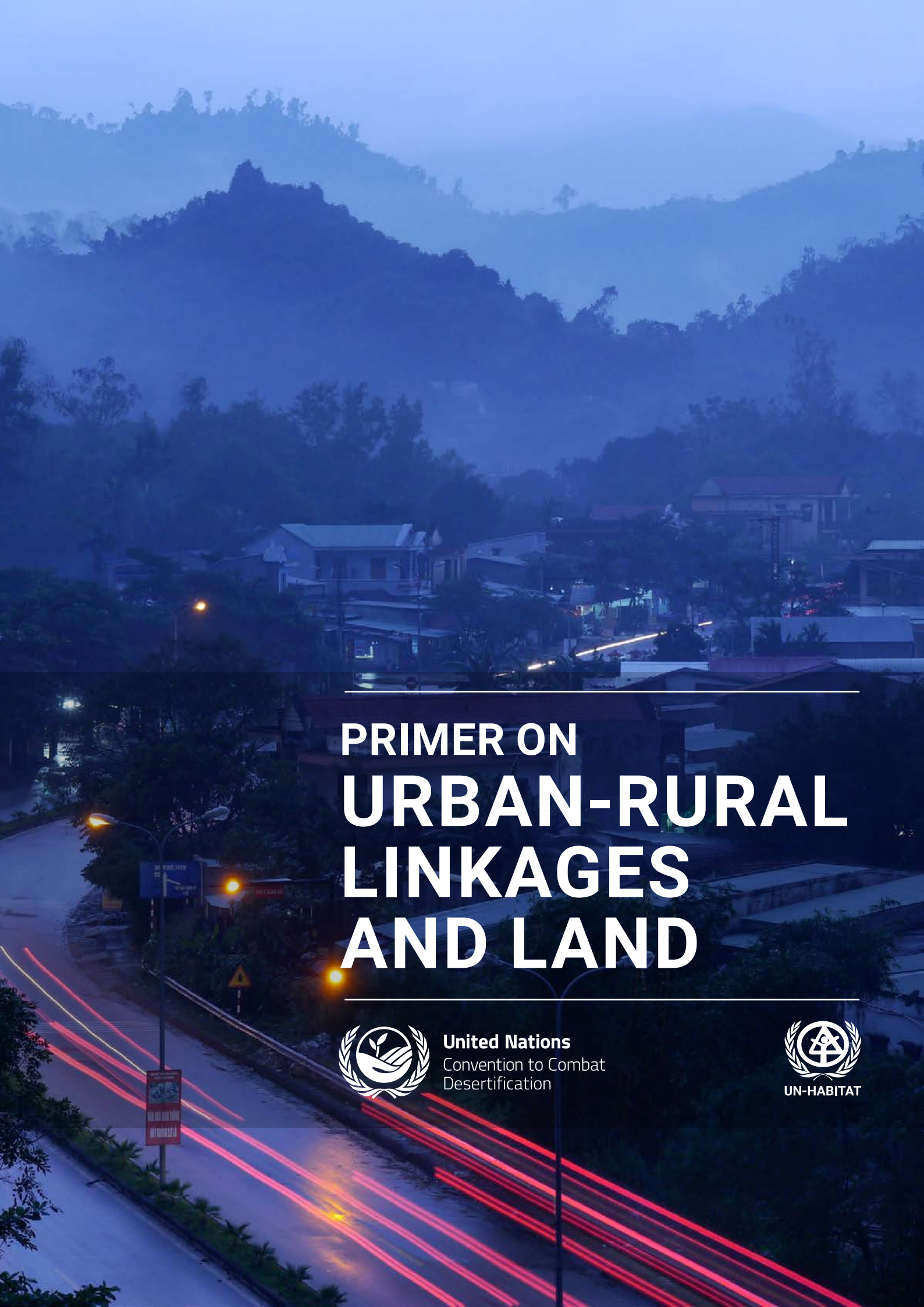

# PRIMER ON URBAN-RURAL LINKAGES AND LAND

United Nations
Convention to Combat Desertification

UN-HABITAT

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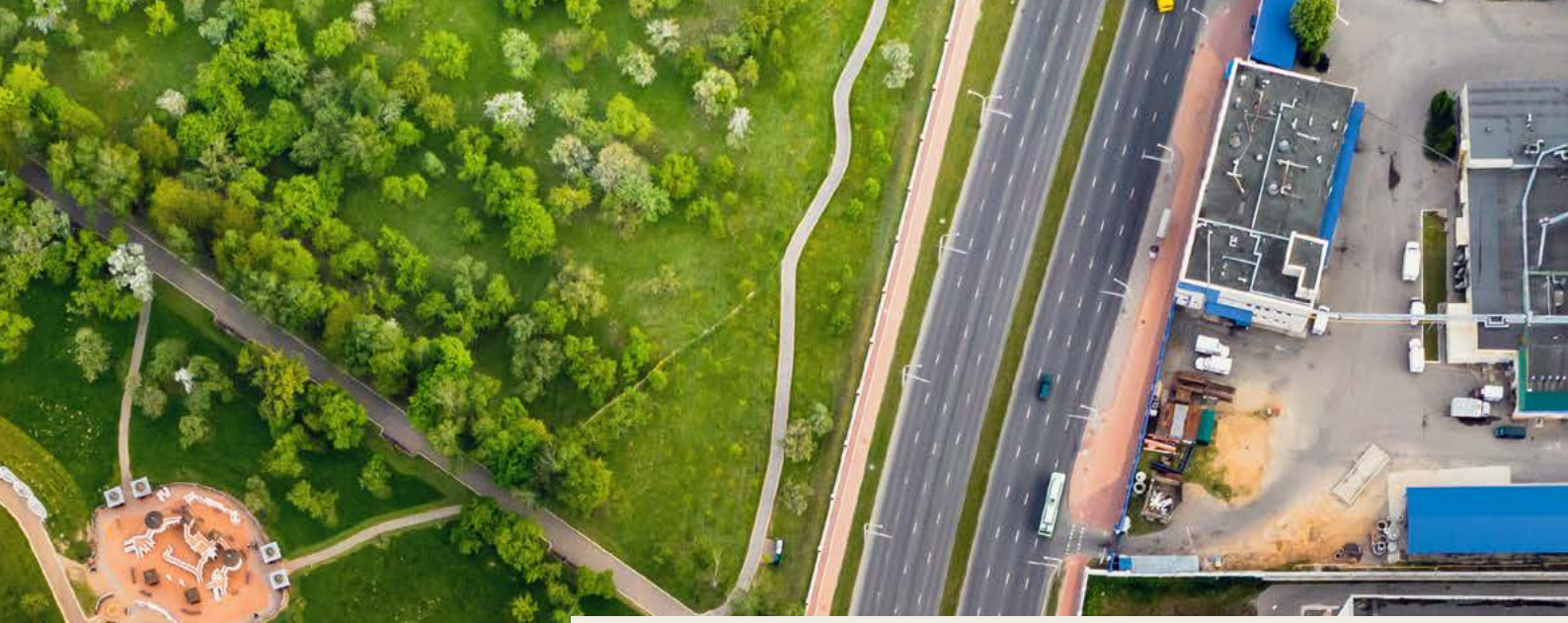
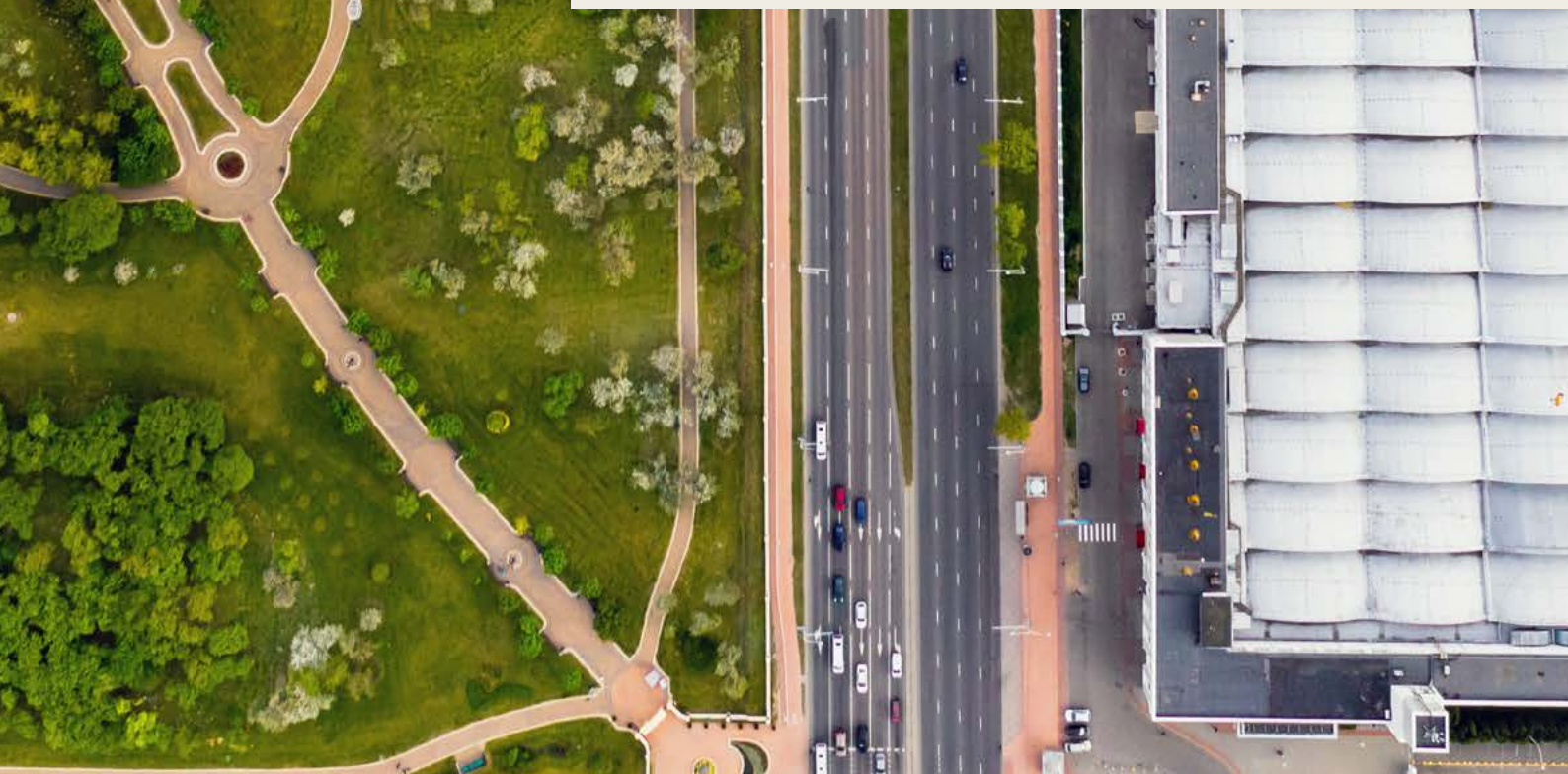


# Contents





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# Foreword

**Ibrahim Thiaw**
UNCCD Executive Secretary

Humanity is becoming increasingly urban. Approximately 56 per cent of the world's population, or about 4.4 billion people, now live in cities and towns, and this is expected to rise to 68 per cent by 2050. Urban residents rely heavily on rural areas for essential resources – they supply nearly 70 per cent of global food, and vast quantities of water, energy, and raw materials. At the same time, cities generate over 70 per cent of global carbon emissions, along with vast amounts of waste and pollution, contributing to environmental degradation across the planet.

Urban-rural linkages refer to the flow of people, goods, information, capital, and services that bring communities and cultures together. Rural communities benefit from employment opportunities, financial and technology flows, transport links, power lines, and digital connectivity. Local and regional food systems are a prime example of how these linkages operate – connecting rural producers to markets, infrastructure, and supply chains that feed our growing cities.

**Anacláudia Rossbach**
UN-Habitat Executive Director

While cities and built-up areas occupy less than 3 per cent of the land surface, their consumption footprint extends far beyond these boundaries, impacting nearly every ecosystem on the planet. Sprawling settlements and infrastructure are displacing some of our most fertile agricultural lands. Between 2000 and 2030, urbanisation is projected to cause an annual loss of between 1.6 and 3.3 million hectares of prime agricultural land. This puts immense pressure on more remote rural and natural areas to meet increasing demand.

We need to rethink our urban-rural relationships if we are to address the converging land, climate, and biodiversity crises. Today, land degradation affects nearly 40 per cent of the world's land area and directly impacts 3.2 billion people in both rural and urban settings. We all depend on the intricate web of life to meet our daily needs – nutritious food, clean water and air, and affordable energy. We are very pleased to present this Primer on Urban-Rural Linkages and Land to highlight new approaches and opportunities to strengthen urban-rural linkages, better care for our land resources, and achieve land degradation neutrality targets.

The United Nations Convention to Combat Desertification (UNCCD) recognises the need to address land degradation in both urban and rural areas with commitments to integrated and sustained actions. By improving soil health, conserving water, and protecting biodiversity, we can harness the power of green and blue infrastructure to improve the health and wellbeing of urban and rural communities. Investing in nature-based solutions is often a cost-effective way of strengthening urban-rural linkages, which has the potential to generate USD 10 trillion in annual business opportunities and create 395 million jobs by 2030.

The United Nations Human Settlements Programme (UN-Habitat) recognises that sustainable urbanization requires the integration of urban, peri-urban, and rural planning for functional territories. The conservation and restoration of ecosystem functions are essential for ensuring the delivery of basic services in cities and sub-national territories, especially as we face rapidly changing economic, social, and environmental conditions. Multilevel governance mechanisms, supported by adequate resources, tools, and technologies, are key to adapting to these challenges.

This aligns with the New Urban Agenda (NUA) which underscores the importance of preserving and promoting the ecological and social function of land that support cities and human settlements. THE NUA also advocates for promoting sustainable land use, combining urban extensions with adequate densities and compactness to prevent and contain urban sprawl, as well as preventing unnecessary land-use change and the loss of productive land and fragile and important ecosystems.

We can support and fund local and sub-national governments and multi-stakeholder collaborations at the forefront of planning to ensure a healthy mosaic of land uses that deliver essential services. By restoring our forested watersheds, we can safeguard clean water supplies to urban residents. Renewable energy and low impact transport networks work best when they are linked with core rural businesses, helping to create meaningful jobs in agriculture, forestry, rural industries, and eco-tourism. The renewable energy sector, which employed over 13.7 million people worldwide in 2022, is poised to grow further, with rural areas playing a central role in this transition.

