engagement with civil society organisations that represent grassroots interests and perspectives in different forums and decision-making levels. “Civil society” generally refers to non-state and non-private actors undertaking collective action around shared interests, purposes and values. They can be understood as those organisations that occupy the social space between individuals or families and the state or market. Civil society can include community-based (membership) organisations, co-operatives and regional, national or international NGOs. They tend to be most directly aware of, and involved in, day-to-day issues at the local level.

The role of civil society in the adaptation process is broad, sometimes overlapping with the roles of public- and private-sector actors. For example, civil society organisations can be subcontracted by government authorities to assist with the delivery of public services or receive funding from development agencies to implement adaptation programmes or projects. Nonetheless, their functions in supporting local adaptation are less about establishing and enforcing supportive policy and legislative frameworks but more about helping to inform them, promoting their transparency and accountability, and implementing adaptation actions. These adaptation functions can be understood in terms of:

- *Advocacy:* As the agents most directly linked to grassroots realities, civil society organisations can represent the community interests and priorities in local, and national, decision making. This role can be built upon when integrating adaptation into development policies and processes, with civil society actors making sure local conditions, trends, vulnerabilities and capacities are adequately reflected.
- *Research:* Civil society organisations can be important in the gathering and analysis of local-level information relevant to risk, vulnerability, adaptive capacity, and adaptation monitoring and evaluation. Again, their grassroots presence often provides them with more access to, and a better understanding of, detailed local data and knowledge.
- *Local awareness-raising:* Awareness is an important precursor to action, as communities need to know why they should adopt certain different measures and be informed of the risks, incentives and options associated with these measures. Civil society actors are knowledgeable of the most appropriate means for delivering messages to communities and are therefore instrumental in helping local governments inform their constituents of new or revised measures that seek to reduce climate-related risks.

- *Capacity building and training:* Adaptation strategies may require new or modified investments, livelihood activities, and behaviours. These, in turn, may require helping people and institutions to develop certain types of knowledge, abilities or skills. Civil society organisations are well placed to provide such support at the local level since they interface regularly with local actors and possess a detailed understanding of local priorities and capacity needs in a changing context.
- *Service delivery:* In many cities, civil society organisations are already helping local governments with service delivery in areas such as health care, water and sanitation, and disaster risk reduction. These roles will likely be strengthened as adaptation becomes more important in urban and rural settings.

11.1.6. Role of the private sector

Private-sector investment is widely recognised as central to poverty reduction, as it provides economic opportunities and improved access to essential services. The private sector at the local level consists of those collectivities that are not owned or directly controlled by the local or central government, whose activities usually generate economic profits. Examples can include local- and foreign-owned enterprises at different scales, from local restaurants and tourism operations, to large manufacturing plants and finance institutions. In developing countries, small businesses make up the majority of the private sector.

Businesses in climate-sensitive sectors have a direct interest in adaptation. Climate risks can undermine the infrastructure, energy supply and transport networks needed for business operations. Buildings located in hazard-prone areas may have to be moved or reinforced in light of climate change. Day-to-day operations that rely on steady water supplies may need to be redesigned as climate change constrains water availability. Supply chains reliant on climate-sensitive geographic areas may have to be diversified. Climate risks may translate into less disposable incomes and reduced market shares, while associated health risks may affect the productivity of the workforce. Reducing or managing these risks can translate into competitive advantage, cost savings (but perhaps not in the short-term), reduced liabilities, and investor confidence.

In addition to acknowledging and internalising climate change adaptation into their own decision-making processes (see Chapter 12), businesses can support local-level adaptation by serving a number of functions:

- *Provision of economic opportunities and growth:* Job creation, better incomes, improve access to social protection, and increased productivity from private-sector investment can increase household expenditure on key components of local adaptive capacity such as education, health and housing.
- *Service delivery:* Private-sector institutions can provide efficient delivery of state services (health, water), thereby increasing people's access to resources that are important to building local coping and adaptive capacity.
- *Political influence:* Businesses can often have more political influence than civil society, which should be leveraged for adaptation. Making the business case for adaptation should therefore be a priority for communities seeking to maximise access to influence of local and national governments.

- *Provision of financial, technical and human resources.* Private-sector entities may have access to innovations and technologies that help to reduce local risks (such as technologies for water conservation; more resilient buildings). They may have more sophisticated management skills needed to run large-scale development strategies. Formal and informal businesses may have access to networks that can help mobilise communities in areas such as general awareness-raising or early warning.
- *Public-private partnerships* can enhance the impact of adaptation-friendly regulatory frameworks. For example, “...the public sector sets a rigorous framework to reduce the physical risks, provides cover for high levels of risk or segments with high administration costs and sets the rules for a private market for other risks, while the private sector provides services and offers coverage for lower levels of risk and segments that are more easily accessible” (Dlugolecki and Hoekstra, 2007). However, the potential to establish public-private partnerships in low- and middle-income countries may be limited. In most rural and urban areas in low- and middle-income nations, governments do not provide the framework for risk reduction for lower-income households. It is difficult to see how insurance companies can offer good coverage at affordable premiums to low-income households that live in particularly dangerous sites to which governments will not provide infrastructure.

