

TOPIC GUIDE:

Building reciprocal rural-
urban linkages through
infrastructure investment
and development



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Welcome to the Evidence on Demand series of Topic Guides. The guides are produced for Climate, Environment, Infrastructure and Livelihoods Advisers in the UK Department for International Development (DFID). There will be up to 40 Topic Guides produced 2013-2016.

The purpose of the Topic Guides is to provide resources to support professional development. Each Topic Guide is written by an expert. Topic Guides:

- Provide an overview of a topic;
- Present the issues and arguments relating to a topic;
- Are illustrated with examples and case studies;
- Stimulate thinking and questioning;
- Provide links to current best 'reads' in an annotated reading list;
- Provide signposts to detailed evidence and further information;
- Provide a glossary of terms for a topic.

Topic Guides are intended to get you started on an unfamiliar subject. If you are already familiar with a topic then you may still find a guide useful. Authors and editors of the guides have put together the best of current thinking and the main issues of debate.

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Acronyms

AICD	According to the Africa Infrastructure Country Diagnostic
ADB	Asian Development Bank
ACHR	Asian Coalition for Housing Rights
CBOs	Community-based Organisations
DFID	British Department for International Development
DPU	Development Planning Unit
EKW	East Kolkata Wetlands
ESRC	Economic and Social Research Council
FAO	Food and Agriculture Organization
GDP	Gross Domestic Product
ICLEI	Local Governments for Sustainability
ID	Identification
IIED	International Institute for Environment and Development
IOM	International Organization for Migration
LDCs	Least Developed Countries
MDGs	Millennium Development Goals
MLSP	Migrant Labour Support Programme
NGOs	Non-governmental organisations
NRSP	Natural Resources Systems Programme
OECD	Organisation for Economic Co-operation and Development
PSP	Private sector participation
PUI	Peri-urban interface
SDI	Slum/Shack Dwellers International
SDGs	Sustainable Development Goals
TEEB	The Economics of Ecosystems and Biodiversity
UCL	University College London
UN	United Nations
UNDESA	United Nations Department for Economic and Social Affairs
UNESCO	United Nations Educational, Scientific and Cultural Organization
USD	United States Dollar



Executive summary

Infrastructure has a vital role to play in linking urban and rural areas together in ways that promote reciprocal benefits.

This document is designed to be a practical and analytical guide for development practitioners working to promote socially just, environmentally sustainable and resilient rural and urban development in rapidly urbanising low- and middle-income countries. It focuses specifically on Asia and Africa as the world's two most rapidly urbanising continents, and promotes the mutual benefits available for both urban and rural areas that can be gained by promoting their positive interdependencies and linkages.

The Guide presents evidence from the literature and examples from practice where infrastructure has been used to build and harness reciprocal rural-urban linkages. It also shows how DFID has historically championed a nuanced perspective on the potential benefits of urbanisation beyond a narrow focus on built up urban areas. If revitalised, such perspective could have a significant impact on guiding future infrastructural interventions not only by DFID but also by other bilateral and multilateral development agencies.

Current trends in urbanisation

The Guide begins (Section 2) by examining current urbanisation trends globally and specifically in Africa and Asia, and how these trends are increasing the importance of rural-urban linkages. It finds that current trends in urbanisation are intensifying rural-urban 'flows' and linkages in a process termed 'reciprocal urbanisation'. This process is opening up considerable opportunities for development practitioners to promote socially just, environmentally sustainable and resilient urban and rural development outcomes.

There are a number of reasons for this including the facts that:

- Asia followed by Africa are the world's two most rapidly urbanising continents. However, most of this growth is occurring with little or no infrastructure.
- Urbanisation does not just entail more people living in urban areas. It also often entails increasing movements of people, resources, and goods and services between urban and rural areas.
- Populations do not always fit neatly into urban and rural categories – and relying on such distinctions makes it harder to see complex urbanisation dynamics.

Maximising development potential – considering linkages between rural and urban areas

Section 3 of the Guide looks at different types of rural-urban linkages, how these have been overlooked in the past and ways they can add value to development programmes.

Despite being overlooked by development planners in the past, a large body of research now demonstrates that if development practitioners take advantage of the existing human and economic flows between urban and rural settlements, they can ensure infrastructure links these areas in ways that promote reciprocal benefits. Examining the movement of people, production and commodities, capital and income, information and ideas, natural resources, waste and pollution, and ecosystem services can offer strategic entry points for interventions.



Managing complex urbanisation dynamics – rethinking infrastructure planning

Section 4 identifies new ways of thinking that can help development practitioners optimise both the physical growth and expansion of towns and cities and the intensification of flows and interactions between urban and rural areas in building reciprocal rural-urban linkages. Building these linkages will require development practitioners to combine different planning perspectives (urban, rural and regional), and to think more broadly about the kinds of infrastructure that are required, and more critically about the governance systems that determine their provision. This includes the ‘hard’ infrastructure required to manage physical growth (e.g. roads, pipes, drainage), but also other types of infrastructure that can enhance positive movements of people, resources, and goods and services between urban and rural areas (i.e. enhancing ‘reciprocal urbanisation’).

Though past approaches focused on a 'growth pole' model of developing hubs and their connecting routes, research has shown that this did not have the desired 'trickle down' effect to surrounding areas. A regional network approach', which examines all the existing flows and interactions between diverse networks of settlement instead provides development practitioners with a useful framework for nurturing and developing reciprocal rural-urban linkages.

Managing social dimensions

Section 5 shows that, alongside economic considerations, development practitioners cannot afford to overlook social issues when addressing complex urbanisation dynamics. This section looks at the research behind a wide range of social issues relevant to advisers attempting to promote reciprocal urbanisation including: the necessity of considering rural and urban poverty as interdependent issues; how to protect vulnerable groups such as migrants and the peri-urban poor; and how to consider environmental and resilience issues in ways that support poverty reduction.

It finds that the costs of addressing infrastructure deficits are likely to be increasingly concentrated in peri-urban areas as cities continue to grow and expand, and that there is a need to guard the development of these areas against elite capture of resources, land and power structures.

Examples of infrastructure that build reciprocal rural-urban linkages

Section 6 offers advisers a range of real-world examples of how reciprocal urbanisation can work in practice, through a series of case studies focused on Asia and Africa. It looks at conventional interventions such as transport infrastructure and solid waste management systems, as well as soft infrastructure such as ID cards. The case studies focus on good practice, but also highlight potential challenges and pitfalls.

The importance of governance in building reciprocal rural-urban linkages: the example of water and sanitation

The report concludes by discussing the various approaches and governance arrangements that underpin pro-poor service delivery and infrastructure provision at the local level. This is viewed through the lens of a particular example of service delivery – that of water and sanitation (Watsan) services.



It finds that the peri-urban poor rarely have access to formal facilities and services operated by the public or the formal private sector, so a closer engagement with other actors (including CBOs that represent the most ill-served groups) is required to fill the gap.

Also, as local governments have a key role to play in providing infrastructure and services, and in fostering collaboration across administrative boundaries, they require adequate financial support and appropriate incentives from national governments and international agencies.



SECTION 1

About this Topic Guide

1.1 What is it for?

This Topic Guide is for advisers interested in the role that infrastructure can play in building reciprocal rural-urban linkages with the aim of promoting the positive interdependencies between urban and rural development. It focuses specifically on Asia and Africa, which, as the world's most rapidly urbanising continents, present development practitioners with a timely opportunity to ensure that future urban population growth contributes to rather than undermines this aim.

This Guide presents evidence from the literature and examples from practice where infrastructure has been used to build reciprocal rural-urban linkages that have promoted socially just, environmental sustainable and resilient urban and rural development outcomes.

This Guide introduces a 'regional network approach' that DFID and other development agencies can use to analyse rural-urban linkages and to fund appropriate infrastructure interventions aimed at promoting these development outcomes. The regional network approach examines and promotes the various 'flows' – involving, for example, people; production and commodities; capital and income; information and ideas; natural resources; waste and pollution; and ecosystem services – between cities, towns and villages in order to identify and nurture existing linkages between them. This approach differs from the single town-hinterland relation supported by the conventional 'growth pole' model by focusing on a wider spatial scale and a more relational perspective on economically diverse networks of settlements.

The evidence and examples presented in this Guide show how positive flows and interactions within these networks can be addressed interdependently through the provision of infrastructure.

1.2 Who is it for?

This Topic Guide is intended to serve as a resource for infrastructure advisers, although it is anticipated that it will be relevant to other interested development practitioners whose work likely involves infrastructure in some way. It has been written to appeal to advisers who are new to the topic, but also for those looking for up-to-date evidence on rural-urban linkages with respect to infrastructure.

1.3 Who wrote it?

This Topic Guide was produced by a team of senior researchers from the Bartlett Development Planning Unit (DPU) at University College London (UCL) with over 20 years of academic and practical experience on rural-urban linkages in Asia and Africa, as well as Latin America. Their work has included numerous scholarly publications and various contributions to policy reports by leading international agencies, including UN-Habitat and the Food and Agricultural Organization (FAO). The authors have also worked closely with DFID since the late 1990s to better understand the peri-urban interface, which is a subject



that now holds a prominent position within the literature on rural-urban linkages and on DFID's perspective on urbanisation and infrastructural development.

1.4 How is it structured?

Section 2 seeks to provide development practitioners with an understanding of the current trends, challenges and opportunities in urbanisation, both globally and in Africa and Asia specifically. Sections 3-5 aim to provide development practitioners with the advice and evidence required to promote the positive interdependencies between urban and rural development - otherwise referred to as reciprocal rural-urban linkages. This is split into sections focusing on ways to maximise and manage economic and development potential (3), physical growth and the sustainability of the natural resource base (4) and social inclusion and equality (5). Section 6 presents a number of case studies to show how a range of types of infrastructure, and the services they support, can help build reciprocal rural-urban linkages in practice. Section 7 concludes by discussing the centrality of local governance in infrastructure provision and service delivery, viewed through the lens of water and sanitation.

Box 1 Key terms and definitions

Urbanisation: The increase in proportion of a country's total population living in urban areas.

Reciprocal rural-urban linkages: The mutually beneficial interdependencies between rural and urban development.

Urban population growth: This is the net result of migration, natural population growth and reclassification of administrative boundaries.

Circular migration: Describes the fluid movement of people between areas, usually for the purpose of employment (IOM 2008).

Small and intermediate urban centres: An urban area with a population of $\leq 500,000$ (Satterthwaite 2006b).

Ecosystems services: Ecological systems that sustain vital services for urban areas, which depend on supplies of food, water and other natural resources from the surrounding region, as well as on ways of disposing their wastes (Tuts 2012).

Ecological infrastructure: Includes watersheds, wetlands, aquifers, mangroves and other natural features that work to support ecosystem services.

Environmental sustainability: Development that protects and enhances ecosystems (and the services they support) and natural resources and that limits and where possible reduces climate change.

Climate change: Changes in global climate attributed to human – or anthropogenic – activity.

Mitigation: Actions to reduce the drivers of man-made (anthropogenic) climate change, notably the curtailment of greenhouse gas emissions.



Adaptation: Actions to reduce the vulnerability of a system (for example, a city), population groups (for example, a vulnerable population within a city) or an individual or household to hazards.

Resilience: The capacity to maintain core functions in the face of hazards, threats and impacts, especially for vulnerable populations (Satterthwaite 2013).

Social justice: Development that considers and actively addresses the needs, priorities and rights of the poorest and most vulnerable groups, while acknowledging the way in which gender, age, ability, class, ethnicity and religion shape the unequal distribution of developmental benefits.



SECTION 2

Current trends in urbanisation

Key questions answered by this section:

- What is the current urbanisation situation globally and specifically in Africa and Asia?
- How are current urbanisation trends increasing the importance of rural-urban linkages?