More sustainable and resilient urban-rural linkages generate greater efficiencies and equity which, in turn, can reduce the forced migration that fuels rapid unplanned urbanisation. Stronger linkages can also diversify economic opportunities that make us more resilient to current and future crises, such as food insecurity and water scarcity, as well as droughts, floods, and wildfires. This will help us to achieve multiple Sustainable Development Goals and restore health and wealth to our societies and landscapes.

# Executive Summary

Strong, sustainable, and resilient urban-rural linkages (URL) are central to the effectiveness of integrated urban-rural or territorial approaches to sustainable development. URL are the lifelines that connect urban and rural communities with great potential to improve the human condition. URL refer to the reciprocal flows of people and goods as well as financial, environmental, and other services between rural, peri-urban, and urban areas. These flows are supported by land-based infrastructure and networks that cross socioeconomic, biophysical, and jurisdictional boundaries, yet are often not fully recognised or accounted for in the typical political and administrative spheres of governance and management.

Climate change, land degradation, and biodiversity loss are exacerbated by inefficient and high-impact URL that adversely affect livelihoods and contribute to growing inequality and instability in rural areas, especially affecting women, youth, and indigenous peoples. Land degradation impacts the ability of communities to build resilience, stem rural out-migration, and ensure the health of land-based assets. Land degradation neutrality (LDN) – whereby the amount and quality of land to support ecosystem functions and services remains stable or increases relative to a baseline – was adopted by Member States as target 15.3 of the Sustainable Development Goals (SDGs).

The Parties to the United Nations Convention to Combat Desertification (UNCCD) have welcomed the partnership established between the UNCCD secretariat and the United Nations Human Settlements Programme (UN-Habitat) to produce a technical guide on urban-rural linkages and land. As a first step, this Primer offers a comprehensive overview of the topic and its relevance to the convention as part of the effort to assist countries in achieving their LDN targets. It identifies the key functional characteristics of URL that pose unique challenges to the health and productivity of the land: 1) fragmented governance, 2) urban consumer demand, 3) infrastructure development, 4) urban and peri-urban expansion, 5) rural-to-urban migration, 6) interconnected challenges, and 7) telecoupling.

The Primer describes the relevant actors, frameworks, and tools that can be used to support LDN initiatives by strengthening URL and making them more resilient. Key actors include national and state governments, sub-national and local authorities, the private sector, academic institutions, and civil society who help shape the structure and operation of URL. Multilevel governance frameworks, integrated territorial and flow-centred approaches, and human rights-based and gender-responsive strategies are recognised to be effective in engaging diverse URL actors and enhancing LDN efforts in a variety of contexts.

A number of land administration and management tools are available for designing, planning, implementing, and financing more sustainable and resilient URL that also address land degradation drivers and impacts: from integrated land use planning (ILUP) and integrated landscape management (ILM) to demand-led policies, and land administration in the public sector domain to accelerate green and blue infrastructure while also promoting land rights and tenure security, land restoration, nature-based solutions, and social and solidarity economies (SSE).

The frameworks and tools presented are intended to encourage the awareness and development of three main elements to strengthen URL and accelerate progress towards achieving LDN targets: 1) integrated territorial approaches involving multi-actor participatory processes, 2) coordination mechanisms and partnerships to design and manage flow-based URL, and 3) social and solidarity economies.

# Key Findings

**Fragmented land governance is perhaps the most significant challenge in addressing URL impacts on land.** The choice of national policy and governance frameworks often determines the effectiveness of strategies and approaches to achieve sustainable, equitable, and integrated urban-rural development. In some countries, integrated territorial governance (i.e., functional territories) combined with flow-centred governance frameworks offer the greatest potential for strengthening URL and achieving LDN. This requires financial and technical assistance to establish the administrative procedures and capacities for vertical and horizontal integration as well as land use planning and implementation within a specific functional territory.

**Integrated land use planning (ILUP) and territorial planning offer a suite of tools that can help coordinate intermunicipal and interregional strategies and action plans.** The objective is to balance competing land use demands and allocate resources across multiple users, sectors, and jurisdictions along an urban-rural continuum. These tools can address the shortcomings of other planning systems which fail to consider the wider landscape of URL-related land uses and impacts, especially when they incorporate the territorial intelligence of indigenous peoples, pastoralists, and agricultural smallholders, among others.

**Integrated landscape management (ILM) is particularly adept at addressing URL challenges arising from urban and peri-urban expansion, infrastructure development, and agricultural extensification.** These all contribute to rural-to-urban migration, deforestation and biodiversity loss, climate change and water scarcity, food insecurity, poverty, and inequalities that disproportionately affect women and youth. Landscape partnerships can be strategically positioned to support the implementation of commitments under the Rio conventions, including those contained in SDG target 15.3 (LDN), National Biodiversity Strategies and Action Plans (NBSAPs), Nationally Determined Contributions (NDCs), and National Adaptation Plans (NAPs).

**Responsible and inclusive land governance is required to enhance land tenure security for urban, rural, and peri-urban communities.** It is a critical enabling factor to avoid and reduce the negative impacts of URL on land and natural resources while enhancing the positive impacts of URL. Tenure security for all not only promotes long-term investments in land stewardship but can play a significant role in preventing and managing conflicts that arise from URL processes and infrastructure. Land rights and tenure security for indigenous people and women is considered imperative to redress past inequality and marginalisation.

**Green and blue infrastructure can provide cost-effective, nature-positive complements to food, water, transport, and energy flows that are typically supported by grey or built infrastructure.** Nature-based solutions can enhance drought and flood mitigation, renewable energy provision, biodiversity conservation, and water and waste recycling. Other approaches to addressing URL impacts on land, include conservation hubs, forested and riparian buffer zones, ecological connectivity features, and multifunctional zones.

**Public procurement and demand-led policies can help shift growing urban demand towards more sustainably produced land-based commodities and greener supply chains.** Local and sub-national governments managing demand-driven URL can encourage regenerative land management practices in rural areas through new markets and supply chains that increase producer incomes and stem rural out-migration. Social solidarity and circular economies that connect urban consumers and rural producers with a focus on women and youth can help raise awareness on the need to sustainably manage the entire life cycle of goods and services and mitigate URL impacts on land.

**The challenges posed by telecoupled or long-distance URL can be significant in some countries and can be mitigated by demand-driven tools but ultimately need to be addressed in the domain of international trade and foreign investment.** Urban consumer demand in high- and middle-income countries can lead to a distant but large environmental footprint in some developing countries. This is an important consideration for those countries where land degradation and land use change are closely associated with transnational trade and investment in land-based commodities.


# 1 INTRODUCTION

Strong, sustainable, and resilient urban-rural linkages (URL) are central to the effectiveness of integrated urban-rural and territorial approaches that foster sustainable development and address their social, economic, and environmental impacts. These approaches fully consider multi-directional flows across the urban-rural continuum, including the processes and actors involved as well as their regulation or transformation. URL are supported by land-based infrastructure and networks that traverse socioeconomic and jurisdictional boundaries yet are often not fully recognised or accounted for in the typical political and administrative spheres of governance and management.[1]

**Urban-rural linkages** are defined as the spatial flows of individuals, goods, services, money, social values, and sectoral flows, such as agriculture and non-agricultural employment between urban and rural areas.[2] Alternatively, URL are described as the flows between labour markets and migration, services, resources, and information, and connecting institutional functions such as partnerships at various levels – local, national, and international.[3]

URL allow rural populations to benefit from urban markets, services, and remittances while urban communities are supplied with food, water, energy, and raw materials from rural areas. Evidence demonstrates that well-managed and resilient URL can promote food and nutritional security,[4] improved rural and urban livelihoods,[5] the conservation and sustainable use of biodiversity,[6] ecosystem restoration,[7] integrated territorial economic development,[8] and reduced inequalities and imbalances between urban and rural communities.[9]

The potential benefits of stronger URL highlight the need for guidance on people-, place-, and flow-based approaches to the urban-rural continuum that safeguard livelihoods and rural security while preserving ecological integrity and connectivity. Well managed and resilient URL rely on national and sub-national governments, including cities and municipalities, which can be supported by administrative and policy tools that promote food security and nutrition, local economic development, or biodiversity conservation and ecosystem restoration.

**FIGURE 1** **Main Elements Discussed in the Primer**


Climate change, land degradation, and biodiversity loss are often triggered or exacerbated by inefficient and high-impact URL which adversely impact livelihoods and contribute to growing inequality and instability in areas, often with devastating consequences for marginalised or disenfranchised communities.[10] Urban sprawl can lead to the conversion of fertile agricultural land while infrastructure development tends to fragment rural landscapes. Coupled with the growing demand for land-based commodities, all of these economic pressures contribute to land degradation and the loss of biodiversity habitat, as well as the disruption of ecosystem functions and the delivery of essential water and carbon services. Land degradation – the loss of biological and economic productivity – simultaneously impacts the ability of communities to build resilience, stem rural-to-urban migration, and ensure the health of land-based assets.

**Land degradation neutrality** (LDN) is a state whereby the amount and quality of land resources necessary to support ecosystem functions and services and enhance food security remain stable or increase within specified temporal and spatial scales and ecosystems.[11] A scientific-conceptual framework provides guidance for the development of LDN initiatives which focus on the most effective response measures to **1) avoid future degradation** through conservation and protected areas, **2) reduce current degradation** through sustainable land and water management, including regenerative agriculture, and **3) reverse past degradation** through ecological rehabilitation and restoration.[12]

URL provide a unique lens by which to better understand and manage the process and flows that adversely impact land health and productivity. An operational framework with essential principles for strengthening URL was developed by the United Nations Human Settlements Programme (UN-Habitat).[13] One specific aim of this framework is to help countries identify URL impacts on land condition, use, and management by highlighting the governance features needed to address these unique challenges, particularly with regard to land tenure. A subsequent framework for action presents recommendations to strengthen URL and help foster development efforts that are just and equitable for both urban and rural communities.[14]

URL and their role in slowing and halting climate change, land degradation, and biodiversity loss have been recognised in recent multilateral agreements. In addition to **Land Degradation Neutrality** (LDN) (SDG target 15.3), target 11.a of the **Sustainable Development Goals** (SDGs) aims to support positive economic, social, and environmental links between urban, peri-urban and rural areas by strengthening national and regional development planning.[15] The **New Urban Agenda** stresses the need for territorial approaches and planning systems that integrate urban and rural functions for the sustainable management of land and natural resources.[16] The **Global Biodiversity Framework** explicitly acknowledges that integrated spatial planning – including urban, rural, and natural ecosystems – is essential to achieve the sustainable use and conservation of biodiversity.[17]

These and other global instruments also stress the need for more inclusive and responsible land governance that recognises the legitimate land rights of those most affected by environmental degradation, such as women, youth, indigenous peoples, local communities, and marginalised groups.[18] Acknowledging these related challenges, the 15th Conference of the Parties of the United Nations Convention to Combat Desertification (UNCCD) requested technical guidance on URL and land to assist countries and other stakeholders in their efforts to scale up conservation, sustainable management, and restoration activities to achieve their LDN targets and enhance the implementation of the convention.[19]

The capacity of communities and governments to address URL challenges effectively and at scale requires financial resources in addition to technical assistance. The normative policy guidance to encourage integrative solutions that address both urban and rural challenges has been reflected in the global sustainability agenda and subsequent efforts directed at implementation. In recent years, the emphasis has turned to the need to unlock public finance and private investment to build more resilient and sustainable URL.

As a first step towards developing the requested technical guidance, this Primer presents a general overview on URL and land to better inform decision-making.

**Chapter 1** describes the key functional characteristics of URL that pose unique challenges to the health and productivity of land.

**Chapter 2** identifies the main URL actors and sectors involved in planning and managing URLs and describes their roles and responsibilities.

**Chapter 3** outlines several types of governance frameworks that can help establish an enabling environment to govern URL actors, strategies, and implementation plans.

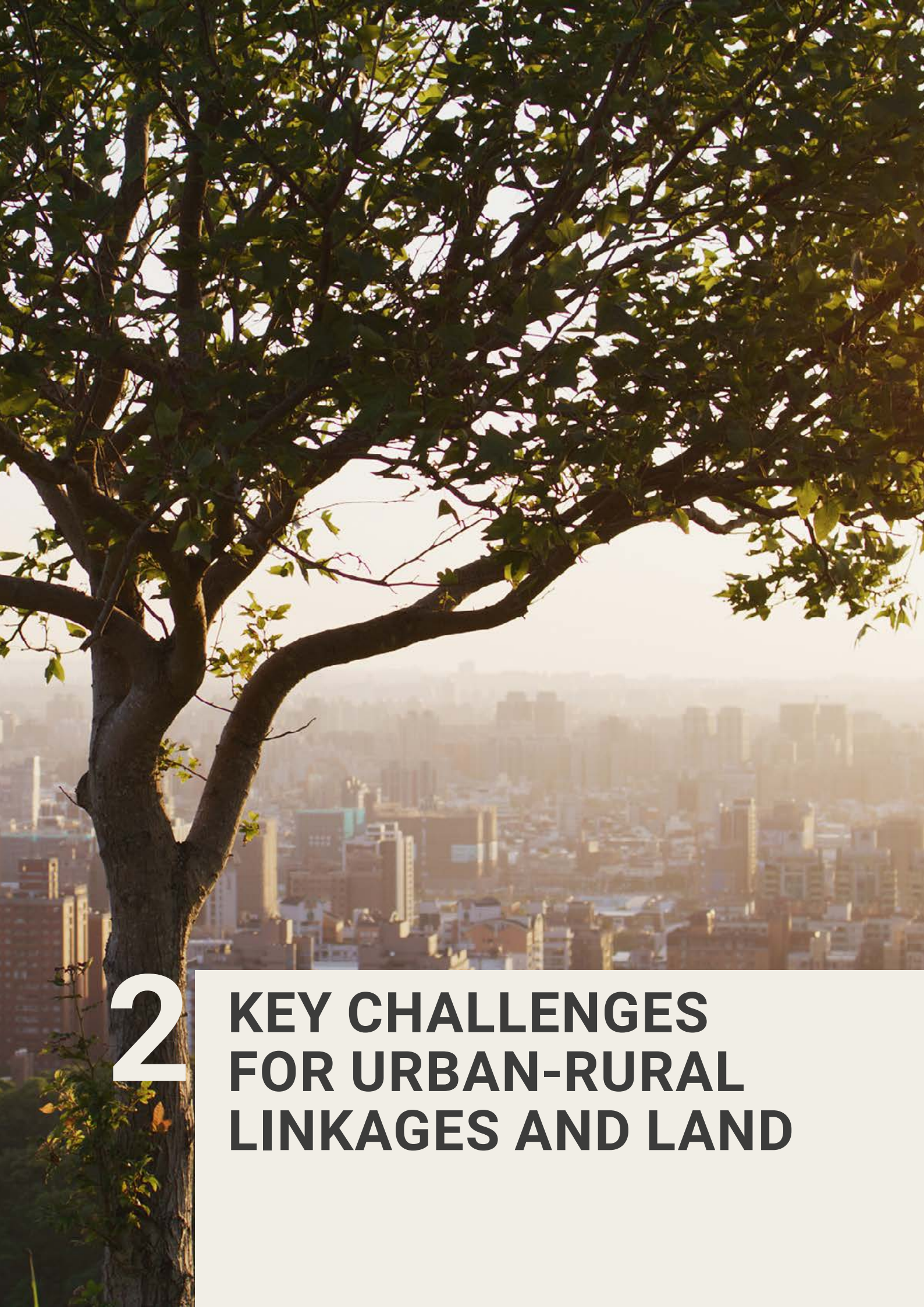
**Chapter 4** highlights land administration and management tools to address URL processes and flows with the objective of avoiding, reducing, and reversing land degradation.