11.2. Key differences between rural and urban settings and their implications for adaptation

Despite the broad similarities described above, there are some important differences between urban and rural settings that cannot be overlooked when seeking to support adaptation at the local level. Urban and rural settings are characterised by, among other things, different population dynamics, settlement patterns, economic activities, environmental conditions, and levels of public investment. For example:

- Livelihoods in rural areas are typically based on the natural resource base, while in urban settings they are drawn from non-agricultural labour markets and the provision of goods and services;
- Individuals and households in rural settings tend to rely more on self-provisioning of goods and services (food, water, sanitation), while those in urban settings tend to rely more on cash to secure access to these goods and services;
- Access to land for housing is not usually a problem in rural settings, while it can be a serious one in urban settings, especially for the poor (OECD/DAC, 2000).

These and other differentiating characteristics result in different vulnerability profiles for rural and urban areas. Specifically, those characteristics that define rural and urban settings also shape:

- how climate change will manifest itself locally (more intense rainfall may mean flash floods in one setting, but not in another);
- the sensitivity of a system to change (livelihoods directly dependent on natural resources tend to be more sensitive to climate changes than those that are dependent on manufacturing, for example); and

- the capacity to adapt (some settings may have better access to public services while others rely more on social networks).

Cities concentrate people and production, and all the inputs and goods they use and the wastes they generate. By doing so, they are also concentrating a wide range of hazards. Moreover, urban centres in low- and middle-income nations concentrate a large proportion of the people most vulnerable to the effects of climate change. In contrast, rural livelihoods such as farming, forestry, livestock rearing and fishing, are natural resource-dependent and extensive. Climate change is expected to affect the productivity, distribution and overall functioning of the ecosystems upon which these livelihoods depend.

The drivers of vulnerability – *i.e.* the political economy of exposure, sensitivity and adaptive capacity – can also be different, but linked, in urban and rural settings. For example, increasing rates of rural-urban migration may result in the expansion of unregulated settlements in hazard-prone areas such as flood plains. In rural areas, a volatile global agricultural commodities market may lead to unpredictable income flows for farmers, leaving them less able to accumulate and diversify assets in order to prepare and cope for climate-related disasters.

Differences between rural and urban settings can also lead to different levels of adaptive capacity. That is, the resources needed and available to implement adaptation options may differ in each setting. For example, urban residents may have more access to economic infrastructure (roads, ports, and sewerage systems) or public services (telecommunications, health care, and electricity) than rural residents, who may rely more on the existing social networks and traditional knowledge to manage risk. Table 11.1 summarises some of the factors that enhance or constrain adaptive capacity in urban and rural settings. These are broad generalisations that are not necessarily applicable in all countries. But they illustrate some of the issues that must be considered when assessing vulnerability of people within these settings, and point to some of the different resources and tools² that may be most appropriate for supporting adaptation.

Table 11.1. **Factors enhancing or constraining adaptive capacity in urban and rural areas**

	Urban	Rural
Strengths	Greater access to financial resources	Strong social capital
	Diversified economies	Strong social networks
	Greater access to services (e.g. health care, social services, education)	Strong attachments to community
	Higher education levels	Strong traditional and local knowledge
	Well-developed emergency response capacity	High rates of volunteerism
	Highly developed institutions	
Limitations	Higher costs of living	Limited economic resources
	More air-quality and heat-stress issues	Less diversified economies
	Lack of knowledge of climate change impacts and adaptation issues	Higher reliance on natural resource sectors
	High dependence on potentially vulnerable electricity grid	Isolation from services and limited access
	Ageing infrastructure	Lower proportion of population with technical training
	Issues of overlapping jurisdictions can hinder decision-making ability	

Source: Adapted from Natural Resources Canada (2007), *From Impacts to Adaptation: Canada in a Changing Climate 2007*, Ottawa, Canada, <http://adaptation2007.nrcan.gc.ca>.

Finally, rural and urban communities usually have different (immediate) development objectives or different strategies for achieving similar development objectives, leading to different adaptation options and needs. Encouraging economic growth in an urban context may prompt increased investment in service-sector training, or expansion or improvement of infrastructure, while achieving the same goal in rural areas may be through improving market access for local farmers and promoting the diversification of livelihood opportunities. Protecting the achievement of these objectives in the face of climate change will require different *interventions*.

Notes

1. But rural economies are not purely agricultural. While largely dependent on agriculture, the rural poor also rely on non-farm (and sometimes non-rural) activities for income. Agro- or timber processing, retail trade, local transport, domestic services, tourism, and equipment repairs are all examples of non-farm livelihood activities that can contribute to a diversified income portfolio, allowing people to protect themselves against adverse shocks and trends.
2. A growing number of tools and methodologies are being developed to improve decision making, to reduce risks and facilitate adaptation to climate variability and change. They include information portals for climate data and adaptation activities, tools for screening development activities regarding climate risk, and guidelines to assist decision makers on implementing adaptation. See Annex A for an overview of some of the available tools and screening approaches to adaptation to climate change.



From:
**Integrating Climate Change Adaptation into
Development Co-operation: Policy Guidance**

Access the complete publication at:
<https://doi.org/10.1787/9789264054950-en>

Please cite this chapter as:

OECD (2009), "Local Contexts: Rural and Urban Settings", in *Integrating Climate Change Adaptation into Development Co-operation: Policy Guidance*, OECD Publishing, Paris.

DOI: <https://doi.org/10.1787/9789264054950-15-en>

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