Key takeaways:

- Although levels of service provision can vary considerably within and between countries, urbanisation in Asia and Africa is generally occurring with little or no infrastructure, and without the local institutions and finance mechanisms required to address these deficits.
- Populations do not always fit neatly into urban and rural categories and relying on such distinctions often makes it harder to see intermediate locations (e.g.: small and intermediate urban centres and peri-urban areas) and to examine complex urbanisation dynamics.
- Urbanisation does not just entail more people living in towns and cities; it also entails increasing movements of people, resources, and good and services between urban and rural areas in a process known as ‘reciprocal urbanisation’.

2.1 The nature and scale of urbanisation

It is now widely recognised that, for the first time in history, the majority of the world’s population live in towns and cities. This transition entails profound changes – North America and Europe are now predominately urban, as are Latin America and the Caribbean, while Asia and Africa remain the least urbanised, but most rapidly urbanising continents (UNDESA, 2014). These changes imply that more people will be living in urban areas than ever before, and that, given the size of their populations, most of the world’s future urban population growth will occur in Asia and Africa.

Contrary to popular belief, **Asia, rather than Africa, is the most rapidly urbanising continent** with the urban population set to increase by 2050 by 1.4 billion, compared to 0.9 billion (UNDESA, 2014). Some observers also suggest that urbanisation in some African countries may be much lower than previously thought (Potts 2012). However, by most accounts, Africa’s urban population – particularly south of the Sahara – is increasing faster than its rural population, although growth rates can vary considerably both within and between countries (Parnell & Pieterse 2014).

2.2 Urbanisation with little or no infrastructure

What characterises urbanisation in Africa and to a lesser extent in Asia is the extent to which it is occurring without basic infrastructure and services and without the finance and governance structures required to provide them (Allen, 2014; UN-Habitat, 2011; Weitz & Franceys, 2002).



According to Africa's Infrastructure Country Diagnostic, the cost of addressing Africa's infrastructure deficit alone is estimated at approximately **USD \$93 billion per year**, or about 15 per cent of the continent's gross domestic product (Foster & Briceño-garmendia 2010). This factors in energy, information and communication technologies, irrigation, transport, and water and sanitation. However, this figure would be much higher if it also took into account the cost of housing and developing the institutional capacity required to build and adapt infrastructure to emerging risks (Ayers, 2009; Parry et al., 2009).

2.3 The importance of small and intermediate urban centres

The majority of the world's population, particularly in Asia and Africa, live in small and intermediate urban centres ($\leq 500,000$), which often have poorer access to basic infrastructure than large cities (Satterthwaite & Tacoli, 2003b; Tacoli, 2004; UN-Habitat, 2006; WaterAid, 2010). While income-generating opportunities for migrants are increasing in cities, most non-farm activities remain concentrated in small towns and large villages. These settlements typically have stronger linkages with their hinterlands and other settlements than large cities (Satterthwaite and Tacoli, 2003). They also play important roles in supporting the livelihoods of the poorest groups (including those lacking the means to migrate to larger cities) and in providing basic infrastructure and services to their own populations and to that of surrounding areas (Satterthwaite & Tacoli, 2003; WaterAid, 2010).

2.4 Unclear urban and rural distinctions

2.4.1 Issues with classification

Despite the frequency of smaller urban settlements in the developing world, these often do not meet the varied official criteria to be formally classified as urban. Take India for example, which appears on paper to be predominately rural, even though most of its population lives in small and medium-sized towns with between 500-5,000 people (Satterthwaite, 2010b). These settlements remain classified as villages and are therefore considered rural, but it could easily be argued they would be better defined as urban. If they were reclassified, the majority of India's population would be living in urban areas. This could be applied to many other countries as well.

2.4.2 Issues with defining boundaries

There are also problems with defining urban areas based on their administrative boundaries. On one hand, boundary reclassifications that suddenly include surrounding areas can significantly increase the population of urban centres, as can combining the administrative boundaries of cities within larger metropolitan regions. For instance, many of China's major cities are within urban clusters, such as the Pearl River Delta (including Hong Kong, Guangzhou, and Shenzhen), which if combined under a single metropolitan area, would be among the world's largest cities (Satterthwaite, 2010a). On the other hand, cities can greatly understate their populations if the large settlements that have developed around them are excluded (ibid).

Thus it is important to recognise that populations do not always fit neatly into urban and rural categories, and relying on such distinctions often makes it harder to see patterns relating to urbanisation (Brenner & Schmid, 2014).



2.5 The importance of the interface between rural and urban areas

One of the first attempts to challenge the unclear rural-urban division was led by DFID under its Natural Resources Systems Programme (NRSP), which back in the 1990s funded a multi-million pound research programme on the peri-urban interface (for a concise overview see Simon et al. 2006, page. 9). The peri-urban interface is the area on the outskirts or hinterland of a town or city where urban and rural land uses meet and mix.

A key advancement of the above programme was to identify at least three different approaches for defining the peri-urban interface (see Dávila, 2006). These included an emphasis on physical attributes (including proximity to the city); socio-economic differences; and rural-urban flows and interactions. These approaches marked an important move towards understanding the peri-urban interface as a meeting of urban and rural activities – in effect a process rather than a place (Allen, 2003; Brook & Dávila, 2000; Simon et al., 2006).

2.6 Reciprocal urbanisation

Research on reciprocal urbanisation in Namibia (Frayne, 2005) has shown that urbanisation goes hand-in-hand with growing reliance on food transfers from rural to urban areas and remittance flows from urban to rural areas. These reflect high degrees of social reciprocity between urban and rural households that support them in responding to different shocks.

Reciprocal urbanisation appears to be relevant in other low- and middle-income countries where the flow of people, food, capital, information and so on, are intensifying as households adapt to increasingly difficult economic and environmental circumstances (see Lynch 2005; UN-Habitat 2008, page 216; Tacoli 2009). As this process unfolds, the flows and interactions that link different locations together are becoming as important as the locations themselves. This process further undermines the rural-urban division and highlights the need for a nuanced perspective on urbanisation dynamics. This includes a greater focus on reciprocal rural-urban linkages.



SECTION 3

Maximising economic and development potential – considering linkages between rural and urban areas

Rural-urban linkages can add significant value to development programmes and infrastructure investments by promoting the positive interdependencies between urban and rural development.

Key questions answered by this section:

- What is the added value of promoting rural-urban linkages in development programmes and infrastructure interventions?
- What has happened in the past?
- What types of rural-urban flows and interactions can be supported in the future?

Key takeaways:

- Infrastructure has a vital role to play in harnessing reciprocal urbanisation by linking urban and rural areas together in ways that promote reciprocal benefits.
- A large body of research and analysis is now calling on development practitioners to take advantage of the considerable human, economic and ecological flows and interactions between settlements, to ensure infrastructure links urban and rural areas in ways that promote reciprocal benefits.
- Reciprocal urbanisation presents unique opportunities to drive development, plan more inclusive and sustainable cities, and improve infrastructure and services in ill-served areas.
- Rural-urban linkages can add significant value to infrastructure interventions.
- Examining the movement of people, resources and capital ('flows') can offer strategic entry points for infrastructure interventions aimed at building reciprocal rural-urban linkages.

3.1 Flows and interactions between urban and rural areas

A growing body of research shows the extent to which urban and rural areas and intermediate locations are interlinked by complex flows and interactions involving: people; production and commodities; capital and income; information and ideas; natural resources; waste and pollution; and ecosystems services (see Allen, 2003; Douglass, 1998; Hofmann, 2013; Lynch, 2005; McGranahan et al., 2004; Tacoli, 1998, 2006; Tuts, 2012; UN-Habitat, 2008, pp. 216).

These flows and interactions can be mutually reinforcing or undermining, leading to either reciprocal or opposing relationships between urban and rural development (Douglass, 1998). Ensuring that these flows and interactions deliver reciprocal benefits will become increasingly important in countries where urbanisation is fast occurring. Infrastructure thus has a vital role to play in linking urban and rural areas together in mutually beneficial ways.

Figure 1: Rural-urban flows and the role of infrastructure interventions. Source: Adapted from Douglass (1998) and Allen (2003).

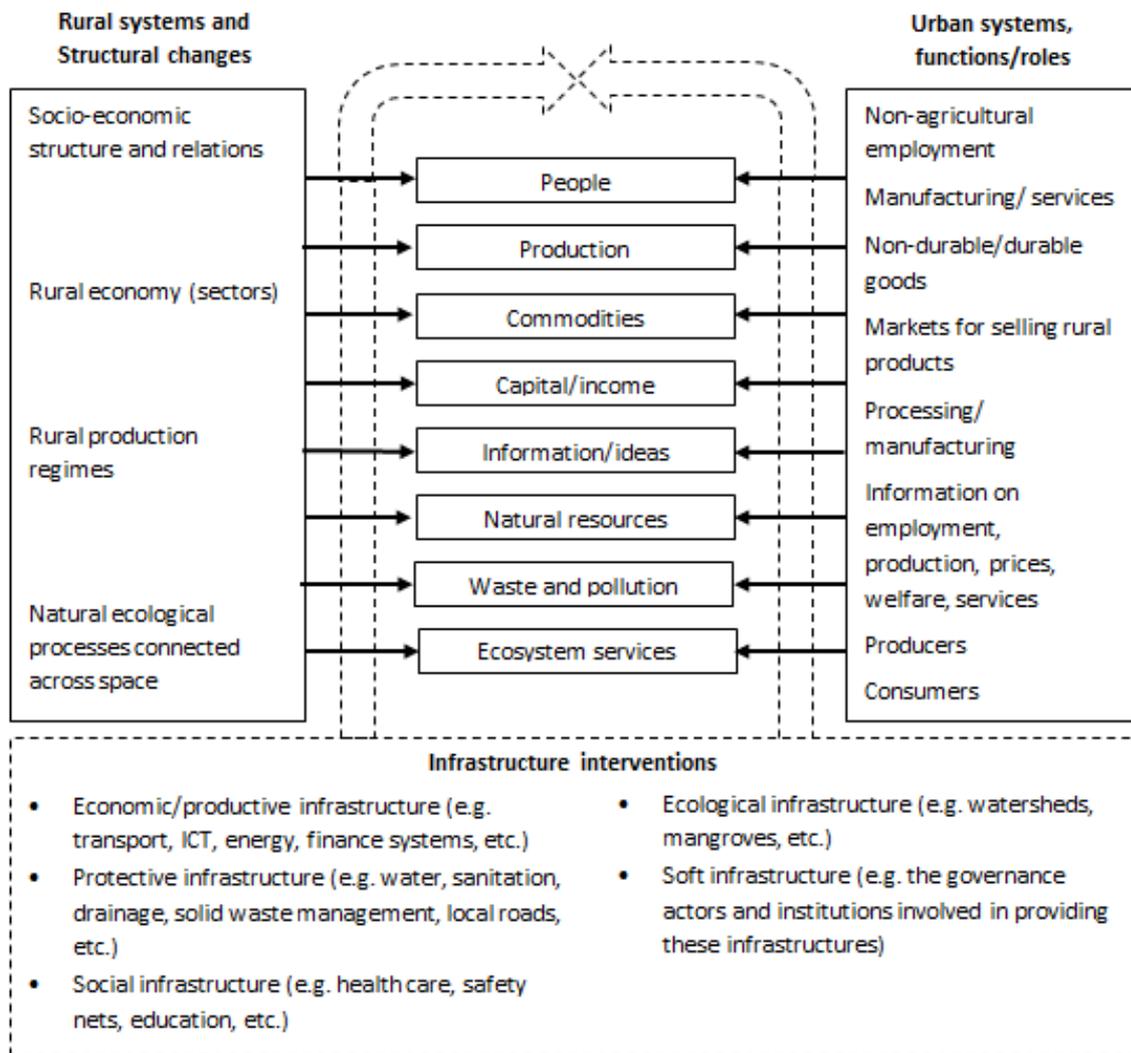


Figure 1 provides development practitioners with a framework for analysing and promoting reciprocal flows and interactions between urban and rural areas and outlines the different types of infrastructure that can help to support them. These types of infrastructure are further discussed in section 6.2 based on the lessons presented by a series of case studies (section 6.1).