**Chapter 5** presents key findings and reflections on the way forward for decision makers and other stakeholders to better manage URLs and achieve LDN.

## Objective of the Primer on Urban-Rural Linkages and Land

This Primer is organised to guide diverse approaches that address URL and simultaneously advance efforts to achieve land degradation neutrality at territorial or landscape scales. It presents a generic methodology that can be adapted to different contexts, providing practical entry points to:

- **Assess the needs and priorities** arising from challenges of fragmented governance and lack of capacity for managing URL in specific geographies.
- **Identify the relevant actors and sectors** to establish inclusive dialogue platforms that can then foster collaboration to translate policy into viable action plans.
- **Explore governance frameworks and management approaches** that are most appropriate to meet the needs and enhance the capacities of relevant actors and sectors.
- **Apply tools to improve the governance and management** of both public and private URL that encourage actions to avoid, reduce, and reverse their impacts on land.



# 2 KEY CHALLENGES FOR URBAN-RURAL LINKAGES AND LAND

As part of the effort to assist countries in achieving their LDN targets, this Primer identifies seven key functional characteristics of URL that pose unique challenges to the health and productivity of land:

1) fragmented governance involving multiple rural and urban jurisdictions and levels of administration;
2) growing urban demand for land-based commodities;
3) transportation, energy, and other grey infrastructure development;
4) urban and peri-urban expansion;
5) rural-to-urban migration;
6) interconnected challenges; and
7) "telecoupling" that links foreign consumers and investment with domestic rural producers and land.

## 2.1 Fragmented Governance

One of the biggest challenges posed by URL in the context of land use planning and management is fragmented governance. Planning and managing URL in a sustainable manner requires coordination among diverse actors with competing interests across multiple jurisdictions. Many governing bodies and institutions typically make decisions about land within discrete or limited geographic and administrative boundaries that are smaller in scale than the cross-boundary or transnational nature of the processes, interactions, and impacts related to URL. These boundaries are often rooted in a legacy of urban and rural jurisdictions which do not match functional territories or are not conducive to the coordinated and synergistic planning and implementation of URL. As a result, the connections between distant demand and associated land degradation impacts tend to be neglected, as are more generally the linkages between urban functions and rural land uses.

**Land governance** encompasses the regulations, mechanisms, and institutions through which determinations are made regarding land use and access, the implementation and enforcement of such decisions, and the management of conflicting interests.[20]

Fragmented governance is characterised by the lack of integrated sectoral and spatial planning. Markets connect urban consumption with rural areas and typically involve multiple sectors, such as agriculture, forestry, energy, manufacturing, and mining. The governance of supply chains can determine how rural land is managed and how natural resources are mined, harvested, processed, manufactured, and transported. Sectoral regulations and standards of practice also influence the behaviour of industries and actors that depend on URL for land-based commodities, water, energy, and trade.

The lack of long-term spatial planning has direct impacts on biodiversity loss, climate change adaptation, and land health (e.g., outdated planning related to flooding and storm surge, or plans that permit or even encourage soil sealing over fertile land). Focusing land use and infrastructure planning on collective issues can be a useful entry point to facilitate and strengthen multi-scale mechanisms for cooperation (e.g., watershed management or regional food systems). In addition to biophysical planning, spatial and resource priorities should account for time scales and the differentiated impacts on certain population groups, particularly those in vulnerable situations.

The lack of inclusive and transparent governance, especially for traditionally excluded or marginalised groups, can increase conflict among land users and other URL actors pursuing diverse interests with different rights, incentives, and mandates. These conflicts can create or aggravate urban-rural inequalities (e.g., income, opportunity, benefit sharing) in many countries and across different scales as stakeholders find themselves competing for increasingly scarce resources. These urban-rural divisions in terms of land policy and planning can lead to uneven development contributing to rural out-migration and growing inequality.[21]

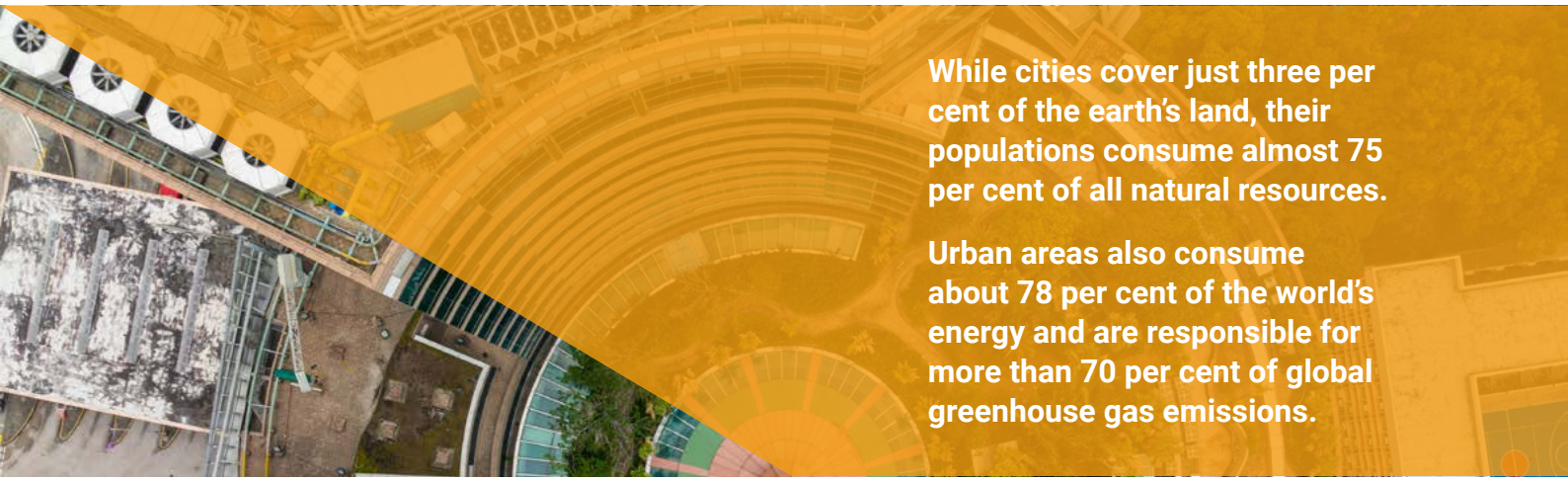
## 2.2 Urban Demand and Food Systems

Cities and urban food supply systems play an important role in shaping surrounding and more distant rural areas as regards land use, environmental management, food production, bridging infrastructure, and waste generation.[22] Food systems are the archetypal application of URL as people, goods, and services travel across the urban-rural continuum to satisfy demand on a daily basis, year round in almost every region. Rapid urbanisation plays a significant role in increasing the demand for agricultural products in terms of both a growing population and dietary changes. On the other hand, strengthening URL can support inclusive economic growth and more resilient food systems that mitigate the risk of food insecurity and malnutrition for both urban and rural populations. Regional food systems can help overcome fragmented governance through mechanisms, like food policy councils, which address land management issues and facilitate multilevel coordination.[23]

URL created and managed to meet growing urban demands for land-based commodities presents a significant challenge to land health and efforts to achieve LDN. Consumer demand in cities around the world – often met through domestic and international trade – is a dominant driver of overexploitation and the unsustainable levels of natural resource extraction which contribute to land degradation.[24] While cities cover just three per cent of the earth's land, their populations consume almost 75 per cent of all natural resources.[25] Urban areas also consume about 78 per cent of the world's energy and are responsible for more than 70 per cent of global greenhouse gas emissions.[26] By 2050, it is estimated that 80 per cent of all food produced will be consumed by urban residents.[27]

**Ecological footprint** is one measure for tracking resource use and gauging the earth's regenerative capacity for a specific activity or land use. Through annual comparisons of the environmental resources needed and those available, the ecological footprint estimates the degree to which human activities (under current management practices) surpass the biosphere's capacity to meet them. This assessment is frequently quantified in global hectares.[28]

The urban demand for food, fibre, water, metals, minerals, and other natural resources is unevenly distributed across geographies and societies. Most of this demand occurs in the cities of developed economies with an ecological footprint that is correlated with rising per capita income.[29] Even within developing countries, greater disposable income among urban households is becoming a significant factor in determining flows to and from cities (e.g., resources, remittances, investments) which can impact multiple and distant rural areas, often transforming land use and management practices. Urban centres also generate large amounts of waste, much of which is disposed of in rural areas, leading to the pollution or contamination of soil and water resources.[30]



**While cities cover just three per cent of the earth's land, their populations consume almost 75 per cent of all natural resources.**

**Urban areas also consume about 78 per cent of the world's energy and are responsible for more than 70 per cent of global greenhouse gas emissions.**

URL driven by urban resource demand typically results in offsite or downstream impacts on land health and productivity, affecting locations other than where the commodities are consumed. Consumer demand drives resource exploitation and extraction in rural areas that fragment landscapes and deplete ecosystem services while exacerbating other cascading environmental risks. Tropical deforestation is positively correlated with urban population growth and the push to increase agricultural exports in developing countries. While long distance URL (telecoupling) are often governed by policies and markets distant from the territories of origin, poor rural households that directly depend on land for their livelihoods are often disproportionately affected by land degradation fuelled by distant urban demand – leading to greater poverty, inequality and forced migration, particularly affecting women and youth.[31]

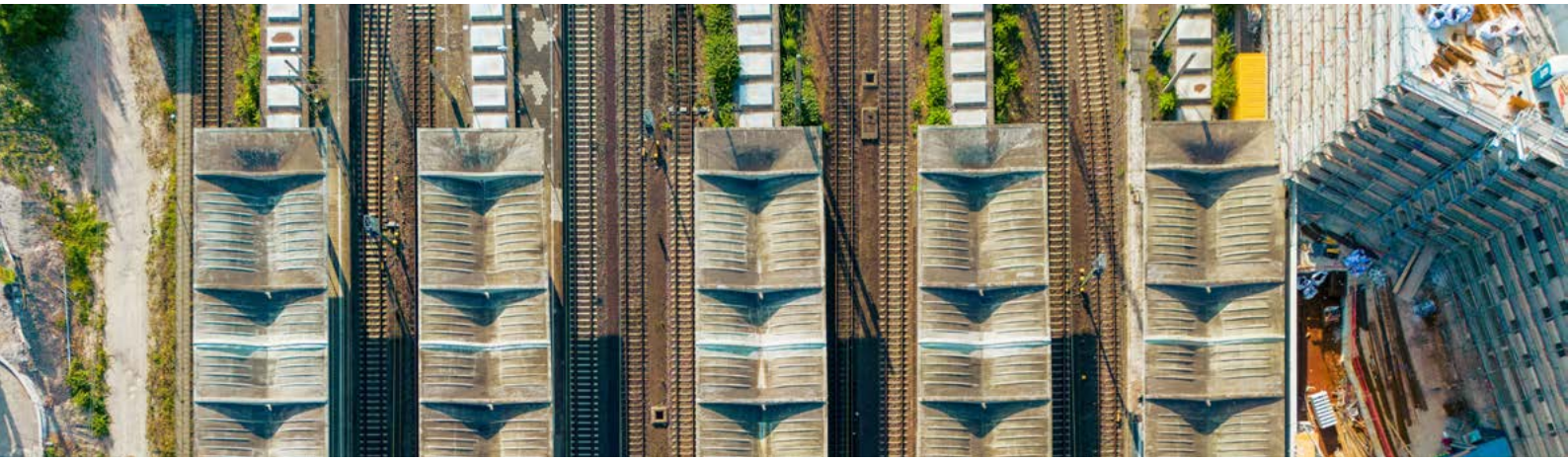
## 2.3 Infrastructure Development

Physical facilities, such as transportation, power, and communications, contribute to economic development, industrialisation, trade, and the mobility of labour. Water supply and sanitation infrastructure, together with education and health facilities, have a direct impact on quality of life. This so-called bridging infrastructure links people to people, goods to markets, workers to jobs, families to services, and rural to urban centres – a connectivity process that is essential to reduce poverty and increase resilience.[32]

URL rely on bridging infrastructure which underpins market, transport, and energy networks but can have a significant land footprint across the urban-rural continuum. Hard or grey infrastructure (e.g., roads, railways, waterways, pipes, cables) constitute the material support for the flow of goods, services, and people between urban and rural areas and provide rural producers with access to markets and diversified income streams.[33] However, infrastructure can also have significant negative environmental impacts that affect both urban and rural communities, such as air and water pollution, habitat fragmentation and the loss of ecosystem services, forced migration and internal displacement, among others.

Some URL infrastructure is directly responsible for worsening land degradation processes, such as soil sealing, hydrological disruption, and the reduction and loss of other land functions. The types, scale, and duration of these impacts are context-specific and vary according to design and operational management as well as any mitigation measures adopted.[34] Linear infrastructure, such as transport and energy, can lead to the spatial disruption and functional fragmentation of biodiversity habitat and essential landscape features that are critical for food and commodity production and rural livelihoods. The "fishbone effect" is a visual metaphor for the impact of unplanned, secondary offshoots that arise from a single road or transmission line which can rapidly accelerate land conversion and degradation in natural areas.

Design and planning for bridging infrastructure is often based on decisions taken within a single jurisdiction or municipality and may have significant cross-border effects, positive or negative, but usually unanticipated (i.e., intermunicipal externalities).[35] Local authorities and other levels of government acting in the best interests of their jurisdictions can create outcomes that are sub-optimal for the surrounding regions or even for the country. Examples include rail or highway corridors that divide communities and disrupt ecological connectivity, with significant negative consequences for people and biodiversity. The construction and operation of bridging infrastructure requires land and raw materials which can exert additional pressure on scarce natural resources.



## 2.4 Urban Expansion

Unplanned and unregulated urban expansion and peri-urban development is an important driver of land use change in many countries. Globally, urban areas have more than doubled in size in just decades, from 33 million hectares in 1992 to 71 million hectares in 2015. This expansion has consumed 24 million hectares of some of the most fertile croplands, 3.3 million hectares of forest, and 4.6 million hectares of shrubland. The indirect loss of natural ecosystems due to cropland displacement is estimated to be 18–32 million hectares of forest and 7–17 million hectares of shrubland – a higher magnitude due to the lower productivity of cleared lands.[36]

**Peri-urban areas** are characterised as transition zones which link or comingle urban and rural land uses, such as those used for large-scale urban amenities (e.g., airports, reservoirs, landfills) which co-exist with rural land uses (e.g., agricultural, forests).[37] These areas at the urban-rural interface are also shaped by trends in migration, industrialisation, and agricultural intensification.[38]

The impacts of urban expansion on land health and function are often reflected in the land governance challenges facing peri-urban development. The urban-rural interface are frequently sites of competition and conflict over land uses and access to resources among different economic interests or social groups with contrasting urban and rural values and priorities.[39] While cities are generally managed through formal land administration systems, peri-urban and rural areas in many countries are often governed under customary or ad hoc land administration systems that are ill-equipped to address URL challenges, such as those posed by large infrastructure and housing projects. The lack of participatory governance and tenure security provide further incentives for unchecked exploitation that increases land degradation in peri-urban areas.

## 2.5 Rural-to-Urban Migration

Migration plays an important role in shaping URL and economic development in both rural and urban areas. Push factors include droughts, land scarcity, tenure insecurity, low wages or absence of employment, and armed conflicts and violence in rural areas, while pull factors include better job and income opportunities and lower security risks in urban areas. The rural poor typically migrate to urban areas in response to the loss of productive land assets (e.g., soil, water, biodiversity) and uneven regional development which offers higher and more secure incomes in towns and cities.[40]

When land resources constitute the basic means of livelihood, land degradation and water scarcity lead to the loss of economic opportunities in rural areas. Desertification, land degradation, drought, and other climate-related events force people to diversify income sources by relying on migration, wage labour, and remittances which can accelerate rural-to-urban livelihood transitions.[41] At the same time, living and working across and between urban, peri-urban, and rural areas – a phenomenon known as "translocalism" – can improve livelihoods and food security while encouraging youth mobility and commuting between urban workplaces and rural homes.

Migration from rural to urban regions affects land use through a reduction in the rural labour force and by creating an inflow of remittances that further alter rural land ownership and power dynamics.[42] In some cases, the loss of agricultural workers due to migration – especially among the young – can deprive rural areas of much needed labour, skills, and expertise. In agriculture-dominated regions where a significant portion of the workforce is absent, the local economy may become highly dependent on remittances, raising concerns for its sustainability in the long term.[43]

In many cases, rural out-migration is a voluntary element of household economic strategies to diversify incomes and risk. This can be in response to the lack of support for small-scale family farming (e.g., access to credit or extension services) and increasing land concentration in the hands of local elite or outside private interests.[44] For some, poverty traps (i.e., lack of adequate financial resources to escape poverty) and limited capacities for mobility can preclude the implementation of these strategies.

In urban or peri-urban areas with limited available space, the arrival of rural migrants can cause conflicts over land or put additional pressures on urban services and resources. This migration contributes to unplanned urbanisation and the growth of informal settlements in peri-urban areas.[45] Informality is a defining feature of many cities and settlements in the developing countries. These underserved areas often lack access to basic services and transportation infrastructure, trapping residents in cycles of poverty and marginalisation for extended periods.[46] Peri-urban areas can also be zones of social exclusion, where inhabitants are neither socially nor economically linked to urban centres.

Those who leave rural areas to seek better lives in urban centres often settle in shanty towns and slums on the periphery where they lack access to decent housing, sanitation, health care, and education.[47] Vulnerable and marginalised rural migrants, such as women, refugees, internally displaced, and ethnic minorities, are the most likely to be at the greatest disadvantage in accessing these services. In addition, personal security concerns are compounded by other vulnerabilities, such as the limited availability and poor quality of infrastructure to supply potable water. While rural-to-urban migration can reduce some risks (e.g., access to food and employment), it can amplify others (e.g., heat and water stress, insecure tenure, personal health and safety).

Migration from the countryside to the city has been a historical process and more recently an inevitable result of the stark contrast between the lack of rural opportunities and the lure of a better life in the urban areas. Rural to urban migration can lead to many societal challenges by adding pressure on peri-urban and informal communities or slums, but that also lead to the development of innovative and resilient URL – new technologies, models, and concepts can revitalise rural communities, potentially triggering enhanced flows of labour, technology, and knowledge to the countryside (e.g., China, Sub-Saharan Africa, Latin America).

## 2.6 Interconnected Challenges

Many of the URL challenges described above interact and influence each other to create negative feedback loops with profound impacts on the health and productivity of the land. The spatial and economic processes involved in URL (e.g., resource consumption, urbanisation, infrastructure development, and rural-to-urban migration) have the power to exacerbate one another's adverse effects, leading to additional challenges in the effort to achieve LDN.

Growing urban consumer demand can drive land degradation that disproportionately affects smallholder farmers, women, youth, and the rural poor. While rural households and individuals may benefit from livelihood diversification by forging links with urban areas, these links can increase rural out-migration which leads to urban expansion and increased demand for food. This, in turn, fuels land degradation and the loss of natural ecosystems, which trigger more rural out-migration and greater urban consumption, and the cycle continues and intensifies.

**FIGURE 2** Negative URL Feedback Loops


## 2.7 Telecoupling

The "Columbian Exchange" of seeds and foodstuffs between continents starting with colonial powers in the 16th century is seen as a precursor of modern telecoupling.[48] Telecoupling can be understood as an international extension of territorial or national URL that manifest through global supply chains and other forms of connectivity. These flows link urban and rural areas that are not geographically proximate, leapfrogging municipalities, regions, and even countries, and creating extraterritorial networks and commercial webs based on long distance connectivity.

**Telecoupling** refers to the interconnections and interactions between distant socioecological systems and is often applied in the context of human-nature interactions and global environmental change. It highlights the reality that human activities (e.g., trade, communication, and resource flows) can link distant and otherwise unconnected urban and rural areas through the exchange of information, energy, and matter (e.g., people, goods, products, capital) at multiple spatial, temporal, and organisational scales.[49]

These global flows of agricultural products, processed commodities, minerals, and other raw materials are supported by foreign consumer demand and investments that can drive land use change (e.g., the conversion of natural ecosystems for agriculture) or exacerbate ongoing land degradation processes in distant rural areas. Telecoupling demonstrates how local socioeconomic and environmental change can be shaped or influenced by multiple distant drivers. In some cases, the foreign demand for land-based commodities (e.g., agriculture, mining) has contributed to the increase in large-scale acquisitions and long-term leasing of rural lands to attract foreign direct investment.[50]

The impacts of telecoupling are often described as offshore impacts, outsourcing environmental degradation, the displacement of land and water use, unequal ecological exchanges, spillover effects from consumption of traded goods, and the extension of consumption and ecological footprints to other countries.[51] [52] These impacts are often most acute in rural areas of developing countries where globalisation and trade liberalisation have led many to specialise in products for markets where they have a comparative advantage.[53] Many low-income countries have focused on the export of primary production commodities (e.g., coffee, tea, sugar, timber, textile fibres, palm oil, minerals) and have become net exporters of water, soil nutrients, and biomass (e.g., organic carbon).

Wealthier countries that typically specialise in value-added product manufacturing have become net importers of raw materials.[54] Displaced deforestation, pollution and contamination, water scarcity, and soil erosion and nutrient loss occur at the expense of human and ecosystem health primarily in developing countries. Europe is a net importer of land-based commodities; yet, much of the resulting environmental degradation takes place outside the continent.[55]

Trade policies that consider food and other nature-based commodities as equivalent to manufactured products serve to legitimise the off-shoring of their negative human and environmental impacts. This is most obvious when wealthy consumer nations with stringent environmental policies take advantage of weak governance and regulation to encourage low-cost production practices in developing countries that are unsustainable yet profitable in the short term.[56] Many of these rural areas are economically tied to global markets in a manner that can encourage land management practices that rapidly deplete natural capital.

National planning and policy responses to land degradation are often focused on local-level drivers yetfailing to consider telecoupling may limit the ability of national governments and the international community to implement their commitments to avoid, reduce, and reverse land degradation and biodiversity loss.[57] The management of telecoupled URL involves networks of actors and transnational corporations that make governance decisions at multiple levels and scales that can undermine the authority of national and sub-national governments, especially in cash-poor and resource-rich countries. Many already have weak environmental governance or limited institutional capacities that make it difficult to regulate operations and investments involving global value chains within their jurisdictions.[58] Managing telecoupled URL in a sustainable manner requires complex and far-sighted governance frameworks that target the processes, interactions, flows, and actors involved.

# 3 ACTORS AND SECTORS

Managing and reducing URL impacts on land involves a wide variety of actors, from the public sector and relevant authorities at all levels to international and multilateral organisations working closely with the private sector, civil society, and local communities. Each actor and sector has distinct roles and responsibilities (formal and informal) that can help shape policy choices and the application of governance frameworks and land management tools to strengthen URL while contributing to the achievement of LDN targets.

## 3.1 Governments

Governments and public sector authorities at different levels are often the primary actors with the power to create and regulate URL. The land governance framework of a country describes how land-related decision-making power is distributed between different levels of government. This can take the form of centralised national authority or devolved (polycentric) governance that empowers federated states or sub-national jurisdictions. Typically, these different tiers of power and authority in land governance systems interact and sometimes compete to define and enforce the rules of procedure.

**Governance frameworks** refer to the broader structure (policies, regulations, procedures, and guidelines) that define the roles, responsibilities, interactions, and relationships among actors (governmental and non-governmental) to make decisions regarding a particular matter.[59]

National or central governments are largely responsible for creating enabling policies, allocating budgetary outlays, and coordinating territorial development to manage URL and land use. They provide the legal, regulatory, and operational frameworks that define national land use strategies, planning systems, and environmental legislation.[60] These planning systems can help ensure that territorial and multilevel governance is integrated vertically and horizontally to overcome the key challenge of fragmentation and address URL impacts on land. Centralised authorities are often the best equipped for implementing flow-centred governance that targets the flows of people, resources, goods, and services, and likewise to formulate human rights-based and gender-responsive policy and frameworks that address land degradation as both a cause and symptom of inequality.

Due to the transboundary (domestic and transnational) nature of URL, national governments are often best suited to promote and incentivise intermunicipal, interregional, and multilevel coordination and cooperation across multiple jurisdictions. Through their policies and budgets, they can support the use of land administration and management tools to strengthen URL in a manner that supports LDN initiatives. They can also promote fair and equitable access to the infrastructure, markets, and services needed for economic activities in rural areas (e.g., social and solidarity economies). Sub-national governments, including regional and local authorities, are important actors as they are usually charged with implementing and monitoring land use plans at a more granular level. In some decentralised contexts, these sub-national and local authorities have absolute power over procurement, regulation, and enforcement, such as in the case of urban expansion and peri-urban development.

The significance of the public sector at all levels of governance and as the primary actors involved in managing URL cannot be overstated. With the power to regulate and strengthen URL as well as enhance supportive land governance frameworks, governments in developed countries have the responsibility to provide technical and financial support to developing countries, in accordance with multilateral agreements. Given the necessary capacities and resources, the public sector in many developing countries can play a vital role in achieving LDN through the development of more sustainable and resilient URL.

## 3.2 Private Sector

Private sector actors are influential in shaping many URL. Industries that procure and use raw materials from rural areas (e.g., agribusinesses, forestry, mining, manufacturing) have direct impacts on the health and productivity of the land and its resources. These impacts are determined by the production or extraction processes employed, including the disposal and discharge of waste. Private sector actors can be categorised into two main groups: 1) retailers, distributors, processors, and manufacturers, and 2) large- and small-scale producers. These groups play different roles in the governance of supply chains and management of URL which influence market behaviour and producer prices, as well as land use and management practices in rural areas.

Global and national supply chains are increasingly controlled by relatively few private sector actors with concentrated power, while the numerous small-scale industries, businesses, and producers face competition and tend to have more fragmented influence on URL.[61] In globalised agribusiness chains, a handful of prominent manufacturers and retailers control vast supply chains that link foreign and domestic consumers to producers – the millions of small- and medium-scale farmers and rural enterprises, the majority of them owned or managed by women.[62]

Many transnational corporations have domestic political clout, the financial resources, and technological capacities to develop and deploy innovative solutions to reduce inefficiencies and enhance sustainability in their supply chains to overcome some of the URL challenges associated with land degradation. Some private firms are beginning to take steps to implement land and ecosystem restoration initiatives through targeted interventions in flow-based URL approaches.

Small- and medium-scale producers of land-based commodities at one end of the supply chain often operate as sub-contractors with limited bargaining power in "captive relations" with larger actors.[63] These SME farmers and enterprises, who are a majority of businesses in most countries, tend to have limited financial and technical resources to invest in regenerative production practices and similarly lack the political power to influence the standards of practice that govern supply chains.

Cooperatives are private enterprises that can bring these farmers, supply chain businesses, and market actors together to pool resources and increase their influence within the current system of URL. Cooperatives are based on the principles of solidarity and decent work. They offer promising alternatives to traditional models of individual corporate ownership and more equitable distribution of gains generated by economic activities.

Bilateral donors, multilateral development banks, and national treasuries can stipulate financing criteria that include prioritising environmental and social benefits, such as through green and blue infrastructure. Finance and investments for ecosystem- or nature-based approaches that support more sustainable and resilient URL, among other low impact solutions, need to be designed to address the diverse contexts and needs of local communities as determined through inclusive spatial planning processes.