3.2 Why has development policy traditionally overlooked rural-urban linkages

Despite evidence on rural-urban linkages, development has traditionally focused either on urban or rural areas, without considering the interdependencies between the two (Douglass, 1998; Tacoli, 1998). This has been heavily criticised for promoting rivalry between public agencies and for reinforcing administrative divisions separating urban and rural areas in local planning and management (Douglass, 1998; Simon et al., 2006; UN-Habitat, 2008). These rivalries and divisions are underpinned not just by traditional ways of thinking about development, but also by institutional structures and incentives.

For example, urban planners and policymakers often target investments at people and settlements that fall within their urban administrative boundaries, and often build incentives



to attract urban-based manufacturing activities to growth centres and capital cities through the development of economic infrastructure (Douglass 1998). As a consequence, the provision of infrastructure – including water and sanitation, roads, drainage, sewerage, but also infrastructure supporting non-farming productive activities – has often neglected populations in rural and intermediate locations, while missing important opportunities to build reciprocal rural-urban linkages.

3.3 Examples of rural-urban flows that can be supported

There are a range of flows and interactions between urban and rural areas that can be used by development practitioners as entry points to develop interventions that have reciprocal benefits. These include the two-way movement of people, capital, information, ecological services and more.

A number of examples detailing some of these interactions can be found in the section on case studies (6.1). These include:

- Movement of people to reduce poverty (both peri-urban \leftrightarrow urban and rural \leftrightarrow urban)
- Movement of waste to support peri-urban livelihoods and urban waste management (urban \leftrightarrow peri-urban)
- Movement of capital investment to finance the construction of new housing and services - though this needs careful consideration (international \rightarrow peri-urban)
- Movement of information and income to support previously disconnected rural and urban households (rural \leftrightarrow urban)
- Movement of ecosystem services to improve water and food security, reduce poverty and build resilience in the context of climate change (rural \leftrightarrow urban)

These flows and interactions provide development practitioners with a set of entry points for developing interventions that have reciprocal rural-urban benefits. However, given the wrong kind or use of infrastructure, these benefits can be undermined, as exemplified by the case study on the flow of international capital into the construction of peri-urban housing (Section 6.1.4). Therefore it is vital for development practitioners to understand how best to achieve these benefits by:

- adopting planning perspectives that transcend the rural-urban divide
- examining rural-urban linkages and their local variations
- conceptualising infrastructure to address both consumption and production needs
- engaging critically with the governance systems that ultimately determine how, where and what type of infrastructure is provided and for whom



SECTION 4

Managing complex urbanisation dynamics – rethinking infrastructure planning

New ways of thinking can help development practitioners manage and optimise both the growth and expansion of towns and cities and the increasing intensity of flows and interactions between urban and rural areas to build reciprocal urban-rural linkages.

Key questions answered by this section:

- Why do development practitioners need to think differently about infrastructure in order to build reciprocal rural-urban linkages?
- What new approaches offer a way forward?

Key takeaways:

- Building reciprocal rural-urban linkages will require development practitioners to combine different planning perspectives (urban, rural and regional), and to think more broadly about the kinds of infrastructure that are required, and more critically about the governance systems that determine their provision.
- Avoid the 'growth pole' style of development planning, which focuses on a limited number of growth centres and their connections with their hinterlands.
- A 'regional network approach' – which examines existing links between diverse networks of settlements – provides development practitioners with a useful framework for identifying, nurturing and developing reciprocal rural-urban linkages.
- Urbanisation should be planned proactively to take advantage of reciprocal flows and interactions

4.1 Integrate planning perspectives

Infrastructure that aims to build reciprocal rural-urban linkages must integrate different planning perspectives (Allen, 2003). These include:

1. The urban perspective – which seeks to transform planning systems and their allied institutions.
2. The rural perspective – which tends to focus on localised and discrete actions.
3. The regional perspective – which seeks to act upon rural–urban flows and pressures between settlements at a broader territorial scale.

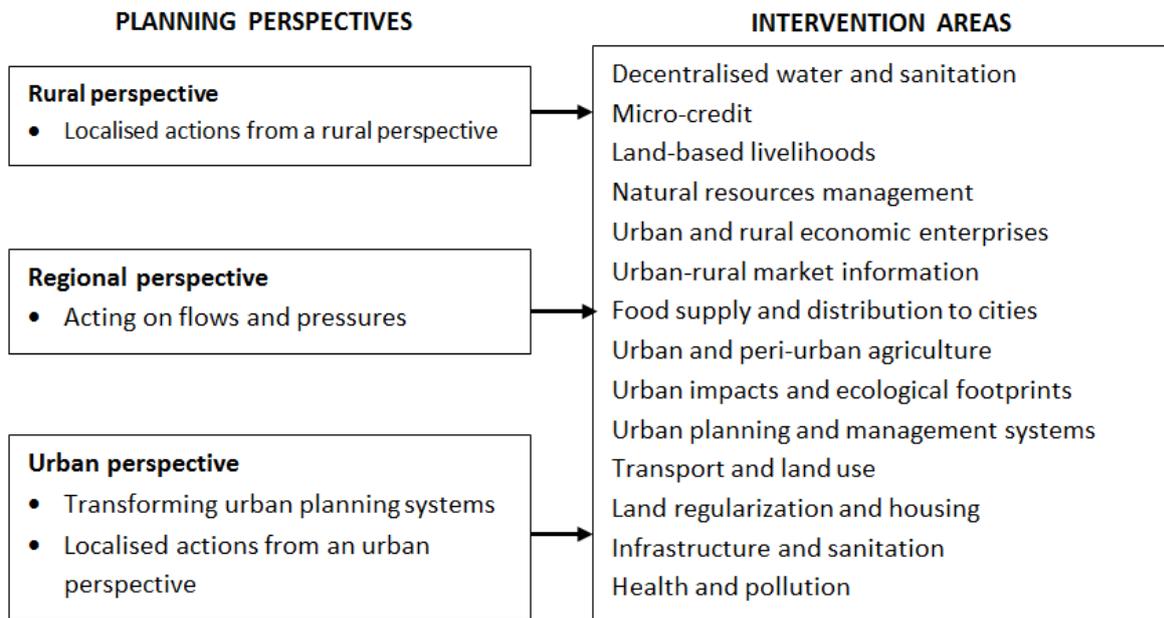
When each planning perspective draws from the others, the boundaries between them become increasingly blurred, while the potential to build synergetic interventions increase.

Consider, for example, how localised interventions aimed at improving land-based livelihoods (such as peri-urban agriculture) are likely to strengthen the linkages between agricultural production systems and urban markets, while enhancing food security (for more information see the case study in Section 6.1.3). Or how regional planning interventions

initiated by urban authorities are likely to promote collaborative efforts with rural authorities, which could lead to the extension of infrastructure into ill-served peri-urban areas.

Figure 2 illustrates how each planning perspective relates to specific intervention areas, many of which are either directly or indirectly relevant to the infrastructure interventions outlined in Figure 1 above. A key consideration for development practitioners is how these interventions can strengthen productive activities while addressing wider inequalities, particularly relating to access. The potential of infrastructure to either reduce or reinforce inequality is discussed in Section 6.1.4.

Figure 2: Planning perspectives and intervention areas. Source: Adapted from Allen (2003).



4.2 Avoid outdated models for distinct rural and urban growth

As the literature commonly suggests (see Allen, 2003; Douglass, 1998; Tacoli, 2006; UN-Habitat, 2008 pp. 216), there is a need to move beyond development models with separate ‘rural-agricultural’ and ‘urban-industrial’ objectives towards new approaches that link these objectives together.

Among the most outdated models is the growth pole, which was implemented widely in low- and middle-income countries during the 1950s and 1960s (for a critical review see Parr, 1999). Its policies directed public infrastructure investments towards a limited number of designated growth centres to attract manufacturing, and towards the construction of trunk roads to link growth centres with capital cities as gateways to markets. The core assumption behind these policies was that the benefits of urban industrialisation would eventually ‘trickle-down’ into rural areas. As a result, little parallel attention was dedicated to the promotion of rural development.

Meanwhile, while many cities in high-income countries (and some middle-income countries) have become engines of economic growth, many low- and middle-income countries – particularly the least developed countries (LDCs) – have remained highly dependent on agriculture and natural resources (UN-Habitat 2008, pp. 216). In such countries, scholarly



assessments during the height of growth pole policy era highlighted their widespread failure to meet their core objectives (Parr, 1999).

4.3 Consider basic infrastructure as vital for economic growth

Infrastructure must now be conceptualised to encompass not only large-scale physical interventions to promote economic growth but also other types of infrastructure and services required to sustain lives and livelihoods in urban and rural areas. This must include basic infrastructure (e.g. safe drinking water, adequate sanitation, drainage, sewerage, local roads, electricity etc.) and services (e.g. education, health care, solid waste collection, etc.) as vital not only for social welfare, but also to sustain broader economic growth and development (Douglass 1998).

Furthermore, while most basic infrastructure interventions focus on consumption needs, they can also contribute to meeting small-scale production needs. Take, for example, the widespread use of water in agricultural irrigation (Allen et al., 2006a and 2006b) or the use of biodegradable urban waste in peri-urban agriculture (Hofmann 2013). These practices highlight areas where infrastructure can provide services that support the livelihood strategies of poor households, while also contributing to other objectives, in this case improving water and food security. Advisers should therefore consider the different kinds of infrastructure that can enhance the flows upon which the livelihoods and well-being of the poor (and non-poor) depend. These kinds of interventions are outlined in Figure 2, which summarises their developmental focuses, core functions, and the key development issues that need to be considered by advisers.

4.4 Collaborate across departments and sectors

Working across urban, rural and regional scales underscores the need for better collaboration across administrative boundaries and, by extension, better systems of governance (or what can be termed 'soft' infrastructure), as discussed in the final section of this Guide (7.0). This must involve local and district governments, but also the private sector and civil society, including community-based organisations that represent people who are typically ill-served by formal infrastructure and services.

4.5 Consider a 'regional network' approach

Considerable scholarly research (see next sub-section) is making the case for a regional approach to building rural-urban linkages. Among the approaches that have received increasing attention is Douglass' (1998) regional network approach, which provides development practitioners with a useful framework for building reciprocal rural-urban linkages.

At the core of Douglass' approach is an understanding of the interlinkages between urban and rural areas, and of the potential for combining their positive impact. This approach is strategic because it positions flows as entry points for interventions. In this way, Figure 1 above provides development practitioners with a useful analytical tool for applied research, planning and policy.

This approach has three main characteristics:

1. Relationships within networks of cities, towns and villages are promoted complementarily, allowing for a great number of local variations found in rural-urban linkages.

- 
2. Networks and clusters are identified and nurtured on the basis of existing flows and interactions, though not discarding the possibility that virtuous cycles of innovation and increased productivity may emerge from introducing new technologies (e.g. mobile phones).
 3. A wider spatial scale and more complex and economically diverse network of settlements are favoured, as compared to the single town-hinterland relation supported by the growth pole model.

In sum, this approach examines and promotes all the various relationships between cities, towns and villages in order to identify and nurture existing flows and interactions within networks of complex and economically diverse settlements.

4.6 Take advantage of existing resources for building reciprocal rural-urban linkages

National and international agencies are increasingly recognising the interdependencies between urban and rural development and there are a number of useful research initiatives to support this shift. As noted above, DFID has played a lead role in stimulating the debate on rural-urban linkages through its programme on the peri-urban interface. This programme, in addition to initiatives by international think-tanks – notably the International Institute for Environment and Development (IIED)¹ – mark a response to growing disillusionment with the traditional separation between urban and rural development, and to the growing recognition of the need for more innovative planning approaches. This has included growing interest in the regional network approach.