## 3.3 International Organisations

International organisations along with multilateral agreements and institutions can play a significant role in improving telecoupled URL and reducing their displaced environmental impacts by managing or regulating specific processes, interactions, or flows at global and transnational scales. For example, the Basel Convention regulates the transboundary movements of hazardous wastes and other wastes and obliges its Parties to ensure that such wastes are managed and disposed of in an environmentally sound manner. The Rio conventions – Convention on Biological Diversity (CBD), United Nations Framework Convention on Climate Change (UNFCCC), and UNCCD – are focused on enhancing national responses to global environmental challenges that can address the impacts of telecoupled and national URL while promoting balanced development through their mandated strategies and action plans. Over the last decade, multilateral agendas have increasingly emphasised the role of local and sub-national governments, however, there are still limited mechanisms for these actors to access and deploy multilateral and bilateral funding.

Many international organisations, both governmental and non-governmental, are actively supporting efforts to achieve the SDGs through investments in projects and programmes that target poverty reduction, food security, sustainable cities, and climate action. They can also help build capacity in local and sub-national governments for the development and implementation of regional and national policies that encourage a more equitable distribution of resources, services, and opportunities among rural and urban areas, including through community-based activities. Some provide direct financial support (e.g., loans, grants) and technical assistance to strengthen URL, including for urban and green infrastructure planning, land administration, and sustainable agriculture practices. The common objective is to enhance urban-rural connectivity and to develop and implement tailored interventions that foster collaboration between local and national governments and different types of international organisations and donors.[64]

Some organisations conduct research and data analysis on URL dynamics and serve as platforms for the exchange of knowledge and good practices. Specific focus areas include economic interdependencies and inequalities, migration patterns, environmental impacts, and social cohesion that can inform policy- and decision-making that promotes sustainable and equitable development. Through conferences, workshops, and other fora, they bring together policymakers, experts, and practitioners to share experiences and learn from URL initiatives around the world.

**Agricultural Commodities Transformation (ACT) Fund**

The Common Fund for Commodities ACT Fund is a USD 100 million impact fund that leverages USD 20 million in first-loss capital to attract private sector funding and mobilise resources for transformative small and medium-sized enterprises. A mix of working capital, trade finance, capital expenditure loans, and quasi-equity supports the growth and sustainability of small agri-food concerns, enhancing their capacity to manage unpredictable cash flows and invest in value-added production and processing. The Fund also demonstrates the need to integrate technical assistance facilities to maximize impact through targeted support, such as feasibility studies and training programs for sustainable practices.[65]

For integrated financial packages to be effectively enabled, country-level strategies must establish adequate policy and governance frameworks to address URL challenges. Ideally, these should be designed to support the achievement of country-specific goals, including LDN targets and NDCs. Furthermore, there is significant scope to consider the role of international organisations in overcoming systemic bottlenecks to sustainably managing URL as part of their evolving mandates to meet regional and national capacity needs for achieving development, climate, and biodiversity targets.

## 3.4 Civil Society

Civil society organisations (CSOs), including local community organisations, can raise awareness on URL and their impacts on land. They can shape public opinion and consumer choices that is fuelling demand-driven land degradation to affect positive changes in procurement, marketing, and production practices. They are often effective when applying pressure on retailers and suppliers to create and meet the demand for more sustainable products through more enlightened environmental and social standards. Civil society can help keep public attention on universal human rights to a healthy and clean environment, gender equality, adequate housing, and decent work, among others, that are fundamental to promoting land stewardship and resilient URL. Civil society's role in all levels of governance has been instrumental in developing scalable solutions, often by convening government, private sector, and academia in early stage innovation to pilot holistic and integrated development strategies.

**Cooperatives** are defined as autonomous associations of persons united voluntarily to meet their common economic, social, and cultural needs and aspirations through a jointly owned and democratically controlled enterprise.[66]

CSOs are an integral part of social and solidarity economies which bring together cooperatives, mutual benefit societies, voluntary associations, philanthropic foundations, and non-profit organisations to accelerate progress on the economic, social, and environmental dimensions of sustainable development, including LDN.[67] CSOs advocate for alternatives to industrial agriculture and monocultures (e.g., agroecology, agroforestry, regenerative agriculture) to ensure that the URL created by food systems contribute to the replenishment of natural capital. Youth are most affected by a depleting natural resource base and increasing climate change impacts. As they will inherit a legacy of ecosystem fragmentation, land degradation, and other environmental crises, they need to be meaningfully engaged in the current discussion on a just transition to eventually become responsible economic actors.

Community-based approaches can be highly effective in managing publicly shared or common-pool environmental resources. In some cases, they can link urban consumers with small-scale farmers and sustainable land management practices to ensure URL have positive impacts on land and livelihoods. Community Supported Agriculture is one well-known cooperative approach that is based on the principles of solidarity and decent work, and that can reduce costs, protect land resources, and deliver a more equitable distribution of benefits. Civil society and local communities can also be involved in urban and infrastructure development through participatory land use planning or neighbourhood initiatives to better manage informal settlements in peri-urban areas.

Civil society is comprised of social media influencers, opinion makers, lobbyists, expert advisors, researchers, universities, and implementation partners that can influence decision-making, set public agendas, and support policy implementation. CSOs can also play important roles in monitoring success or failure, as well as holding actors and sectors accountable for their commitments. Individuals, as consumers, also have a collective capacity to transform URL through their purchasing power. Increasingly, consumers are willing to pay for high-quality, low

emission, sustainably or locally produced products in many countries. In aggregate, these choices can send powerful market signals through the supply chain to retailers and producers. In response, corporations and farmers are adopting certification standards or participating in other schemes to produce and market organic, fair trade, or sustainable commodities that attract a premium.[68]

### Reviving Amphibious Techniques for Sustainable Livelihoods in Colombia

This project was developed in response to the socioenvironmental impact caused by the construction and operation of the Urrá hydroelectric plant on the Sinú River. The plant disrupted the ecological dynamics and natural flooding cycle of the river, which affected fish populations and crop production during the dry season. Commercial fish farming was integrated with subsistence crops (e.g., maize, yam, cassava, beans, tomato, plantain, coconut, mango) on raised beds based on the amphibious production system of the indigenous Sinú culture.[69]

Crops are fertilised with organic residue while the fish are fed with products from the crops and non-commercial fish meal produced locally. The project has helped diversify production of the local farmers, increase food security, and raise incomes from the marketing of organic products. It has also been successful in reducing pressure on fish populations and soil degradation that occurs due to livestock farming in the region. The project was implemented by the Association of Producers for the Community Development of the Ciénaga Grande del Bajo Sinú and financed by the Urrá hydroelectric plant. It is one example of how public-private partnerships can manage floodplain systems by adapting traditional knowledge to achieve social and environmental sustainability.[70]

# 4 GOVERNANCE FRAMEWORKS

Addressing the governance of URL implies managing trade-offs and seeking synergies among divergent interests across multiple jurisdictions – from high density urban to sparsely populated rural areas. It is often seen as an essential first step towards food systems transformation and a just rural transition. This Primer highlights four governance frameworks that can help guide decision makers and encourage coordination among URL actors: 1) multilevel governance, 2) integrated territorial governance, 3) flow-centred governance, and 4) human rights-based and gender-responsive approaches. These governance frameworks are often the starting point for creating an enabling environment required to effectively utilise land administration and management tools to avoid, reduce, and reverse the negative impacts of URL on land and livelihoods.

## 4.1 Multilevel Governance Frameworks

The transboundary nature of URL (domestic and foreign) requires the synchronised, multilevel engagement of governments and institutions. Jurisdiction over URL that involve food, water, and transport flows is typically shared among multiple local, regional, and national authorities, while some URL require direct coordination between local land use planning and national laws, as in the case of environmental regulations.

**Polycentric governance** is composed of many autonomous units formally independent of one another, choosing to act in ways that take account of others through processes of cooperation, competition, and conflict resolution.[71]

Multilevel or polycentric governance frameworks can help avoid, manage, and redress URL impacts on land by enhancing communication and cooperation vertically (local to national and vice versa) and horizontally (across administrative boundaries) to improve policy coherence and maximise implementation synergies that strengthen URL and make them more sustainable and resilient.[72] Multilevel governance arrangements can also increase sub-national and local capacities to ensure greater stakeholder engagement and participation.[73]

Rebalancing power and reallocating resources across various levels of government often entails reorganising territorial structures. Operationalising multilevel governance generally involves decentralising executive and administrative processes – shifting power, roles, responsibilities, and resources from the centre to the appropriate sub-national authorities. Sub-national governments are then empowered to operate at the intersection of local and national levels of government and can play a key role in facilitating vertical coordination among all levels.[74]

Multilevel governance frameworks also require the reorganisation of public administration – the operation and strategic coordination of bureaucratic structures in the public sector, including personnel, resources, and other capacities to promote cross-boundary cooperation to avoid, reduce, and manage the impacts of URL on land. This can involve redrawing administrative maps or creating self-governing territorial entities that match the functional and impact areas of URL (e.g., watershed, foodshed) to overcome the fragmentation and inefficiencies associated with historic jurisdictional arrangements. As part of this reorganisation, formal contractual arrangements can clarify responsibilities and competencies, increase transparency, strengthen vertical and horizontal coordination, and build trust among different levels of government to implement common policy priorities.

**Multilevel Governance in the Lao People's Democratic Republic**

In the Lao People's Democratic Republic (Lao PDR), a model of governance known as *sam-sang* (i.e., the "three-build" system) is increasingly used to coordinate across multiple levels of government and facilitate the devolution of power to provinces, districts, and villages. The system comprises three interrelated administrative units: 1) villages as "development output units", 2) districts as "comprehensively strengthened units" responsible for coordinating sectoral agencies, and 3) provinces as "strategic units" tasked with prioritising resource allocations.

The *sam-sang* system aims to integrate climate action across all levels of government by coordinating land policy across sectors, such as agriculture, forestry, and other land uses. Lao PDR's National Climate Change Action Plan emphasises the need to consolidate various climate projects and focal tasks, to be followed by inclusive stakeholder engagement in implementing, monitoring, and reporting to ensure well integrated and vertically coordinated responses to climate change. This involves efforts to scale up sustainable agriculture, forest conservation, and integrated land and water management.

A redistribution of administrative resources to sub-national governments allows these bodies to build capacity among government officials who might otherwise have a limited understanding of climate change response measures. This decentralisation is also useful for integrating key sectoral plans and policies, and their implementation. Long-term capacity-building initiatives will be required at all levels of government to avoid situations where donor programmes are at odds with the interests of local communities.[75]

## 4.2 Integrated Territorial Governance Frameworks

Integrated territorial governance frameworks rely on sub-national authorities with jurisdictions that match the functional territories associated with URL. Functional territories are administrative areas that share frequent economic and social interactions and are partly captured by the existence of common labour markets. Integrated territorial governance has been promoted to address "territorial fragmentation" and to improve land governance across urban, peri-urban, and rural territories and among multiple levels of government.[76]

**Functional territories** is a conceptual approach that aims to reduce fragmentation by considering the spatial extent of functional social and economic interconnections among urban, peri-urban, and rural areas along a continuum.[77]

The functional territories approach can inform action to reduce regional inequalities and make resource use more efficient. It emphasises the interactions and flows that bridge the urban-rural divide and the important role of integrated land use planning (ILUP) across contiguous or adjacent areas.[78] For example, a watershed represents a territory of connected water flows, while a foodshed is the bounded region of food flows from production to consumption. The boundaries of these functional territories are defined by observed rural to urban flows of goods and typically encompass multiple jurisdictions or municipalities, from high density cities to sparsely populated rural areas.

Experiences in some countries point to various typologies of integrated territorial governance frameworks that have different institutional arrangements and capacities, such as "planning regions", "regions with legislative power", "decentralised regions", and "cooperative regions".[79] All of these arrangements are operationalised at several levels of action or scales, from municipal, intermunicipal, and supra-municipal to metropolitan, regional, and interregional. They require competencies in land use and spatial planning, procurement, and coordination among diverse actors to recruit skilled staff, set priorities, and collect data and information to monitor and evaluate URL policy and implementation.[80]

Integrated territorial governance also requires the reorganisation of administrative and budgetary control to effectively implement the tools that can help avoid, reduce, and manage URL impacts on land. This includes autonomy over spending decisions and revenue-generating capacity, such as tax revenues, central government budgets, user charges and fees, income from public assets, and access to external financing.[81] Multilevel dialogues and multistakeholder platforms can facilitate the use of land administration and management tools to achieve LDN at territorial scales. This may help foster meaningful participation of the private sector and civil society with the political or economic power to manage URL or the knowledge and expertise to ensure the successful implementation of these tools. International support for territorial approaches to sustainable development has evolved through a series of dialogues, conferences, and reports. Intergovernmental bodies, such as the Community of Portuguese Language Countries, have embraced territorial approaches to sustainable food systems.[82]

## Integrated Territorial Governance Promoted by International and Regional Organisations

In recent decades, many international, regional, and intergovernmental organisations have promoted integrated territorial governance to address URL impacts on the environment. The European Union (EU) promotes functional area approaches to encourage sustainable development through "a stronger focus on URL, including functional urban areas, in their programmes to better respond to the needs and potentials of territories that may not be defined within one administrative boundary only".[83]

The EU and the Organisation for Economic Co-operation and Development (OECD) have jointly developed a methodology to define functional urban areas and to promote these areas as the chosen scale for public intervention. The methodology uses population density and travel-to-work flows to map functional urban areas plus its "commuting zone", the area surrounding a densely inhabited urban core where the labour market is highly integrated with the city.[84]

In 2018, several United Nations and international organisations contributed to the white paper on "Fostering Territorial Perspectives for Development",[85] followed by a stocktake of territorial approaches in 2021[86] and an updated white paper on "Territorial Approaches to Sustainable Development".[87] UN-Habitat developed the first comprehensive set of principles and actions for URL to advance territorial development,[88] while the Food and Agriculture Organization of the United Nations (FAO) promotes integrated territorial approaches to achieve rural-urban balance, sustainable food systems, climate resilience, and rural innovation and entrepreneurship.[89]

A URL project for inclusive development in Colombia implemented by the United Nations Economic Commission for Latin America and the Caribbean analyses a suite of integrated territorial linkages – including interactions between people and organisations around productive activities, the management of natural resources, and social and cultural relationships to strengthen territorial development policies.[90]