Key research and resources:

1. *Guidelines for strategic environmental planning and management of the peri-urban interface (UCL DPU, 2000)*. (www.ucl.ac.uk/dpu-projects/drivers_urb_change/urb_economy/pdf_Urban_Rural/DPU_DFID_Allen_betw_eenurbanandrural.pdf). These Guidelines were one of the main outputs of a peri-urban interface research project undertaken by UCL with funding from DFID. The Guidelines continue to provide policymakers and planners with relevant theoretical and practical insight into how rural-urban linkages can achieve environmental sustainability and improve the livelihoods and quality of the life of the peri-urban poor.
2. Chapter on *Urbanisation and Agriculture* in the 2002 *State of Food and Agriculture* report by the Food and Agricultural Organization (FAO, 2002). (www.fao.org/fileadmin/templates/FCIT/PDF/sofa.pdf). Building on the project above, this chapter discusses the importance of building reciprocal rural-urban linkages across changing landscapes by adopting a regional network approach.
3. Chapter on *Addressing Rural-Urban Disparities for Harmonious Regional Development* in the *State of the World's Cities 2008/2009: Harmonious Cities* report by UN-Habitat (2008, pp. 216). <http://mirror.unhabitat.org/pmss/listItemDetails.aspx?publicationID=2562&AspxAutoD>

¹ Much of the seminal scholarly literature on rural-urban linkages was published in IIED's international journal, *Environment & Urbanization*, which dedicated an issue to rural-urban interactions in 1998, and an issue to rural-urban transformations in 2003. These open access issues are available online: http://eau.sagepub.com/site/Special_Issues_Index/Special_Issues_Index.xhtml

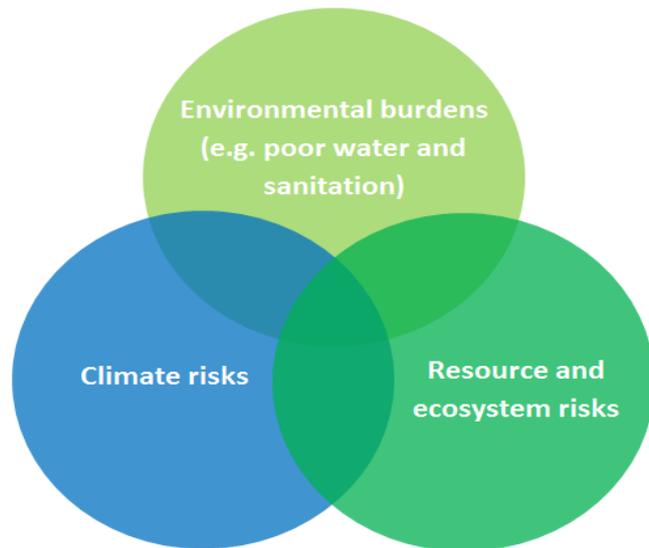
[etectCookieSupport=1](#)). This chapter highlights the importance of building reciprocal rural-urban linkages for reducing poverty and inequality in the context of rapid urbanisation, and explains how this could be supported by adopting a regional network approach.

4.7 Consider emerging environmental risks

Urbanisation is leading in many instances to an increase in the reliance of cities on their hinterlands, particularly regarding the flow of ecosystems services (UN-Habitat 2008 pp. 216; Tuts 2012). Infrastructure will therefore have an increasingly important role to play in managing urbanisation so that it contributes to rural-urban linkages that are environmentally sustainable.

Alongside increasing urbanisation, urban areas in Africa and Asia are facing significant risks from climate change, resource scarcities, damage to critical ecosystems and from chronic environmental burdens (Atkins & DPU 2012). These risks cannot be viewed in isolation: they are multiple, interlinked and growing (Figure 3). Development practitioners therefore need to build reciprocal rural-urban linkages in ways that achieve socially just, environmentally sustainable and resilient development outcomes in the context of urbanisation and climate change (see the next section for more detail).

Figure 3: Environmental risks facing urban areas



4.8 Plan proactively for urbanisation

Recent research on the more advanced urban transitions in the 'BRICS' countries – Brazil, China, India, China, Russia and South Africa – provides important lessons for countries in the early stages of urbanisation (not least in Asia and Africa) by revealing the importance of proactively planning for urban growth so that it contributes to the objectives of economic development, social justice and environmental sustainability (McGranahan and Martine 2014).

This research generally shows that where urban growth has been discouraged or resisted (as in the case of Brazil and India), where inappropriate decisions have been made about the location of economic activity (as in the case of Russia), where the rights of the urban poor have been neglected (as in the case of China) and where inclusive urban development strategies have been lacking (as in the case of South Africa), these objectives have been undermined (ibid). These objectives may also be undermined if development practitioners fail to plan proactively for reciprocal urbanisation.



SECTION 5

Managing social dimensions

Alongside economic and environmental considerations, development practitioners cannot afford to overlook social issues when addressing complex urbanisation dynamics. This includes supporting the development of infrastructure and services that foster social cohesion, encouraging social and economic inclusion of vulnerable groups, and investing in infrastructure that reduces poverty and socio-economic inequalities.

Key questions answered by this section:

- How can development practitioners support the development of infrastructure and services that foster social cohesion, encouraging social and economic inclusion of vulnerable groups?
- How can infrastructure interventions support economic activities that are environmentally sustainable and reduce poverty and inequality?

Key takeaways include:

- The necessity of considering rural and urban poverty as interdependent issues.
- Small and intermediate urban centres need to be identified as priority areas in national poverty reduction strategies.
- Infrastructure provision can reinforce inequalities if advisers fail to consider competing interests and identity politics in areas that often fall through the net of planned interventions, as it is often the case in peri-urban areas.
- There are multiple types of migration and migrants between rural and urban areas, and development practitioners must be aware of them all to best apply pro-poor interventions.
- The costs of addressing infrastructure deficits (particularly in Africa) are likely to be increasingly concentrated in peri-urban areas due to urban growth and expansion trends.
- Infrastructure provision needs to balance the protection of vital ecosystem services with the rights of the peri-urban poor.
- There is a need to guard against elite capture of local power structures that govern the distribution of infrastructure and other resources in small towns and villages.
- Finance mechanisms for building and adapting infrastructure to the impacts of climate change must account for the backlog in quality housing with adequate provision for basic infrastructure and services, and must channel finance to the poorest and most vulnerable groups to address these deficits.
- Basic infrastructure and service deficits can reinforce gender disadvantages, but women can play key roles in finding solutions.

5.1 Consider links between urban and rural poverty

Basic infrastructure and services are often commoditised (i.e. they cost money to access) in urban areas, but conventional measures of poverty do not take this into account, nor do they account for the interdependencies between urban and rural areas. Development debates seldom acknowledge how interdependent urban and rural



economies are. Too often, rural and urban poverty have been viewed as in competition with one another for resources (Tacoli et al., 2008). Thus, current debates on rural-urban linkages highlight a recurrent concern: is it useful to refer to urban and rural as two distinct forms of poverty?

Satterthwaite (2000) summarises this debate aptly. It is clear that the separate treatment of urban and rural poverty can ignore the extent to which the livelihoods and assets of the poor (and also non-poor) draw on both urban and rural resources and opportunities (Box 2).

Box 2 Shortcomings of rural and urban poverty as separate notions

Separate discussions of rural and urban poverty fail to recognise:

- the extent to which the incomes, livelihoods or asset bases of many poor (and non-poor) households draw on rural and urban resources or opportunities
- the multiple connections between rural and urban societies, which often mean that changes in one affect the other, i.e. an increase in rural poverty also reduces incomes and opportunities for many poor urban households and vice versa
- the importance for a high proportion of rural households of access to services located in urban areas, especially for access to secondary schools and health services
- similarities in the underlying causes of rural and urban poverty (including those relating to highly unequal patterns of asset ownership and political influence)
- the ‘fuzziness’ of the distinctions between rural and urban populations and the extent to which changes in urban definitions can suddenly redefine a large proportion of the ‘rural poor’ as the ‘urban poor’

Source: Adapted from Satterthwaite (2000, p. 1)

On the other hand, an understanding of poverty that no longer distinguishes between urban and rural areas risks ignoring the important differences between these contexts. These differences hinge not only on the income needed to avoid poverty, but also differences in access to quality housing and services (Mitlin & Satterthwaite 2013).

As noted before, basic services (particularly access to water and sanitation) are often commoditised in urban areas, and therefore must be purchased. For example, the urban poor often lack connections to piped water networks, forcing them to purchase small quantities of water from private vendors (often informal) that typically have higher unit costs as compared to water accessed by wealthier groups with piped connections, as in Dar es Salaam (Kjellén & Mcgranahan 2006). Similarly, non-food costs for the poor tend to be comparatively much higher in urban areas, particularly in large metropolitan cities, and are not considered in conventional dollar-a-day poverty lines (Mitlin & Satterthwaite 2013).

Table 1 presents the main characteristics that differentiate poverty in urban and rural areas in relation to the many interdependencies between the two. The table suggests that rural-urban interdependencies among the poor are likely to intensify in line with increased urbanisation.



>> Rural poverty issues	Urban poverty issues <<	Rural-urban interdependencies
<p>Livelihoods drawn from crop cultivation, livestock, forestry or fishing (i.e. key for livelihood is access to natural capital)</p> <p>Access to land for housing and building materials not generally a problem</p> <p>More distant from government as regulator and provider of services</p> <p>Access to infrastructure and services limited (largely because of distance, low density and limited capacity to pay)</p> <p>Fewer opportunities for earning cash; more for self-provisioning. Greater reliance on favourable weather conditions.</p> <p>Access to natural capital as the key asset and basis for livelihood</p>	<p>Livelihoods drawn from labour markets within non-agricultural production or making/selling goods or services</p> <p>Access to land for housing very difficult; housing and land markets highly commercialized</p> <p>More vulnerable to ‘bad’ governance</p> <p>Access to infrastructure and services difficult for low-income groups because of high prices, illegal nature of their homes (for many) and poor governance</p> <p>Greater reliance on cash for access to food, water, sanitation, employment, garbage disposal, etc.</p> <p>Greater reliance on house as an economic resource (space for production, access to income-earning opportunities; asset and income-earner for owners – including de facto owners)</p>	<p><< Funding flows (remittances) from urban migrants for rural development</p> <p>>> Rural-urban food transfers, rural support in bringing up urban dwellers’ children</p> <p><< Accommodation and support for family or fellow villagers who come to urban areas to study or seek employment</p> <p>>> Cheaper accommodation for low-income urban workers in nearby rural areas</p> <p><< Access to different branches of government and public services</p> <p>>> Access to customary institutions</p> <p><< Stimulus for more diversified livelihood options</p> <p>>> Rural markets for urban dwellers who derive an income from selling goods and services</p> <p><< Information about urban opportunities and alternative/additional income sources to potential migrants and commuters</p> <p>>> Seasonal employment for urban dwellers in agriculture or rural development projects or on collecting or purchasing resources from nearby rural areas</p> <p>>> Support to protect the assets of urban dwellers retaining land and livestock in rural areas</p> <p><< Urban refuge for some of the poorest rural dwellers whose livelihoods were destroyed by development projects, wars, oppression or disasters</p> <p>>> Rural refuge for poor urban dwellers in times of economic and political hardship</p>

Table 1 Poverty and the rural-urban interdependencies. Source: Adapted from Satterthwaite (2000)



In this context, development practitioners should consider:

- taking a wider perspective to develop well-targeted interventions aimed at meeting needs and reducing poverty
- the potential of rural-urban linkages to help track the complex and often volatile connections characterising urban and rural poverty

5.2 Drive gender empowerment and equality

Basic infrastructure and service deficits can reinforce gender disadvantages, particularly among low-income households, but women can play leading roles in finding solutions.

5.2.1 Gender and poverty

Tacoli (2012) argues that there is a distinctive gender dimension of urban poverty that arises from a combination of:

- low-income
- inadequate and expensive accommodation
- limited access to basic infrastructure and services
- exposure to environmental hazards
- high rates of crime and violence

These deprivations contribute to the burden of domestic work among women (ibid). Moreover, as the impacts of climate change worsen, these are likely to increase the difficulty and time needed to complete routine domestic chores, such as collecting water and caring for the sick, activities often associated with women and young girls (Alber, 2009; Bartlett, 2008).