## 4.3 Flow-Centred Governance Frameworks

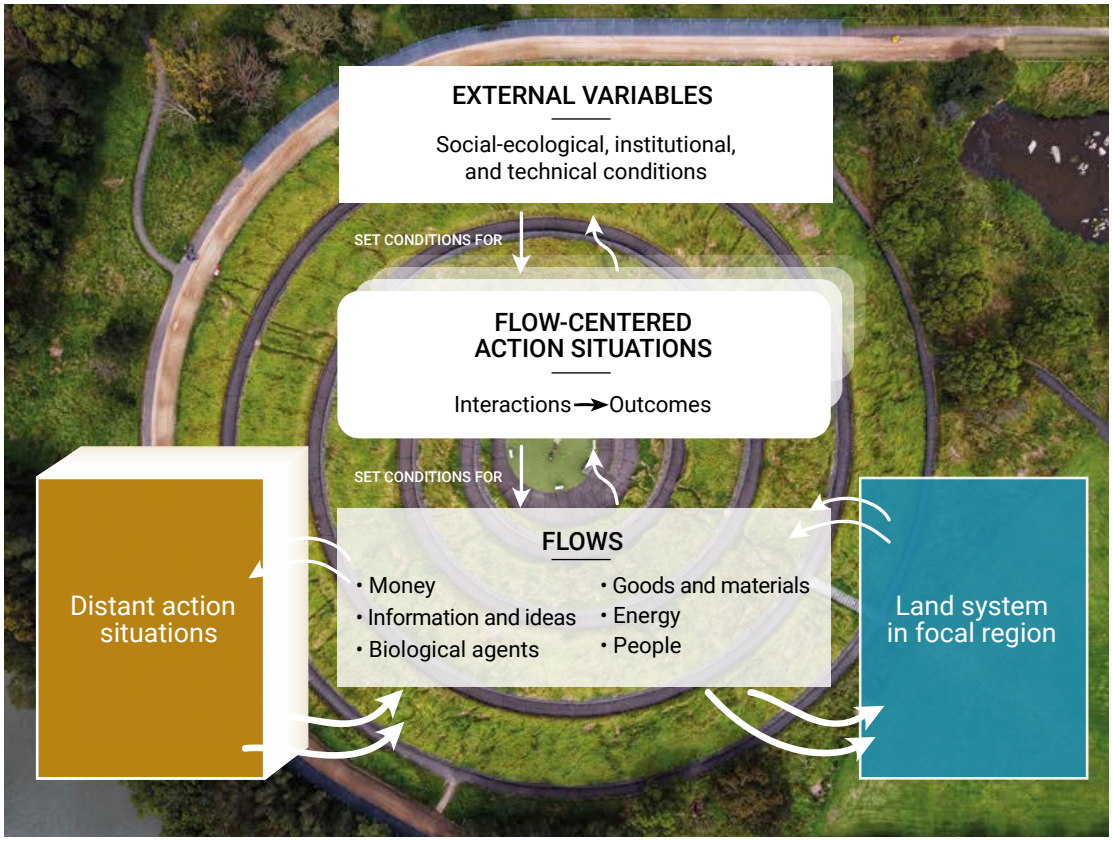
While territorial-based governance frameworks for avoiding, reducing, and managing URL impacts on land typically employ command-and-control policies and tools (e.g., spatial or land use planning) within territorial jurisdictions, many URL span multiple territories or are subject to control by domestic or transnational corporations, leaving governments with little power to enforce regulation or manage resource efficiencies and production decisions.[91]

**Flow-centred governance** targets particular flows of resources or goods, such as certification of agricultural or wood products. The intensifying competition over land coupled with shifts toward flow-centred governance has generated land uses involving new forms of social exclusion, inequity, and ecological simplification.[92]

Flow-centred governance can specifically target processes, interactions, and flows that derive from urban demand but that drive land use change and land degradation in distant rural areas. These approaches can affect the type, quantity, and quality of products while addressing consumer concerns about environmental and social issues related to supply chains, such as deforestation and child labour. Private sector actors are increasingly engaging in private land use governance approaches that result in unsustainable URL product flows and production practices which contribute to land degradation – among these are forest products, palm oil, soy, metals and minerals, finance, biofuels, and waste which point to the issue of "remote environmental responsibility".[93]

Flow-centred governance structures seek to address the limitations of territorial-based public administration with forms of management and oversight that address land degradation and rural inequality stemming from telecoupled URL. It is important to note that these approaches can by-pass public sector involvement by creating privatised regulatory structures that dictate business and industry practices or engage third-party certification bodies and other stakeholders to ensure compliance. This includes agricultural production standards, voluntary regulations in the mining sector, forestry certification schemes, and others involving specific commodities and their value chains.

**FIGURE 3** **Flow-Centred Governance Systems**[94]



Among many examples, J. Crew launched a green supply chain transition for its global sourcing, processing, and manufacture of cotton and other textiles.[95] Corporate efforts to improve supply chains to mitigate and adapt to climate change also have positive impacts for land health, biodiversity, and resilience. When environmental and social standards are established by multinational companies (e.g., agri-food, apparel, forest products) or by CSOs and non-governmental organisations (NGOs) advocating for organic agriculture, fair trade and labour standards, or land stewardship certification, they still require public sector incentives, regulations, and oversight, including community-level monitoring, to protect against fraud and corruption.[96]

## 4.4 Human Rights and Gender-Responsive Frameworks

Internationally agreed human rights-based frameworks embrace the principles of participation, accountability, transparency, equality, and non-discrimination – some with specific reference to ensuring a clean and healthy environment, gender equality, and the human conditions for sustainable land management and restoration.[97]

In 2017, the **United Nations Human Rights Council** adopted a resolution on human rights in cities and other human settlements, a precursor to the Right to the City.[98]

In 2019, the **UNCCD** adopted a decision which "invites Parties to ensure that measures to combat desertification, land degradation, and drought are carried out in a non-discriminatory and participatory way so that they promote equal tenure rights and access to land for all, in particular vulnerable and marginal groups".[99]

In 2021, the **United Nations Human Rights Council** adopted a resolution that "calls upon all States to conserve, protect and restore healthy ecosystems and biodiversity and to ensure their sustainable management and use by applying a human rights-based approach that emphasizes participation, inclusion, transparency, and accountability in natural resource management".[100]

These rights-based frameworks provide local communities (including the rural and urban poor) with the tools and capabilities to decide what, where, and how to use land resources while improving their livelihoods. Various URL-related challenges, such as land expropriation and encroachment, gender discrimination, and child labour violations in agricultural production, can be addressed by ensuring that rights-holders (individuals and communities) can exercise their rights, formulate claims, hold duty-bearers (states) accountable, and seek redress. Legal and financial assistance for upholding human rights in rural areas are often supported by urban-based actors, such as NGOs or legal defence funds.

**The Right to a Better Life and Good Living**

In 2012, the Danish Parliament endorsed the new strategy for Denmark's development cooperation, "The Right to a Better Life", with two interdependent goals – to reduce poverty while, at the same time, assisting people in realising their right to a better life. It underlines that United Nations human rights conventions, standards, norms, and instruments should serve as the compass that guides political dialogue, concrete development interventions, and inclusive partnerships. It sees human rights not just as part of global core values, but as a powerful driver of change towards a more equitable redistribution of prosperity, power, and influence.[101]

Ecuador's 2008 constitution preamble states: "We decide to construct a new form of civil society, in diversity and harmony with nature to achieve el buen vivir (sumak kawsay in Quechua or good living in English). Rooted in indigenous worldviews, sustainable development is understood as the attainment and reproduction of the equilibrium state of buen vivir, which refers to living in harmony with nature. In 2009, the Ministry of Planning and Development released its national development plan for realising buen vivir, including a new governance model for watershed management that is now being mainstreamed at different structural levels.[102]

Human rights and gender equality are essential to combat desertification, land degradation, and drought and are internationally recognised as important enablers for conserving and restoring land health and productivity.[103] Evidence suggests that weak or poorly defined rights resulting in insecure tenure are correlated with deforestation and landscape-level degradation. Unclear rights and growing inequalities in land distribution and control can also exacerbate competition and conflict over land and resources.[104] Conversely, strong customary tenure and clear, uncontested land rights positively impact the stewardship of land resources and can help resolve conflicts, including those that involve competing urban/rural, public/private, and transnational/domestic interests. The formal recognition of legitimate property and tenure rights – individual and collective rights, with special attention to the rights of women – is critical for equitable and sustainable economic development.

## The Right to the City

The right to the city is a framework to enable collective urban-rural action that contributes to the sustainable management of land resources. The right to the city, while not an internationally agreed legal right, is included in the New Urban Agenda, the Ecuadorian Constitution (2008), and the Mexico City Constitution (2017). This right applies an integrated territorial perspective on all types of settlements and their surrounding habitats. It prioritises the socio-economic functions of land and the city by strengthening community-based processes and democratic management practices, supported by more diverse and inclusive economies. It also emphasises the territorial dimension of such rights, with a focus on guaranteeing adequate living standards as well as the equitable distribution of the burdens and benefits associated with economic transitions and their territorial impacts.[105]

Evidence suggests that community-based approaches to sustainably managing land and natural resources are most effective when they consider the communal and territorial rights of indigenous peoples. Community-based projects and programmes, such as those fostered by SSE, can contribute significantly to more sustainable URL that avoid and reduce land degradation. The participation of indigenous peoples and local communities, women, and youth – often the most experienced and successful land stewards – are vital to the success of the global land restoration agenda, but only if their human and land rights are recognised and enforced.[106]

Gender-responsive is a term used to describe laws, policies, programmes and public services that are formulated and/or delivered to: 1) take into account existing structures and relations of gender inequality and seek proactively to overcome and remove them, 2) identify and bring attention to women's contributions and critical roles as agents and leaders, in order to facilitate gender equality, the empowerment of women, and women's enjoyment of human rights.[107]

A gender-responsive framework can provide a comprehensive instrument for strengthening the mainstreaming of gender considerations within the planning and budgeting processes of national and sub-national governments and encourage civil society and the private sector to contribute to gender equality in the context of strengthening URL and making them more resilient. When gender-responsive land rights frameworks are integrated and adapted into climate and environmental agendas, it can influence policies and actions at the national and sub-national levels to support hundreds of millions of women and girls.[108] Furthermore, there is increasing evidence that greater women's land rights can help slow desertification and achieve LDN.[109]

### The MiTSA Project in Senegal and Côte d'Ivoire

The Protection and Insertion of Migrant Labour and Environment in Urban and Peri-urban Agriculture in Senegal and Côte d'Ivoire (MiTSA) project aims to recognise the value of agricultural migrant workers by linking their labour to environmental stewardship. The project examined the migration dynamics that characterise urban and peri-urban agriculture in the region to help adapt farming initiatives to local conditions. In Côte d'Ivoire, Champs-Ecole brings together local and migrant youth through the production and marketing of agricultural commodities in the town of Bingerville. It employs a "school without walls" approach to teach market gardening practices on rental plots provided by the local community. In the Anyama region, migrant workers are assisted to gain access rights to limited agricultural land as a result of rapid urbanisation – a growing problem for peri-urban areas throughout the developing world.[110]

Efforts to build awareness and catalyse action around the rights-based dimensions of governance frameworks should be directed to all relevant actors. An emphasis on the meaningful inclusion of women, youth, and indigenous peoples in planning processes and decision-making should be prioritised at all levels of governance. UN bodies, national governments, local and sub-national authorities, together with CSOs, the private sector and educators, can all contribute to territorial and landscape intelligence that informs transformative actions to be taken by different actors and sectors. The provision of incentives for and investments in these actions can, for example, create new livelihood opportunities in land restoration, or diversify agrifood systems for current and future generations, as recommended in the UNCCD's Youth Engagement Strategy[111] and UN-Habitat's youth mainstreaming programmes.[112]

# 5 LAND ADMINISTRATION AND MANAGEMENT TOOLS

Along with suitable governance frameworks, efforts to address URL impacts on land require a mix of practical, context-appropriate land administration and management tools. This chapter highlights tools that can be used by governments, the private sector, civil society, local communities, and other stakeholders to manage URL with the objective to avoid, reduce, and reverse land degradation.

These tools, alone or in combination, are intended to help overcome the key challenges posed by URL and land degradation. Some are sharper than others for addressing specific URL issues. Integrated land use planning (ILUP), integrated landscape management (ILM), and green and blue infrastructure can be effective in managing URL challenges in geographically proximate or contiguous land areas, while demand-led policy tools and voluntary agreements may be more appropriate for telecoupled or long-distance URL.

These are the same tools that are recommended for setting and implementing LDN targets, spanning a range of policy and administrative instruments. Some can be classified as command-and-control tools and others as legal, fiscal, and regulatory instruments upon which governments have traditionally relied upon to govern land use and management practices. In most cases, the multiple, complex dimensions of URL and land degradation requires the application of more than one tool or instrument. Moreover, specific tools may be more or less appropriate in different geographic and socio-cultural contexts and their application of the LDN response hierarchy to combat land degradation: conservation, sustainable use, and restoration.