Given these deprivations and risks, enhancing access to quality housing with adequate provision for basic infrastructure and services can play a key role in eliminating gender disadvantage in areas where the distinction between the urban and the rural becomes particularly blurred. This is likely to be more important in those areas where gender disadvantages are closely related to exclusion from (formal) labour markets and to the commodification of basic services.

It is also important to think about the needs of poor migrant women and girls, regarding not only their reproductive health, but also their housing needs, particularly for rental accommodation and shelters (Tacoli 2012; UN-Habitat 2003).

5.2.2 Engage and empower women

Women also in many instances play leading roles in finding solutions to basic infrastructure and service deficits through their growing participation in community-savings groups, incremental housing improvements and community-driven upgrading processes. This can be seen in the high numbers of women involved with Federations of the urban poor affiliated with Slum/Shack Dwellers International (SDI)² and the Asian Coalition for Housing Rights (ACHR) across Asia and Africa, as well as Latin America (for a detailed review see Satterthwaite & Mitlin, 2014).

² SDI is a confederation of country-level community-based organisations formed by the urban poor in 34 countries across Africa, Asia and Latin America (<http://www.sdinet.org/>). SDI was established in 1996 to bring together urban poor 'federations' to help their local initiatives develop alternatives to evictions (including 'slum' upgrading) whilst influencing international urban development agendas.



These experiences of Federations show how women are breaking down gender barriers and norms not only through the management of savings and credit, but also through initiatives to secure land, upgrade homes and improve community infrastructure (e.g. providing community toilets and washing facilities). Patel & Mitlin (2010) identify a number of common practices by Federations that are working to build a culture that, in terms of gender relations, empowers women through leadership, dialogue, documentation (e.g. community enumerations and mapping) and action:

- Showing empathy for the problems of poverty rather than disciplining individual failures (for instance, exclusion for missing loan repayments)
- Facilitating incremental affordable development rather than maximum material consumption
- Promoting collective rather than individual decisions and actions
- Providing flexibility in regard to local needs (rather than rule bound and formalistic procedures) and serving community dynamics rather than externally-imposed timetables
- Encouraging membership through participation (social engagement) rather than fixed financial contributions
- Recognising that everyone has a contribution to make rather than just community leaders
- Fostering experiential learning rather than over-reliance on professional 'experts'

In this context, development practitioners should consider:

- the role of basic infrastructure and service deficits in reinforcing gender disadvantages
- the role women can play in finding solutions
- the specific and changing needs for services among women and man, girls and boys straddling between urban and rural areas

5.3 Work with small and intermediate urban centres

As mentioned above, the majority of the world live in smaller urban settlements, which face their own particular infrastructure and development issues (see UN-Habitat 2006).

5.3.1 Disadvantages and advantages of smaller urban centres

Disadvantages include:

- weaker local governments
- often poorer access to infrastructure and services
- fewer economies of scale
- less financial and institutional capacity to plan, manage and implement projects and programmes
- power structures often susceptible to elite capture (see below)

Advantages include:

- less conflictive relationships with citizens
- a smaller and more manageable scale of work
- a greater willingness among different government offices and departments to work together



- a more conducive environment for informal accountability measure to work better (for instance easier contacts between local politicians and civil servants and those who are unserved or under-served)
- local governments who may be more willing to collaborate with civil society organisations, including at the community level

5.3.2 Making smaller urban centres work for the poor

It is important to recognise that local power structures in small towns and villages are often susceptible to elite capture, which can bias the provision of infrastructure and other resources towards more powerful interests at the expense of the poor.

In this context, development practitioners should consider:

- the crucial role of local governments in providing basic infrastructure and services in small and intermediate urban centres, and the need to build their capacity to provide them
- the local power structures that govern the distribution of infrastructure and other resources, and their susceptibility to elite capture

5.4 Consider types of migration

A focus on the nature rather than just the scale of urbanisation reveals the persistent movement of people between rural and urban areas, in both directions. There are many ways in which households straddle rural and urban areas through various livelihood strategies (see Lynch, 2005, p. 96), including:

- step-wise migration (village-town-city)
- circular migration (driven by seasonal variation in labour demand)
- chain migration (migrants follow their predecessors, and are assisted by them when establishing an urban base)
- multi-locational households (households have members in both rural and urban areas)

Research in Africa also shows the persistence of circular migration between town and country (Potts 2012), as widely observed in Francophone West Africa (Beauchemin & Bocquier 2004). These mobility dynamics (including the flow of remittances) challenge the prevailing assumption that rural-urban linkages are characterised primarily by rural to urban migration (Lynch, 2005; Tacoli et al., 2008).

5.4.1 Changing identities of migrants

Migrants still primarily consist of traditional groups, such as young men, but also growing numbers of young unmarried women, who have been previously unlikely to migrate (Tacoli, 2006). Research in Asia suggests that the independent migration of women is increasing because of a growing demand for labour in urban services and industries (such as the garment and construction industries), and because of growing social acceptance of women's economic independence and mobility (Deshingkar, 2006).

5.4.2 Issues faced by temporary migrants

Temporary migrants frequently lack access to basic urban services, particularly those that require registration by local authorities, as in the case of ration cards in India (Deshingkar et al., 2009). However, at the same time, it is not uncommon for migrants to be registered on



voters' lists and manipulated by local politicians, who do not represent their needs or priorities (ibid). Overall, many migrants often share many of the deprivations of the urban poor, but tend to be even more invisible, with less political voice (Tacoli, 2009).

In this context, development practitioners should consider:

- the various mobility strategies employed by the poor (and non-poor), and the infrastructure required to support them
- the need to recognise the contribution of circular migration to poverty reduction in national and local poverty reduction strategies and plans, and the need to prioritise the provision of services to migrants
- the barriers facing migrants (particularly women and girls) in accessing services
- the need to improve the capacity of local governments to provide services to migrants

5.5 Consider the pressure on peri-urban areas

The costs of addressing infrastructure deficits (particularly in Africa) are likely to be increasingly concentrated in peri-urban areas (Simon et al., 2006). Projections by the Lincoln Institute for Land Policy (Angel et al. 2011) suggest that while the urban population in low- and middle-income countries is expected to double between 2000 and 2030, the built-up area of their cities is expected to triple. Declining density trends reflect a broader process of 'peri-urbanisation' or 'suburbanisation', which has typically been associated with North American and European cities, but is becoming increasingly prevalent in Africa (Mabin et al. 2013) and Asia (Trần et al. 2012).

5.5.1 The need for more effective and equitable planning systems

Despite urban growth and expansion trends, urban plans (particularly 'master' plans) in many low- and middle-income countries are both out of date and out of touch with the needs, priorities and affordability requirements of urban populations, a large share of which tend to be poor (McGranahan et al. 2008; UN-Habitat, 1999, 2009; Watson, 2009). Often, conventional zoning bylaws and building regulations (e.g. standard plot sizes, requirements for building materials and construction methods) pose prohibitive costs that effectively price the vast majority of the urban poor out of formal land-for-housing markets, as observed widely in Africa (UN-Habitat, 1999, 2010). This explains in large part why so many people live in informal settlements, which accommodate up to 50% and 70% of the population in many Asian and African cities, respectively (Mitlin & Satterthwaite, 2013).

Urban governance systems (in terms of government administration, infrastructure provision and planning) are also becoming increasingly market-led and anti-poor (e.g. supporting evictions to make way for private development) (Watson, 2009a; Allen, 2014). **The growing disconnection between urban planning and the socio-economic realities of cities has meant that a significant share of urban growth and expansion has occurred informally (i.e. without conforming to official rules and regulations)** (UN-Habitat 2009). This has particularly been the case in peri-urban areas, where planning control is often weak and where people who cannot afford costly regulations build informally (Watson, 2009b).

In this context, it is often unenforceable and inappropriate planning regulations that are to blame for the haphazard expansion of cities and for the associated challenges and additional costs of providing and extending infrastructure retroactively. These challenges and costs are compounded in instances where municipal cadastres – which provide the basis for property registration and taxation (often the largest source of municipal revenue) – are out of date and/or incomplete (Enemark, 2009).



The challenge, and opportunity, is to develop more effective and equitable planning systems designed with the needs, priorities and affordability requirements of the poor and those straddling between urban and rural areas in mind. This includes pro-poor land administration systems that can be used as a legal basis for securing tenure and titles and for collecting taxes to finance municipal infrastructure in ill-served urban and peri-urban areas (including informal settlements and more rural customary areas) (Augustinus et al. 2006). These systems can help capture and distribute some of the surplus value arising from the conversion of agricultural land into urban uses.

If these systems can be developed, then urban planning stands a real chance of managing urban growth and expansion proactively. If not, then haphazard expansion is likely to continue, and few groups are likely to pay a higher price than the peri-urban poor.

5.5.2 Peri-urban poor pay the price

The lack of decentralised provision of infrastructure and the limited integration of peri-urban areas into the wider city have had significant consequences for the peri-urban poor. This group tends to be neglected due to the nature of power relations at the municipal level, where more powerful and vocal urban-based interests are often favoured (Hofmann, 2011). Ability to pay for housing and associated utilities in serviced settlements, which tend to be formally planned, is also a significant issue, as discussed above. In addition, competing interests associated with increasing peri-urban land speculation are intensifying as real estate developers actively seek to capitalise on the housing preferences of the burgeoning middle-class in both Asia (Goldman, 2011) and Africa (Watson, 2013), including in many of the LDCs (Leichenko & Solecki, 2005). These dynamics are resulting in **new forms of social and spatial fragmentation underpinned by evictions and the inequitable provision of basic infrastructure** (Allen, 2014), which are working to reinforce what Graham and Marvin (2001) term 'splintering urbanism'.

5.5.3 Ensuring infrastructure promotes equality

The growth of middle-class housing enclaves and the exclusive infrastructure networks that support them re-affirms the importance of understanding peri-urban areas as heterogeneous spaces and as sites of competing identity politics between self-interested middle- and upper-class groups and the peri-urban poor (Allen, 2014). **Infrastructure provision should therefore be seen as an inherently political undertaking in determining whose interests prevail, and whose are ignored.** If development practitioners overlook these politics, their projects risk elite capture and the reinforcing of existing social and spatial inequalities.

In this context, development practitioners should consider:

- the changing nature of peri-urban areas
- the specific forms of deprivation affecting the peri-urban poor
- the underlying causes of this deprivation, including inappropriate planning regulations and increasingly market-led systems of urban governance
- the role of infrastructure in reinforcing social and spatial inequalities by enabling speculation and capital accumulation in land-for-housing markets, see case study in section 6.1.4 for more information
- the need for more effective and equitable urban planning systems that consider the needs, priorities and affordability requirements of the urban and peri-urban poor
- the need for land administration systems (including cadastre maps) that can be used as a legal basis for securing tenure and titles and for collecting taxes to finance



municipal infrastructure in ill-served urban and peri-urban areas (including informal settlements and more rural customary areas)

5.6 Use infrastructure to drive environmental sustainability

5.6.1 Consider ecological footprints

As urban areas grow and globalisation increases, urban areas will increasingly depend on resources and ecological services away from their hinterlands, and often from distant 'elsewheres' (Rees, 1992; Wackernagel et al., 2006). The environmental impacts of these links are captured by the concept of ecological footprints, which generally refer to the "area of land and water ecosystems required, on a continuous basis, to produce the resources that the population consumes and to assimilate the wastes that the population produces," (Rees, 2001, pp. 6). In this regard, ecological footprints can be used by development practitioners to measure and compare the environmental performance of cluster of cities in relation to their immediate hinterland, and to understand the factors that drive unsustainable resource and energy consumption patterns, (for a review of the impact of this processes on climate change see Satterthwaite, 2008).

5.6.2 Adapt to climate change

Asia and Africa contain some of the populations most vulnerable to the impacts of climate change, but the infrastructure and services required to adapt are widely lacking.