**TABLE 1** **Land Administration and Management Tools Relevant to URL and Land**

| Tool | Main Objective |
|---|---|
| **Integrated Land Use Planning** | Integrated land use planning and territorial planning are powerful tools for addressing the multiple development demands of different land uses across urban, peri-urban, and rural areas and their URL. |
| **Integrated Landscape Management** | Integrated landscape management is a collaborative process initiated by diverse stakeholders to achieve multiple goals – including sustainability and resilience – and address divergent interests and values across sectors. |
| **Land Administration Tools** | These tools can be categorised into five broad groups: 1) land access and tenure security, 2) land administration and information tools, 3) land-based financing tools, 4) land management and planning tools, and 5) land policy and legislation tools. |
| **Green and Blue Infrastructure** | Green and blue infrastructure is a strategically planned network of natural and semi-natural areas with other environmental features designed and managed to deliver a wide range of ecosystem services, such as water purification, air quality, space for recreation, and climate mitigation and adaptation. |
| **Land and Ecosystem Restoration** | Land restoration is place-based and can be active (e.g., planting grasses, shrubs, and trees, or managing soils and wildlife), or passive (e.g., allowing land to regenerate by itself after disturbance). The scale of restoration can range from a few hectares to thousands of square kilometres. |
| **Public Procurement and Demand-led Policy Tools** | Public procurement and demand-led fiscal policy tools enable government and public sector entities (e.g., state-owned enterprises) to shift demand towards sustainable production and supply chains. |
| **Financial Reporting and Incentive-based Instruments** | Financial reporting and incentive-based instruments have emerged as tools to address many URL regulatory and risk management concerns, including the threats of URL impacts on land. |
| **Social and Solidarity Economies** | Social and Solidarity Economies embrace the principles and values of entrepreneurship characterised by the central place given to people's rights and the commons which go beyond the maximisation of profits. |
| **Paulo Pinheiro Principles** | Tools for the resolution of conflicts over land. |

## 5.1 Integrated Land Use Planning

Integrated land use planning (ILUP) and territorial planning are powerful spatial tools for addressing multiple demands on and for land across urban, peri-urban, and rural areas and their URL.[113] ILUP to achieve LDN and other land restoration targets involves spatial planning that balances the multiple economic, social, and cultural opportunities provided by land with the need to maintain and support ecosystem services and land-based natural capital.[114]

**Integrated land use planning** is the systematic assessment of land and water potential, alternate land uses, and socioeconomic priorities to select and adopt the best land use options to meet local, regional, or national needs while safeguarding land resources for future generations.[115]

ILUP and territorial planning offer a suite of tools that can coordinate intermunicipal and interregional strategies in a manner that balances competing land use demands and allocates resources across multiple users, sectors, and jurisdictions along an urban-rural continuum. These tools can address the shortcomings of other planning systems which often fail to consider the broader landscape and the mosaic of URL-related land uses and impacts.[116] ILUP and territorial planning have the potential to avoid and reduce URL impacts on land by:

- controlling urban expansion and prioritising sustainable economic development in peri-urban and rural areas;
- promoting the establishment of shorter and more efficient supply chains, thereby alleviating the pressures on land resources in distant areas; and
- fostering the development of green and blue infrastructure that links urban and rural areas, such as nature-based solutions to support the flow of food, water, energy, and people.[117]

**TABLE 2** **Integrated Land Use Planning Initiatives Relevant to URL and Land**

| | |
|---|---|
| **Integrated Spatial Planning** | The Convention on Biological Diversity (CBD) recognises the importance of integrated spatial planning for the conservation, sustainable use, and restoration of biodiversity. The CBD Parties agreed to "ensure that all areas are under participatory, integrated, and biodiversity inclusive spatial planning and/or effective management processes addressing land and sea use change" as Target 1 of the Global Biodiversity Framework (GBF). This target underpins the achievement of all GBF targets and underscores the need for cross-sectoral approaches that allow for the consideration of multiple interests, values, and types of use and activities in each area.[118] |
| **The Integrated Spatial Planning Workbook** | The Integrated Spatial Planning Workbook of the United Nations Development Programme (UNDP) and the Global Environment Facility (GEF) promotes spatial planning in support of Essential Life Support Areas. These are places that provide essential benefits to humanity, including food and water security, sustainable livelihoods, disaster risk reduction, and carbon sequestration. The planning concept is founded on the principles of systematic conservation planning which promotes a whole-of-government approach to land use mapping that demonstrate pathways to achieve multiple outcomes and policy targets, including goals for nature, climate, and sustainable development.[119] |
| **International Guidelines for Urban and Territorial Development** | The International Guidelines for Urban and Territorial Development (IG-UTP) were created for different levels of government in support of the New Urban Agenda. They provide national governments, local authorities, CSOs, and planning professionals with a global reference framework that promotes the improved distribution of spatial activities that aim to create more compact, socially inclusive, climate resilient, and better integrated cities and territories.[120] |

A decentralised governance framework with vertical and horizontal coordination is one prerequisite for implementing ILUP and territorial planning to effectively address URL impacts on land. This includes rights-based approaches with high levels of stakeholder participation among urban and rural communities that are supported by organisational structures that ensure timely access to information and full transparency in decision-making processes. ILUP and territorial planning can also provide significant opportunities to integrate secure tenure into land use planning to make certain that legitimate rights-holders and other vulnerable populations are not overlooked or excluded.[121]

**Integrated Land Use Planning in the Caucasus and Central Asia**

The National Policy Guiding Principles for Forest Landscape Restoration is structured to assist forest authorities in the Caucasus and Central Asia to achieve the Bonn Challenge, which aims to restore 350 million hectares of global deforested and degraded land by 2030. The principles and good practices serve to inform the development of forest restoration policies and strategies as well as support the use of regulatory tools, fiscal measures, social and cultural mechanisms, and community-based approaches. These focus on the integration of urban, peri-urban, and rural forest areas and the involvement of sectors (e.g., agriculture, energy, urban development, mining, infrastructure) that can contribute to landscape restoration through various management practices, including green and blue infrastructure. The principles also highlight the need for enabling planning and governance frameworks, cost-benefit analysis, and the systematic inclusion of forest landscape restoration measures.[122]

A pilot application and policy dialogue were conducted in Kyrgyzstan to validate a proposed strategy for forest landscape restoration through a review of the draft guide and assessment of short-term actions. The guide recognises that the rural poor are highly dependent on forests and are the most affected by degradation, and that long-term success is dependent on the support and involvement of local communities. The main challenge is to generate the political will to adopt legislation that identifies forested areas and assigns priorities based on stakeholder engagement, availability of resources, and the potential for cross-sectoral cooperation.[123]

## 5.2 Integrated Landscape Management

Integrated landscape management (ILM) is a collaborative process initiated by diverse stakeholders to achieve multiple goals – including sustainability and resilience – that address divergent interests and values across sectors. These stakeholders are generally farmers, pastoralists, forest communities, and fisherfolk who have practical roles and responsibilities for managing components of a landscape or watershed which often spans multiple jurisdictions or administrative units.

**Integrated landscape management** is the management of production systems and natural resources in an area large enough to produce vital ecosystem services and small enough to be managed by the people using the land and producing those services.[124] ILM involves long-term collaboration among different groups of land managers and stakeholders to achieve their multiple objectives and expectations within the landscape for local livelihoods, health, and well-being.[125]

ILM can be an effective tool for managing competing interests that emerge from URL planning and impacts on land across territories. It encourages multiple stakeholders to work together in landscape partnerships or territory-wide coalitions to develop and implement a shared vision for the landscape. This vision can assist efforts to balance trade-offs, leverage synergies, and resolve complex URL challenges that otherwise cannot be resolved by actors working alone (e.g., parcel-by-parcel interventions).

ILM is particularly adept at addressing URL challenges arising from urban and peri-urban expansion, infrastructure development, and agriculture extensification. These all contribute to rural-to-urban migration, deforestation and biodiversity loss, climate change and water scarcity, food insecurity, poverty, and inequality. ILM partnerships can be strategically positioned to support the implementation of national commitments under the Rio conventions, including those contained in SDG target 15.3 (LDN), National Biodiversity Strategies and Action Plans (NBSAPs), Nationally Determined Contributions (NDCs), and National Adaptation Plans (NAPs).

Governments often recognise ILM as an essential operational mechanism for the territorial level implementation of national policies and local development priorities. Public authorities can support ILM projects and programme with guidance, technical assistance, local capacity development, financial and business services, and knowledge exchange and learning platforms. Landscape partnerships can also serve as a common forum for sharing experiences on financial innovations and planning that reduces trade-offs and enhances synergies.

**TABLE 3** **Integrated Landscape Management Initiatives Relevant to URL and Land**

| | |
|---|---|
| **The 1000 Landscapes for 1 Billion People Initiative** | The 1000 Landscapes for 1 Billion People Initiative was launched in 2019 by a group of international organisations committed to developing landscape solutions to boost livelihoods, conserve biodiversity and restore ecosystems, fight climate change, and improve food and water security.[126] The Initiative's "Practical Guide to Integrated Landscape Management" provides a generic, but locally adaptable, conceptual process and guidance for carrying out ILM. It is primarily intended for landscape facilitators, leaders, members, and supporters.[127] |
| **Global Landscapes Forum** | The Global Landscapes Forum (GLF) is an international thinktank advocating for the productive, profitable, equitable, and sustainable use of land and landscapes. The GLF encourages ILM by emphasising a collaborative and community landscape approach to achieving economic and environmental land use goals.[128] |
| **Governors' Climate and Forests Task Force** | The Governors' Climate and Forests Task Force (GCFTF) is a global collaboration of 43 governor-led jurisdictions across 11 countries that aims to protect tropical forests, reduce emissions from deforestation and forest degradation, and promote concrete and achievable pathways to forest-maintaining rural development.[129] |
| **International Model Forest Network** | The International Model Forest Network (IMFN) is a voluntary global community of practice whose members and supporters work toward the sustainable management of forest-based landscapes and natural resources through the Model Forest approach.[130] |
| **Tropical Forest Alliance Jurisdictional Action Network** | The Tropical Forest Alliance Jurisdictional Action Network (JAN) comprises 2,200 representatives from civil society and the private sector (along with donors and development partners) who are interested in promoting landscape approaches (i.e., natural, social or production boundaries) involving long-term collaborations with multiple partners to encourage sustainable forest use.[131] |
| **The International Partnership for the Satoyama Initiative** | The International Partnership for the Satoyama Initiative (IPSI) is a partnership of hundreds of organisations interested in promoting the principle of "harmony with nature" in societies around the globe. This international effort promotes activities consistent with existing fundamental principles including the Ecosystem Approach under the CBD.[132] |

In practice, most landscape partnerships are organised and sustained by governments, CSOs, and NGOs. When landscape features closely match administrative boundaries, public sector authorities tend to play a leading role (e.g., Indonesia, Brazil, Peru). In contrast, where the landscape is defined by borders in which production takes place (e.g., cacao, palm oil, soy), the private sector may be an important partner, with government and civil society support, to resolve conflicts or balance the interests of smallholder farmers, pastoralists, and indigenous land managers with monoculture commodity production.

The main challenge facing ILM is in aligning the priorities and visions of different stakeholders operating at different scales over large areas while working with existing governance frameworks, power imbalances, and landscape-scale investment portfolios. Producers, buyers, and government agencies working across a mosaic of land uses and management practices, markets and supply chains, and administrative boundaries can make it difficult to identify and implement a shared vision. ILM projects and programmes can also suffer due to a poor understanding of landscape dynamics, scarce resources, tenure insecurity, land and resource conflicts, and a lack of trust and commitment to the commons.

**FIGURE 4** **Five Elements in the Practical Guide to Integrated Landscape Management**[133]


The governance frameworks most likely to contribute to the success of ILM initiatives are: 1) human rights-based and gender-responsive governance frameworks which ensure clear land rights and secure tenure for local level and rural stakeholders, and 2) territorial and multilevel governance frameworks which encourage the most appropriate decentralisation outcome to facilitate ILM planning and implementation. The updated White Paper on Territorial Approaches to Sustainable Development is useful for raising awareness in national ministries and sub-national departments where these approaches may still be perceived as novel or risky.[134]

## Peri-Urban Agriculture in Villa Mercedes, Argentina

Over the past three decades, climate change has brought significant changes to the peri-urban regions of Villa Mercedes, Argentina. The El Morro watershed, which covers more than 300,000 hectares and flows into the Rio Quinto, has experienced dramatic changes in land use. In the early 2000s, new summer crops, including soybean and maize, replaced the region's meadows. This land use change created conditions for increased rainfall to cause serious erosion in the upper and middle watersheds that led to urban flooding and increased sedimentation in the lower watershed.

In 2019, the government of San Luis implemented an "Alfalfa Multi-Annual Plan", recognising the crop's ability to absorb and evaporate excess water and its promise of combining economic and environmental benefits. The plan provides technical assistance, field machinery and infrastructure for industrialisation, transport, and logistics. A multilevel coordination agreement was reached with the National Institute of Agricultural Technology to ensure collaborative information is shared among local producers. A partnership company executes and administers the plan, with the board of directors comprised of officials from the government of San Luis Province to ensure public accountability. Areas affected by sedimentation and overrun by herbaceous plants are now being restored through soil regeneration, subsequently improving property values, creating jobs, and preventing migration from rural to urban areas.[135]

## 5.3 Land Administration Tools

Land administration tools can play a pivotal role in managing URL challenges and impacts, including those concerning land rights and marginalised population groups. The Global Land Tool Network – an international, multisector alliance committed to improve access to land and land tenure – has categorised these tools into five broad groups: 1) land access and tenure security, 2) land administration and information tools, 3) land-based financing tools, 4) land management and planning tools, and 5) land policy and legislation tools.[136]

Most of the tools described here tend to have greater utility when accompanied by the principles and practices contained in the Voluntary Guidelines on the Responsible Governance of Tenure of Land, Fisheries and Forests in the Context of National Food Security (VGGT), endorsed by the Committee on World Food Security in 2012. The costs of land administration can be greatly reduced by the use of simple communication technologies, such as mobile phones and the internet.

**TABLE 4** **Global Land Tool Network Tools Relevant to URL and Land**[137]

| Tool Category | Tool Name | Purpose |
|---|---|---|
| **1. Tenure Security and Access to Land and Natural Resources** | **Continuum of Land Rights** | The continuum of land rights is a concept or metaphor to describe a situation where different tenure forms incorporating a range of concepts, or interests exist simultaneously, often transforming and changing between forms over time.[138] Land or property rights can be categorised as public, private, communal, or open access as part of a continuum of tenure regimes that assign rights through mechanisms, such as formal title, leasehold, or the legal recognition of informal settlements and customary land rights. Formal land titles can increase tenure security, but they are not always practical, necessary, or beneficial in promoting the sustainable use and management of land resources. Each tenure category, regime, and mechanism confers a unique set of rights and responsibilities which manifest in different degrees of security – real or perceived.[139] |
| | **Participatory Enumeration for Tenure Security** | Participatory Enumeration is a useful tool for collecting and processing data on land rights and tenure security in the context of informal settlements with significant community participation and leadership at the forefront of its approach. Enumerations are a fundamental part of the slum upgrading process. It is intended to establish information on the population size, ownership patterns and the state of infrastructure. Enumerations provide the means by which not only data is gathered to allow for local planning, but also the process by which consensus is built and the inclusion of all residents negotiated. Enumerations are means to federate and organise communities and involve them in large-scale slum-upgrading projects.[140] |
| | **Land Record Systems for the Poor** | Designing a Pro-poor Land Recordation System is the first attempt to fill the gaps in the development of new forms of land recordation to assist the implementation of a continuum of land rights approach at scale. It refers to the development of the initial design of a pro-poor land recordation system – a recording system aimed at supporting the recognition and protection of a range of rights of the poor. Reliable land record systems can complement existing land information management systems at district, city, and national levels.[141] |
| | **Customary Tenure** | Customary tenure is a set of rules and norms that govern community allocation, use, access, and transfer of land and other natural resources. The term "customary tenure" invokes the idea of "traditional" rights to land and other natural resources (i.e., the tenure usually associated with indigenous communities and administered in accordance with their customs).[142] |