It is now widely recognised that improving access to quality housing, basic infrastructure and services will determine whether urban areas will be able to successfully adapt to the impacts of climate change, particularly in safeguarding the lives and livelihoods of the (peri-)urban poor, who are typically the most ill-served (for a comprehensive review commissioned by DFID see Dodman et al., 2013).

The following are critical factors in shaping vulnerability to climate change and disasters, all of which require strong and accountable local governments to address:

- greater exposure to hazards (e.g. through living in makeshift housing on unsafe sites)
- lack of hazard-reducing infrastructure (e.g. drainage systems, roads allowing emergency vehicle access)
- less adaptive capacity (e.g. the ability to move to better quality housing of less dangerous sites)
- less state provision for assistance in the event of a disaster (indeed, state action may increase exposure to hazards by limiting access to safer sites for housing)
- less legal and financial protection (e.g. lack of legal tenure for housing sites, lack of assets and insurance) (Dodman & Satterthwaite 2009, p. 69)

However, as noted above, current cost estimates for 'climate proofing' existing infrastructure do not take into account the significant backlog in basic infrastructure and services in urban areas of low- and middle-income countries (Ayers 2009). For instance, Parry et al. (2009) estimate that the costs of upgrading poor-quality housing and providing infrastructure alone for the expansion of the urban population in low and middle-income countries will amount to USD\$315 billion per year (considering 2009 figures) over a 20 year period. In addition, investments required to adapt upgraded infrastructure to meet the impacts of climate change will amount to an extra USD\$16-63 billion per year.



However, it is important to note that, even if adequate finance were available, there is no guarantee that successful adaptation would occur due to the inability of the poorest and most vulnerable groups to access, and then to use, this finance on their own terms (Ayers 2009). Meanwhile, urban areas continue to grow and expand without proper planning and infrastructure, and without the institutions and appropriate financing mechanisms (particularly regarding urban adaptation finance) required to address these deficits (Smith et al., 2014).

In addition, climate change is likely to intensify the mobility of people and the dynamics of people's flows between urban and rural areas, in combination with income diversification, as an adaptation strategy (Tacoli, 2009). In all probability, environmental degradation will contribute to the growing need to ensure access to non-farm economic activities through mobility, particularly in small towns and large villages where these activities are largely concentrated (ibid). Moreover, disaster and climate risk might be increasing faster in small and intermediate urban centres than in large cities due to poor governance and limited institutional capacity (UNISDR 2011).

In this context, development practitioners should consider:

- the important role of quality housing with adequate provision for basic infrastructure and services in reducing risk
- the systematic barriers that prevent finance from being channelled to the poorest and most vulnerable groups, particularly in building and adapting basic infrastructure
- the financial resources and support that migrants require
- the need to address migration and small and intermediate urban centres as key priority areas in national poverty reduction and climate change adaptation strategies and policies

5.6.3 Decouple urban development from unsustainable production and consumption

Because infrastructure is long-lasting, it can shape resource needs for decades to come (Wackernagel et al. 2006). **Infrastructure can therefore play a key role in decoupling urban development from unsustainable production and consumption patterns** (UNEP, 2013). Moreover, while low- and middle-income countries typically have smaller urban ecological footprints than high-income countries, many are in the initial stages of urbanisation, which represents an opportunity for infrastructure to achieve this decoupling.

However, decisions about protecting resources and ecosystems (particularly from informal settlement growth) tend to be dominated by ecological issues that do not consider issues of equity or justice. As a result, interventions to regulate urban expansion through, for example, containment policies (e.g. greenbelts and other urban growth boundaries) and non-service provision (i.e. refusing to provide services to particular groups), have tended to safeguard certain resources and ecosystem services at the expense of the peri-urban poor while failing to constrain high-value speculative developments (Allen, 2014). For instance, a study of Chennai, Dar es Salaam, Cairo, Mexico City and Caracas found that, for the peri-urban poor, 'living far from the pipes' has become a permanent rather than temporary condition, reflecting a broader planning process oriented toward the combined preservation and commodification of valued environmental attributes beyond built-up areas (Allen et al., 2006a, 2006b).



In this context, development practitioners should consider:

- the need to balance the protection of vital ecosystem services from unsustainable patterns of urban growth and expansion, while also ensuring the rights of the peri-urban poor and those straddling between rural and urban areas to access infrastructure.



SECTION 6

Examples of infrastructure that builds reciprocal rural-urban linkages

Key questions for development practitioners

- How can infrastructure, and the services they support, build reciprocal rural-urban linkages in Asia and Africa?
- Why does infrastructure need to be conceptualised more holistically to achieve this objective?
- What examples exist of infrastructure being used to promote reciprocal rural-urban linkages?

Key takeaways

- Poverty can be reduced through the development of transport systems that connect peri-urban areas to the city centre and are integrated within broader upgrading programmes.
- ID cards can be used positively to allow rural migrants to access urban services.
- Peri-urban aquaculture and agriculture can reduce poverty, while also enhancing food security and providing integral waste treatment services for the wider city.
- If not handled well, infrastructure investments can enable real estate development and speculation, while undermining local livelihoods and urban food security, thus reinforcing social and environmental inequalities.
- Accessible information communication technology such as ICT infrastructure can support affordable mobile services that benefit the poor by enhancing the flow of information and income across urban and rural areas.
- Systems that allow local administrations to work closely with communities at all levels to co-manage natural resources can help minimise and prevent environmental damage.

Having dealt with key conceptual and empirical issues in Section 2.0 and key infrastructure considerations in Section 3.0, this section draws on a number of case studies from Asia and Africa to show advisers how infrastructure, and the services they support, can work to build reciprocal rural-urban linkages in rapidly urbanising contexts. Case studies are presented for each flow illustrated in Figure 1 above, although production and waste flows have been combined to show how they can work together (Section 4.1.3). In addition, ecological services and natural resources (e.g. water) have been combined to show how the former often facilitates the sustainability of the latter (Section 4.1.5).

6.1 Case studies

This section draws on a number of case studies from Asia and Africa, but also Latin America, to show advisers how infrastructure, and the services it supports, can work to build reciprocal rural-urban linkages in rapidly urbanising contexts. Each case study draws from good practice, but also from examples that show how infrastructure can undermine rural-urban linkages, especially if the needs and priorities of the poor are overlooked.



6.1.1 Peri-urban↔urban movement of people: the Metrocable in Medellín, Colombia

Infrastructure that strengthens local transportation linkages within networks of settlements, rather than just between growth centres and international markets, is recommended by Douglass' (1998) regional network approach, as outlined above (Section 4.5).

Recent research has also emphasised the importance of strengthening intra-urban transport systems to enhance the mobility of women and men (Levy, 2013). The case study below provides an example of how investment in these systems can address longstanding imbalances between peri-urban areas and city centres, while providing affordable, low-carbon public transportation services for all citizens.

This case provides relevant insight into how municipal governments in other regions of the world (including in Africa and Asia) can address similar issues through the development of transport systems that are integrated with a broader set of urban development planning interventions.

Box 3 Metrocable in Medellín: enhancing people's mobility and urban economic integration

An innovative cable-car development in Medellín, Colombia's second largest city, is seeking to reduce poverty and integrate large marginalised areas into the urban fabric.

A two-year research project led by the Development Planning Unit (DPU), with funding from the Economic and Social Research Council (ESRC) and DFID, has examined the efficacy of this approach.

It focused particularly on the impact of two aerial cable-car lines connecting high-density hilly neighbourhoods, marked by years of severe poverty and violence, with the rest of the city, and an associated urban upgrading programme.

The development, launched in 2004, marked the first time anywhere that conventional ski lift technology was used to connect poor neighbourhoods with the city's over-ground train. The cable-cars provide a fast, low-emission mode of transport in steeply sloping terrain broken by deep smaller valleys. The first line, built at a cost of under US\$30 million, was followed in 2008 by a second line in a different part of the city. Both were designed to accommodate up to 30,000 trips per day. A third line was opened in 2010 to connect the end of the first line with a natural park some 800 metres above the river valley.

Apart from documenting the institutional foundation and technical features of the cable-car intervention, the research project also examined the extent to which it led to improvements among poor communities. The findings show how the city's investment in a comprehensive upgrading programme in the areas served by the cable-car lines (involving social housing, increased public space, new libraries and schools, and economic support to local residents in the form of training and employment in public works) has had a wider impact on residents' quality of life beyond transport improvements. One key feature is that the new public facilities are designed using high-quality materials, a deliberate reversal of the conventional approach of providing low-quality services for the poor. Using principles of participatory budgeting whereby local residents collectively decide the use of public investment, the city



authorities have sought to change an entrenched culture of patron-client politics that resulted in small-scale public works and opportunities for political middlemen to cream off commissions.

At the core of the cable-car project is a major shift in local politics, one that recognises the deeply entrenched and growing social inequalities amongst the city's population, and actively strives for a more socially just city. All of this, coupled with much improved security, has resulted in significant numbers of outside visitors, including international tourists, to what was formerly a no-go area, with visible effects on local residents' own sense of self-esteem and inclusion into the city's life.

Source: Dávila (2013)

6.1.2 Rural↔urban movement of people: 'migration infrastructure' in India

The analysis of migration types in Section 5.4 showed that policies need to address the access of poor migrants, and other vulnerable groups, to services. The case study below on the Grameen Vikas Trust in Madhya Pradesh and Gujarat, India (Box 4) provides an example of how barriers to access can be overcome through the provision of identification (ID) cards as a form of 'migration infrastructure'. Such soft infrastructure – in addition to that traditionally used to support physical and virtual mobility (such as roads and ICT) – is becoming increasingly important as the involvement of state officials in the migration process becomes more extensive, especially in Asia. However, it is important to note that there is nothing inherently inclusive about ID cards, which can also be used to impede the movement of particular groups of migrants deemed by urban officials to have limited economic potential and/or to be putting additional strains on already overburdened services.

Box 4 The Grameen Vikas Trust in Madhya Pradesh and Gujarat, India: providing identity cards to migrants

Studies in India show that temporary migrants are frequently unable to access basic urban services (Deshingkar & Anderson, 2004; Deshingkar, 2006; Deshingkar et al., 2009). Moreover, governments often claim, without evidence, that improving access to urban services (particularly in low-income informal settlements) will only attract more migrants to overburdened cities (McGranahan et al. 2008). Non-service provision (as a form of anti-poor regulation) is clearly counterproductive in light of current mobility dynamics. Thus, a key question for development practitioners is how migrants and other marginalised groups can gain access to urban services.

One NGO that is addressing this question is the Grameen Vikas Trust in Madhya Pradesh and Gujarat, India, which began providing ID cards to migrants in 2005 under the Migrant Labour Support Programme (MLSP) (Faetanini & Tankha 2013). These cards have proven successful in helping migrants deal with police, who often challenge them at railway stations and on street corners (ibid; Deshingkar & Anderson, 2004). In 2007, after two years of advocacy, the Ministry of Labour and Employment in Rajasthan finally recognised the card as a valid proof of identity when dealing with the police, employers and local administrations. In addition, the card has now become a gateway to accessing other services, such as enrolment in social security services, employer verification and opening bank accounts (Faetanini & Tankha 2013).



6.1.3 Urban↔peri-urban movement of waste: peri-urban aquaculture and agriculture in Kolkata, India

Urban poverty is on the rise (Mitlin & Satterthwaite 2013) – and so too is the practice of urban agriculture (RUAF Foundation and ICLEI, 2013). More than ever, the urban and peri-urban poor are cultivating plots or keeping animals to sustain their livelihoods or enhance their food security (Allen and Frediani, 2013). The case study below on Kolkata (Box 5) shows how peri-urban aquaculture and agriculture can achieve similar benefits, while also enhancing food security and providing integral waste treatment services for the wider city. In doing so, peri-urban aquaculture and agriculture function in a similar way to ecological infrastructure, which also facilitates the flow of ecosystem services between urban and rural areas, and vice versa.

Box 5 Waste-fed peri-urban aquaculture and agriculture systems in Kolkata

As the capital of West Bengal in East India, the urban agglomeration of Kolkata, comprised of 72 cities and 527 towns, houses approximately 14.3 million people (UNDESA, 2014). The re-use of urban waste has been a tradition since the 18th century establishment of the city's waste disposal site on the periphery .

Today, the use of solid urban waste is still largely confined to plots surrounding the solid waste disposal site (Kundu, 2005; Bunting et al., 2002), where vegetable plots are fertilised with solid waste. After some opportunistic farmers started to exploit sewage that had undergone biological treatment through aquaculture ponds to cultivate fish and vegetables, a secondary canal network was constructed throughout the peri-urban interface to connect ponds and plots. Water hyacinths in the fishponds absorb a variety of pollutants and thus perform a natural sewage treatment before the wastewater is subsequently used for horticulture, vegetable and rice farming (Juniper 2004).

Nowadays, an estimated 30–50 per cent of the city's sewage is treated through the fishponds in the East Kolkata Wetlands (EKW), which extend over an area of 12,500 hectares (Bunting et al., 2010; Kundu, 2010). In addition, the livelihoods of many peri-urban poor people are intrinsically tied to the use of urban waste in aquaculture and agriculture as they carry out different farming-related support activities (Kundu, 2005; Milwain, 2001). At the same time, wastewater-fed aquaculture supplies nearby urban markets with fresh fish throughout the year (Bunting et al., 2006). In 2003, the EKW was declared a 'wetland of international importance' under the Ramsar convention by the Indian government. While this practice has been happening largely without formal support, new legislation reinforced by a new management plan for EKW aims to protect and enhance the area and its functions.

Source: Hofmann (2013)

6.1.4 International → peri-urban flow of capital and income: foreign investments in middle-class housing in Accra, Ghana

As discussed in Section 5.4.2, there is a need to understand how the peri-urban interface is increasingly attracting upscale housing markets. The case study on Accra below shows how infrastructure investments might enable real estate development and speculation, while



undermining local livelihoods and urban food security, thus reinforcing social and spatial inequalities. The case study also shows how different flows of capital and income are shaping peri-urban areas at different scales through foreign investment and income remitted by the diaspora in new housing construction. It serves as a reminder to development practitioners to be aware of the potential damage that higher-income housing projects can have on poor households if not carefully managed. The case also shows how real estate markets are globalising and the consequences this can have for the peri-urban poor struggling to find secure and adequate housing or to sustain farming practices.

Box 6 Foreign investments in middle-class housing markets in Accra

Recent studies (see Goldman, 2011; Grant, 2009; Leichenko & Solecki, 2005; Mabin et al., 2013; Watson, 2013) show that foreign investment in upscale housing construction on former agricultural land is rapidly expanding across Asia and Africa, fuelled by growing demand among the burgeoning middle-class. This trend is particularly evident in Accra, where the diaspora are believed to be channelling most of their remittances towards real estate (Grant 2009). To capitalise on this investment, international developers (particularly in China) are targeting significant tracts of land for western-style 'suburban' housing construction, including one project covering over 400 acres of land northeast of the city (for further details see Allen, 2014).

To make way for these projects, Accra's development strategy, despite its green credentials, stipulates that urban agriculture is to be pushed into surrounding municipalities, where competition for land is lower. Under this strategy, the prospect of protecting peri-urban agriculture and its role in supporting local livelihoods and in contributing to Accra's food security appears to be in jeopardy. Moreover, because low-income informal settlements are often located on valuable land, new housing projects often involve the eviction and relocation of the peri-urban poor.

These new internationally-funded housing projects depend on capital investments in infrastructure financed and built increasingly through public-private partnerships between international property developers and municipal governments. Because these governance arrangements primarily serve the interests of private capital, infrastructure investment and development is, in many cases, working to reinforce existing inequalities between the growing number of well-serviced upscale housing enclaves and the growing number of un-serviced low-income informal settlements (see Watson, 2013). In this context, enhancing access to basic infrastructure and services is often a matter of a vigorous contest between competing interests in land, highlighting a significant governance challenge for advisers, but also for organisations formed by excluded groups.

6.1.5 Rural ↔ urban movement of information: ICT, M-PESA and the flow of remittances in Kenya

The provision of accessible ICT infrastructure is supporting a growing number of affordable mobile services that are working to benefit the poor by enhancing the flow of information and income. Specifically, the case study below on M-PESA (Box 7) shows how mobile money services in Kenya can facilitate the flow of remittances across space and scale. In doing so, the case study shows how income and information can be exchanged instantaneously between previously disconnected people and places.



Box 7 M-PESA and the flow of remittances in Kenya

M-PESA, a Kenyan mobile money service created by the mobile company Safaricom, facilitates a variety of financial transactions through mobile phones. Customers first register with a retail outlet (there are nearly 9,000 outlets in Kenya, in both urban and rural areas) before receiving an individual electronic money account, which can be used to transfer money to both registered and non-registered users, check account balances, pay bills, purchase or 'top-up' phone credit, transfer phone credit to other users, and make cash deposits and withdrawals from authorised M-PESA agents (Mas & Morawczynski, 2009).

These services are commonly used to send remittances to family members in distant locations, both nationally and internationally (Hughes & Lonie 2007). In addition to supporting family members back home or abroad, Jack & Suri (2009) suggest that the inconspicuous and electronic nature of M-PESA could also permit people to increase their personal savings, since friends and relatives would be less likely to know about their savings.

As of 2009, over eight million customers had registered with M-PESA, over 40 per cent of Kenyans had used the service to send and receive money, and over USD \$3.7 billion (nearly 10 per cent of Kenya's annual GDP) had been transferred between users (Aker & Mbiti 2010). As the service continues to grow, so too do the linkages between people, information and markets, with significant potential for improving peoples' lives and livelihoods.

6.1.6 Rural↔urban movement of ecosystems services: a co-management approach to sustainable watershed utilisation in peri-urban Ghana

Healthy ecosystems are needed to sustain vital services for urban areas, which often depend on the surrounding region for supplies of food, water and waste disposal systems (Tuts, 2012; Wackernagel et al., 2006). As defined by the Millennium Ecosystems Assessment (The Economics of Ecosystems and Biodiversity – TEEB, 2010), these 'ecosystem services' include a number of categories:

- **Provisioning services** provide food, water, raw materials, biofuels and medicinal resources.
- **Regulating services** regulate the quality of air, soil and water, provide flood and disease control, provide pollination services, regulate pests and prevent disease.
- **Habitat or supporting services** provide living spaces for plants or animals, and maintain a diversity of plants and animals.
- **Cultural services** foster the non-material benefits people obtain from contact with ecosystems, including aesthetic, spiritual, educational and psychological benefits, as well as public health and recreational opportunities (see Tuts 2012, pp. 61).

The flow of ecosystem services between urban and rural areas can be strengthened by maintaining or rehabilitating ecological infrastructure (e.g. watersheds, wetlands, aquifers, mangroves etc.) as a cost-effective strategy for improving water and food security, sustaining livelihoods, reducing poverty and building resilience to disasters and the impacts of climate change (Tuts 2012). For instance, remediating riparian ecosystems can enhance flood management as a form of 'ecosystem-based adaptation' (for useful guidance see Travers et al., 2012).



In the other direction, it is important to recognise that the flow of hazardous urban waste and pollutants can degrade ecosystems and natural resources, while jeopardising environmental health and livelihoods (particularly among the poorest groups) in peri-urban and rural areas (McGranahan, et al. 2004).

The case study below on co-management approaches to sustainable watershed utilisation in peri-urban Kumasi (Box 8) provides an example of how the sustainable utilisation of the environment and natural resources can be approached holistically.

Box 8 A co-management approach to sustainable watershed in Peri-Urban Kumasi

A three-year research project in Ghana has developed systems that allow local administrations to work closely with peri-urban communities at all levels to co-manage natural resources.

The project ran between 1999 and March 2002 and was funded by DFID under the Natural Resources Systems Programme. It focused on the watershed/catchment principle in which flows of nutrients and pollutants are determined by the location of activities along the drainage network. Case studies of eight villages were used to assess the environmental problems and solutions in two key (sub-)catchments within greater Kumasi.

The findings were used to inform the development of a participatory Watershed Management Framework for the sustainable co-management of the environment and natural resources at the watershed level. The management framework emphasised partnership building between local and district/metropolitan stakeholders and local communities at three interdependent scales: the whole catchment or sub-catchment; individual villages or communities within the (sub-)catchment; and micro-projects and other activities within villages that serve as catalysts for collaborative organisation, action and maintenance.

The evaluation of the project found that activities were positive overall, although results varied between villages. Particular challenges included getting an audience for research and awareness raising activities, as is common in many peri-urban areas undergoing rapid urbanisation. It was also stressed how community priorities change over time with urbanisation and growing land pressures, particularly on remaining agricultural land. The changing nature and dynamism of peri-urban areas presented clear challenges for sustaining a holistic approach to watershed management, but also opportunities to identify new activities and to develop new strategies for minimising environmental impacts.

Source: McGregor et al. (2006)

6.2 Different types of infrastructure for building reciprocal rural-urban linkages

Key takeaways

- There are different types of infrastructure that can build reciprocal rural-urban linkages, which will require more holistic thinking when planning and designing interventions.
- The above requires identifying the institutions and systems of governance that are ultimately responsible for financing and providing infrastructure that supports reciprocal linkages, particularly at the local level.

Based on the case studies above, it is clear that different types of infrastructure are required to build reciprocal rural-urban linkages, beyond traditional forms of ‘hard’ infrastructure limited to capital assets. These types, including their developmental focuses, functions and key development issues, are outlined below in Table 2.

It should be noted that this table is not intended to rigidly classify infrastructure, but rather to highlight the different types and the range of development issues that need to be considered in building reciprocal rural-urban linkages in Asia and Africa and elsewhere across the global South. Crucially, the institutions and systems of governance (as a form of ‘soft’ infrastructure) that are ultimately responsible for financing and providing this infrastructure must also be addressed. The following section therefore examines the governance of infrastructure provision in building reciprocal rural-urban linkages, with a particular focus on the need to build stronger and more accountable local institutions.

Infrastructure	Developmental focus	Function	Key development issues
Economic/ productive	Transport, ICT and energy, finance systems Water, waste and other production inputs	Strengthening economic linkages and livelihoods	Exploitative rural-urban exchanges and dominant local interactions between political and economic elites Environmental sustainability, health protection and the livelihoods of the poor
Protective	Adequate provision of protective infrastructure (e.g. safe drinking water, sanitation, drainage, solid waste management, local roads)	Reducing risk and building resilience	Access to land and tenure systems (formal and informal)
Social	Safety nets, education, health care and other basic services, including the documentation required to access these (e.g. ‘migration infrastructure’)	Social welfare, protection and development	Accessibility to marginalised groups, including migrants (especially in urban areas and small towns)
Ecological	Sustaining and remediating ecological systems that provide key services to urban, rural and peri-urban areas	Enhancing ecological sustainability	Regional planning considerations in environmental planning and management across jurisdictional boundaries, and the involvement of local communities in partnership with other stakeholders at various levels



Infrastructure	Developmental focus	Function	Key development issues
Soft	Decentralised systems of accountable local governance	Provision and management of the above infrastructure and services	Equitable access to decision-making processes and planning procedures. Existence of civil society organisations representing the needs and priorities of the poor

Table 2 Different types of infrastructure for building reciprocal rural-urban linkages



SECTION 7

The importance of governance in building reciprocal rural-urban linkages: the example of Watsan

This report has already looked at the role of infrastructure in building reciprocal rural-urban linkages. It will conclude by discussing the various approaches and governance arrangements that underpin pro-poor service delivery and infrastructure provision at the local level.

This is viewed through the lens of a particular example of service delivery - that of water and sanitation services and draws from well-established literature on the subject (see Allen et al., 2006a and 2006b; Allen, 2010, 2013).

Key questions for development practitioners

- What approaches to service delivery are relevant for addressing the needs and priorities of the poor, particularly in peri-urban areas?
- What kind of institutions and governance arrangements are required to provide infrastructure and services to people living in poverty, and at what scale?

Key summary points and takeaways

- Diverse service providers (from the public, private, and community sectors) exist in peri-urban areas and they support various approaches, including those that are 'policy-driven' and 'needs-driven'.
- The peri-urban poor rarely have access to formal facilities and services operated by the public or the formal private sector, so they depend largely on 'needs-driven' approaches.
- The state and large-scale privatised networks have been unable to meet the scale of need (particularly for adequate water and sanitation), so a closer engagement with other actors (including CBOs that represent the most ill-served groups) is required to fill the gap.
- Local governments have a key role to play in providing the infrastructure and services and in fostering collaboration across administrative boundaries, so they require adequate financial support and appropriate incentives from national governments and international agencies.

7.1 The spectrum of service providers

In the water and sanitation sector, for example, as examined in detail by Allen et al. (2006a and 2006b), the peri-urban poor gain access to services through a wide range of practices and arrangements. **Development practitioners seeking to improve the quality of service delivery in their projects need to acquire a thorough understanding of these arrangements, which are often particularly complex in poor areas (many being peri-urban).**

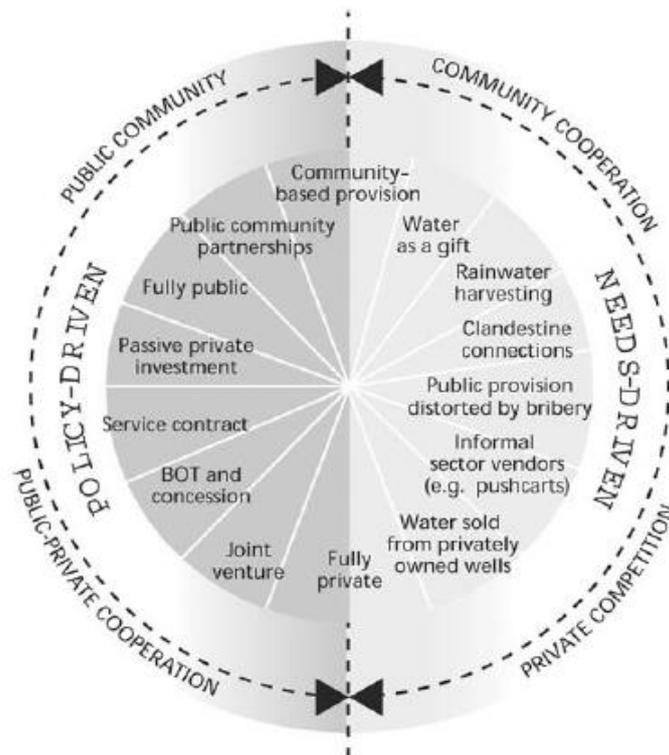
7.1.1 The ‘Water Supply Wheel’: An analytical tool

The Water Supply Wheel in Figure 4 provides development practitioners with a conceptual tool to develop a more complete understanding of local practices and arrangements involving the provision of water in peri-urban areas, which could also be applied to other services with complex arrangements. The Wheel outlines a continuous spectrum of policy and needs-driven practices the latter prevailing in peri-urban areas. The left side includes formal, ‘policy-driven’ mechanisms explicitly supported by the state through both public and private utilities. The right side includes a wide array of ‘needs-driven’ arrangements operating on the basis of solidarity, reciprocity or need, such as the provision of water as a gift among community members, as well as cases of water-pushcart vendors who might access water through different means and sell it to members of their own community.

Whilst policy-driven mechanisms can be clearly identified from the perspective of production and provision, the needs-driven arrangements are best examined and understood from the perspective of access and, in particular, from the viewpoint of highly localized strategies adopted by the peri-urban poor, many of which are not supported by the state.

The Water Supply Wheel also shows the role of the public, private and community sectors in the provision of water, and the extent to which these roles are based on cooperative arrangements across two or three of these sectors and at different scales. None of the three sectors can be regarded as homogeneous; for example, the public sector might be present in the form of either highly centralized state agencies or of decentralized local bodies. Similarly, at a community level there might be arrangements marked by some degree of formalization, such as community schemes actively supported by the public sector or by external NGOs, as well as more informal relations of cooperation on the basis of solidarity ties.

Figure 4 Policy-driven and needs-driven practices in the ‘Water Supply Wheel’



Source: Adapted from Allen et al (2006a)



7.2 Addressing pro-poor service provision: beyond the public-private divide

As Allen (2010) points out, there now seems to be widespread agreement that, in low- and middle-income countries, the state alone will be unable to meet international targets for reducing the number of urban dwellers with no access to clean water (Nunan & Satterthwaite, 2001; World Bank, 2003). This is a legacy of decades of supply-led engineering approaches with high operating costs and under-utilised investment, unrealistic standards and general disregard for the needs of informal or 'illegal' settlements.

7.2.1 Issues with private provision of services

Private sector participation in the provision of water and sanitation utilities has become widespread in urban areas, despite local resistance. However, due to a lack of capacity to manage large-scale privatised networks, in many countries local capital is largely excluded from this process so **foreign investors control divested public utilities and concessions**. The collapse of large-scale contracts with multi-national companies in cities such as Buenos Aires or Dar es Salaam compound doubts about the capacity of the market to fill the gap.

With few exceptions (see Nickson, 2001), attempts to involve private investors in water and sanitation have rarely yielded the desired expansion of coverage to low-income urban and peri-urban settlements, regarded as less profitable than wealthier and more central areas of cities (Batley, 1996; Adam et al., 1992; Cook & Kirkpatrick, 1988). Furthermore, outside of purely urban areas, there is persistent lack of recognition of the various actors involved in servicing the peri-urban poor, such as community-based organisations (CBOs), local contractors and small (often informal) service providers (Allen et al., 2006a and 2006b).

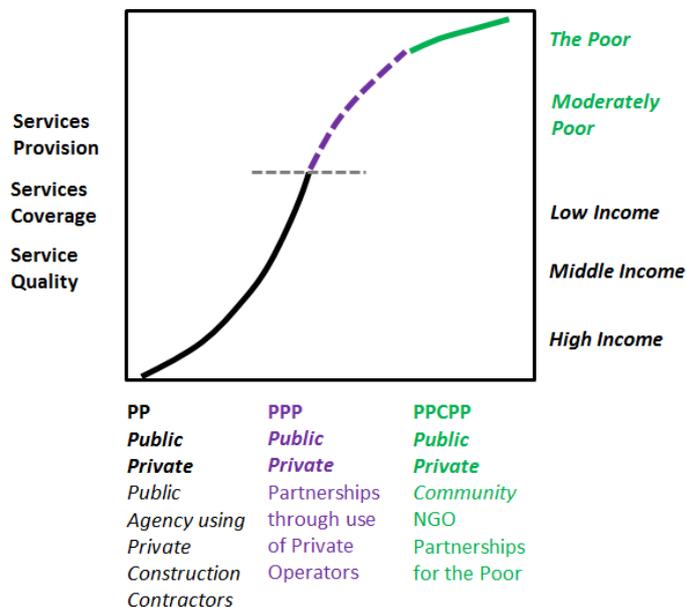
In practice, a fault line exists between the idea of the state as guarantor of basic service delivery, encompassing notions of social equity and basic rights to resources, and market-based approaches that focus on cost recovery and the financial sustainability of service supply.

7.2.2 The value of public/community partnerships

Figure 6 presents a model by the Asian Development Bank, which indicates that, often, the poor and moderately poor are best serviced by public/community partnerships. The model suggests that because of pricing issues, public-private partnerships are less effective in serving the poor.



Figure 5 Efficiency and participatory developments: partnerships. Adapted from: Banyard (2004)



7.3 Decentralised service delivery and infrastructure provision at the local government level

Decentralised service provision involving small-scale actors appears to be the most effective way of delivering basic services to many of the peri-urban poor and those straddling between urban and rural jurisdictions (Allen 2010). The case study below on decentralised wastewater management in Dar es Salaam (Box 9) provides an example of how this can be achieved in ways that also support productive activities. However, efforts by policymakers and bureaucrats often still focus on centralised systems that do little to improve access to basic infrastructure and services among the peri-urban poor (Calagus & Roaf, 2001; Schaub-Jones, 2006). Meanwhile, the continued debate around public or private service delivery has missed the question of who will serve the peri-urban poor, which is fundamentally a question of governance (Allen, 2010; McGranahan & Satterthwaite, 2006).

Box 9 Decentralised wastewater management in Dar es Salaam

Decentralised wastewater management was first piloted in Dar es Salaam in Kigamboni ward by UMAWA, a community enterprise associated with a CBO. The company has four staff members dedicated to running a pit-emptying service using gulper technology (a pump system to empty pits transported on a motorised tricycle), which is currently operating in two sub-wards. The operators charge between TSh30,000 and 60,000 (£11-22) per trip depending on people’s ability to pay, distance from the business location and amount of wastewater emptied. UMAWA recently managed to secure a loan from Tujijenge, a micro-finance institution, to increase the capacity of the business and carry out major maintenance work. The business is working on a strategy to branch out into other areas of the city through close collaboration with the municipality and local government representatives at sub-ward level. Critical issues here are access to finance and availability of land.

In 2013, UMAWA installed a DEWATS (Decentralised Wastewater Treatment System) for



onsite treatment of wastewater to replace the previously used transfer station. This new system has substantially improved the financial viability of the business as it led to reductions in the operating costs and an increase in the volume of wastewater that can be handled per day. Additionally, the DEWATS produces biogas for cooking purposes and manure to fertilise vegetable plots.

DEWATS were developed by BORDA, a German Research and Development Association. They provide a decentralised, low-cost and low-maintenance way of dealing with domestic and industrial wastewater. Today, the BORDA network has trained over 1,000 participants from NGOs, governments and the private sector in order to assist with implementing, maintaining and spreading the uptake of DEWATS. There are currently over 250 DEWATS operating in different countries (<http://www.borda-net.org/basic-needs-services/decentralized-wastewater-treatment.html>).

Source: produced by Hofmann based on fieldwork conducted in Dar es Salaam during August and September 2014.

7.3.1 The importance of decentralisation

A recurrent theme emerging from this Topic Guide is the centrality of local governments as enablers of urban and rural development, whether in partnership with CBOs (particularly involving processes of service co-production between grassroots organisations and local government authorities – see Allen, 2013) or in implementing national programmes. It is also becoming increasingly recognised that local governments are fundamental to achieving the MDGs, given their mandates to ensure basic infrastructure and services, which the achievement of many of these goals depend on (Satterthwaite et al., 2013).

Most decentralisation policies, however, have been implemented without commensurate resources from national governments and without adequate support by international agencies, placing significant strain on local governments to deliver on their mandates (ibid). There is thus a clear need for decentralised systems of governance that support real local decision-making power, budgetary control and genuine participation in local planning. This is particularly the case in small and intermediate urban centres where institutional and fiscal capacity is often particularly weak (UN-Habitat 2006).

International agencies, which have traditionally engaged national governments, would therefore be well-positioned to engage much more closely with local governments given their potential to foster collaboration across administrative divisions. However, in doing so, it is important not to overlook the vital role that national governments play not only in ceding urban governments with the funding and revenue-generating powers that are commensurate with their responsibilities (see Satterthwaite et al., 2013), but also in providing them with the incentives to create infrastructure that benefits poor communities beyond their administrative boundaries. Indeed, urban governments often have little incentive to take responsibility for investment serving low-income rural migrants. This is partly because they do not want to attract more of them into their urban areas, thereby putting additional stress on overburdened services and existing financial liabilities (McGranahan et al. 2008), as highlighted by the case study on ID cards in India (Section 6.1.2).



Ultimately, investing in infrastructure that builds reciprocal rural-urban linkages and benefits people in urban, rural and intermediate locations will require a closer engagement with the spectrum of actors that are involved, including local and national governments, the private sector (notably small-scale service providers), and the local CBOs that represent the most ill-served groups.



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