| | | |
|---|---|---|
| **2. Land Administration and Information** | **The Social Tenure Domain Model (STDM)** | The Social Tenure Domain Model (STDM) is a participatory and affordable land tool that bridges the gap between formally registered land and land that is not registered. It recognises a land rights continuum with a standard for representing "people-land" relationships independent of the level of formality, legality, and technical accuracy.[143] |
| | **Costing and Financing of Land Administration Services (CoFLAS)** | The Costing and Financing Land Administration Services (CoFLAS) is a decision-support tool for land administration which provides a series of templates to identify the core needs and necessary investment for land reform processes. The outcome of a CoFLAS assessment is a series of reports that guide decision-making related to land reform, identify the cost implications of decisions, and support fit-for-purpose approaches.[144] |
| | **Fit for Purpose Land Administration** | The Fit for Purpose Land Administration tool provides spatial, legal, and institutional frameworks for recording the way land is used, recognising the variety of tenure rights, and institutionally managing and administering land use to meet these needs. It means recognising, recording, and reviewing land rights quickly, cost effectively, and in ways suited to a particular purpose.[145] |
| | **Transparency in Land Administration** | Improving transparency in the way land is administered requires the availability of clear and credible information on land laws and policies, land availability, land prices, and property transactions. This tool aims to provide this information along with training on how to use it and develop capacities to address issues of corruption and to enhance transparency in the land use sector.[146] |
| **3. Land-based Financing** | **Innovative Land and Property Taxation** | The Innovative Land and Property Taxation tool provides governments at all levels with step-by-step guidance for implementing a variety of land and property taxation policies, strategies, tools, and instruments that can generate revenues, redistribute wealth, and support land administration infrastructure.[147] |
| | **Land-based Financing** | Land-based financing tools provide local governments with opportunities to generate revenue from land recognised as a key factor of production and an important source of financing for urban development, including infrastructure, social housing, and basic services. The tools include annual land taxes and development taxes, as well as fees that can spur economic development and improve URL infrastructure while promoting social equity.[148] |
| | **Valuation of Unregistered Lands and Properties** | The Valuation of Unregistered Lands and Properties tool provides fit-for-purpose methods for assigning value to land (especially in developing countries) that is not formally registered and for which existing initiatives for land registration are failing. It is intended to assist in the achievement of professional level valuations of unregistered lands.[149] |
| **4. Land Management and Planning** | **Participatory and Inclusive Land Readjustment** | The land readjustment tool helps guide the rearrangement of land ownership and land use of fragmented adjoining sites to facilitate particular land use goals, such as improved land management and planning processes that promote the optimal use of land and improved infrastructure and public space provision leading to better environmental management mechanisms.[150] |
| | **Citywide Slum Upgrading** | The citywide slum upgrading tool guides municipalities and communities to develop slum areas using an inclusive and participatory process that ensures local input as well as benefits and compensation without expropriation or relocation.[151] |
| | **Land Use Planning** | Land use planning tools direct the efficient use of land and its resources to ensure they support the wider economy and the local population while protecting the environment.[152] |
| | **Citywide Strategic Planning** | Citywide strategic planning – an alternative to settlement-by-settlement conventional planning – considers the needs of the whole urban population and looks ahead to the future growth of low-income areas by ensuring the basic rights of residents to primary infrastructure.[153] |

| | | |
|---|---|---|
| **5. Land Policy and Legislation** | **Framework of Engagement with Non-State Actors** | The framework for engagement with non-state actors guides relevant land use decision makers in national governments or in bilateral or multilateral agencies to create mechanisms that incorporate and regulate the land use influence of "non-state actors". These non-state actors are entities sometimes beyond the reach of local or national regulatory frameworks who nevertheless exercise significant economic, political, or social power and influence over land use and land reform at national and international levels.[154] |
| | **Pro-Poor Land Policy Development** | The pro-poor land policy development tool directs government officials in charge of land issues, as well as donors, professionals, consultants, and NGOs, through a participatory process (adapted for each country and for the specific aspect of land policy requiring change) that aims to correct the disadvantages that poor people face in relation to land policy.[155] |
| | **Land Sector Coordination** | A land sector coordination tool provides a mechanism for non-state actors to coordinate their influence and impact in the land sector, particularly during land reform processes.[156] |

## 5.4 Green and Blue Infrastructure

Green and blue infrastructure – natural areas, rivers and streams, forested watersheds – can help promote cost-effective and sustainable connectivity while avoiding or reducing URL impacts on land. The European Commission recognises the potential of green infrastructure to form a physically or functionally connected network across rural and urban areas, and to be a strategic planning objective for meeting multiple SDG targets (including LDN) and responding to the aims of the New Urban Agenda and the targets of the Global Biodiversity Framework.[157]

**Green and blue infrastructure** is a strategically planned network of natural and semi-natural areas with other environmental features designed and managed to deliver a wide range of ecosystem services, such as water purification, air quality, space for recreation, and climate mitigation and adaptation.[158]

Green and blue infrastructure, like other ecosystem-based solutions, can provide cost-effective, nature-positive complements to food, water, transport, and energy flows that are typically supported by grey infrastructure (e.g., concrete, steel). It can enhance drought and flood mitigation, renewable energy provision, biodiversity conservation, and water and waste recycling. As a tool for addressing URL impacts on land, it can include conservation hubs (i.e., core areas of high biodiversity value), forested and riparian buffer zones, ecological connectivity features (e.g., eco-bridges, corridors, stepping stones), and multifunctional zones (i.e., areas that support multiple land uses, such as food production, habitat protection, tourism, and recreation).[159]

Efforts to make cities greener, more liveable, and sustainable are gaining momentum around the world. Ecosystem- and nature-based solutions for water treatment, temperature control, and flood mitigation are practical options when decommissioning or replacing ageing urban infrastructure (e.g., converting impermeable surfaces into green surfaces to reduce soil sealing). Protecting and restoring nature is extremely cost-effective when planning and designing new urban and peri-urban developments. Many urban greening activities are labour-intensive and bring people together for a common purpose, providing greater food security, shovel-ready jobs (e.g., community gardens, soil preparation, engineering, tree planting), and more permanent employment opportunities (e.g., maintenance, management).[160]

Green and blue infrastructure that links urban and rural areas, such as the restoration of forests and mangroves, can support multiple services, such as water treatment, coastal protection, and carbon sequestration. It may also improve drainage, in-situ wastewater treatment, and cooling for areas experiencing heat stress. URL-related green and blue infrastructure can help address urban water and renewable energy supply, manage waste and environmental risks, and provide climate change adaptation and mitigation solutions across urban, peri-urban, rural, and natural areas.[161]

Nature-based infrastructure can help alleviate extraterritorial pressures on land health and productivity created by telecoupled or long-distance URL. Urban-rural linking green infrastructure can reduce the need for raw materials needed for grey infrastructure, and thus reduce the impact of their extraction in rural areas. Ecological infrastructure can also play a public education role, offering concrete examples on how to build resilience and protect biodiversity.[162]

Avoiding and reducing URL impacts on land with green and blue infrastructure requires the leadership of national or sub-national governments with the power to legally integrate and regulate this infrastructure within their land use planning systems. LDN planning, target-setting, and transformative projects and programmes provide one possible framework for action to encourage this integration. Ultimately, green and blue infrastructure needs to be included in existing budget processes and mainstreamed across policy and sector financial portfolios, including fiscal measures (e.g., environmental taxes, subsidies, regulation, procurement).

The Paris Collaborative on Green Budgeting promotes the important role of domestic budgetary and fiscal policy in resourcing and implementing environmental goals. Public spending on green and blue infrastructure is an opportunity to align private sector investment with longer-term goals, such as renewable energy provision, biodiversity conservation, and water and waste recycling. This may take the form of incentives for retrofitted or new climate-resilient infrastructure (e.g., renewal energy farms in agricultural landscapes) or restoring watersheds and wetlands to reduce the costs of water treatment and delivery to towns and cities. Greater certainty over a pipeline of potential projects would allow investors to offer risk capital, invest in capacity-building, and help create healthy markets for green infrastructure investments.[163]

International organisations can act as conveners or catalysts for stronger URL through a variety of approaches, such as those that encourage sustainable public procurement, demand-led policies, green supply chains, or a circular economy. For example, the International Tropical Timber Organisation (ITTO) experience in promoting sustainable wood use could help mitigate telecoupled or long-distance URL challenges within the wider context of international trade and foreign investment. The ITTO's Legal Sustainable Supply Chains programme has guided some discussions on timber trade and deforestation-free commodities in multi- and bi-lateral trade fora, as have similar initiatives.[164]

## Green and Blue Infrastructure in Lingang New City, China

The "Sponge City" initiative in China was launched in 2015 to combat urban flooding and enhance water resource management in cities across the nation. The concept of sponge cities integrates green and blue infrastructure into urban planning and design. Green infrastructure uses natural elements (e.g., parks, green roofs, permeable surfaces) to manage stormwater, while blue infrastructure includes water bodies, wetlands, and retention ponds. These features work together to mimic the natural hydrological cycle and enhance water absorption and retention capacity within urban areas.[165]

One example is Lingang New City (near Shanghai), a 300-square kilometre development created as a sustainable urban area. The city incorporates green and blue infrastructure elements, such as rain gardens, permeable pavements, and wetland parks. Vegetated rain gardens capture and filter rainwater, reducing the amount of runoff and relieving pressure on the stormwater drainage systems. Permeable pavements allow rainwater to seep through the surface, promoting infiltration and groundwater recharge which, in turn, helps alleviate flooding and reduce stress on drainage systems during heavy rainfall events. Wetland parks have also been integrated into Lingang New City to provide natural habitats for biodiversity, enhance the aesthetic appeal of the city, and store excess rainwater during storms.[166]

## 5.5 Land and Ecosystem Restoration

While URL and LDN strategies may be applicable across a landscape or country, regenerative land management and restoration practices refer to location-specific activities. They are conditioned by biophysical variables that determine productivity and resilience, land tenure arrangements that influence investments, and existing infrastructure and networks that provide services.

**Land restoration** is the process of avoiding, reducing, and reversing land degradation to recover the biodiversity and ecosystem services that sustain all life on Earth – a regenerative process (active or passive) that employs a continuum of land and water management practices that are adapted to local conditions and societal choices.[167]

Land restoration can be active (e.g., planting grasses, shrubs, and trees, or managing soils and wildlife), or passive (e.g., allowing land to regenerate by itself after disturbance). The scale of restoration can range from a few hectares to thousands of square kilometres. In the field, integrated methods of crop, tree, and livestock production conserve water, replenish soils, reduce emissions, store carbon, and conserve biodiversity. In the wider landscape, key biodiversity and watershed areas can be protected and restored to improve water supply, drought resilience, and the delivery of critical ecosystem services. In cities and peri-urban areas, green and blue spaces (ecological infrastructure) can be expanded in the form of parks and woodlands, community gardens, buffer zones, and riparian corridors.

Land and ecosystem restoration can be an effective means to avoid, reduce, and reverse the localised impacts of URL on land health while recognising the unique pressures, impacts, and responses in each land use context. While green spaces and water management are often the most appropriate responses promoted for urban areas, regenerative food and commodity production are best suited for agricultural land in peri-urban and rural areas. In order to be successful, restoration activities must be firmly grounded in the local context while recognising linkages in the wider landscape.

**FIGURE 5** **Land Use Contexts, Pressures, Impacts and Responses**[168]


| | | | | | |
|---|---|---|---|---|---|
| **PRESSURES** | URBAN EXPANSION | | AGRICULTURAL EXPANSION | | |
| **IMPACTS** | Artificialisation<br>Soil sealing<br>Pollution air/water/waste | Loss of farmland/ natural buffers<br>Reduction of green/ blue spaces | Soil erosion<br>Nutrient loss<br>Water scarcity<br>Pests/disease | Desertification<br>Land degradation<br>Loss of biodiversity/ ecosystem services | Encroachment (illegal use)<br>Degazettement<br>Habitat loss |
| **RESPONSES** | INTEGRATED LAND USE PLANNING | | EXPANSION/CONNECTIVITY OF PROTECTED AREAS | | |
| | Green spaces and water management | Sustainable territorial development | Regenerative food and commodity production | Protection and restoration of natural areas | Effective management of protected and conservation areas |

Place-based restoration strategies include conservation or regenerative agriculture (soil and water), agroecology and agroforestry (mixed production), and sustainable forest and rangeland management (traditional harvesting and pastoralism). In many cases, these activities reduce poverty and inequality while ensuring food security and stable livelihoods. In addition to the economic benefits of restoration, sustainable land and water management practices can reduce vulnerabilities and exposure to hazards and disasters, as well as stem rural-to-urban migration.

ILUP and ILM can help coordinate and enhance place-based restoration efforts across urban, peri-urban, and rural boundaries to achieve greater sustainability at multiple scales. Territorial and landscape scales are considered ideal for implementing agroecology and agroforestry.[169] In many countries in Africa, Asia, and Latin America, these initiatives have had a demonstrably positive impact on the livelihoods of local farmers and those in rural communities.[170]

**Migrant Employment and Land Restoration in Niger**

In Agadez, Niger, a lack of job security in land-based employment forces many young and vulnerable people to migrate for work as demonstrated by the large reciprocal flows of people between Niger and Libya. According to the International Organization for Migration (IOM), more than 100,000 migrants from different countries have transited through the region since 2016. Many of these migrants are victims of violence or human trafficking networks and have become stranded in non-destination locations due to a lack of resources or documentation. In 2018, IOM created a land-based employment programme and transit centre in Agadez to stabilise areas at risk and create new jobs that rehabilitate degraded land. The programme provides stranded migrants staying at the transit centre with sustainable land management training. Once migrants have completed the programme, they can receive assistance from their respective governments as part of an effort to create new land-based jobs for returning migrants.[171]

## 5.6 Public Procurement and Demand-led Policy Tools

### Public Procurement

Public procurement can represent a significant component of national economies and budgetary spending. Most economies procure an average of 13–14 per cent of their GDP in goods and services, including labour;[172] sub-national governments are responsible for more than 60 per cent of total public procurement in countries belonging to the Organisation for Economic Co-operation and Development (OECD).[173]

Public procurement is a fiscal tool that government and public sector entities (e.g., state-owned enterprises) can use to shift demand towards sustainable production and supply chains. Ideally, the procurement process involves a set of rules and procedures to ensure fairness, transparency, and efficiency. Procurement contracts can influence private sector actors who are involved as direct suppliers or contractors, who manage commodity supply chains and markets, or who harvest and process the goods delivered.

Procurement contracts can support local producers and land managers to create shorter, more efficient and resilient URL. Contracts can include distance criteria to prioritise goods and services from local and regional small- and medium-sized enterprises, small-scale producers, and marginalised groups. In addition to higher incomes that reward regenerative land management practices, these contracts can promote fair labour practices, increase resource use efficiency and recycling, and decrease point source pollution in urban areas.

**TABLE 5** Public Procurement Initiatives Relevant to URL and Land

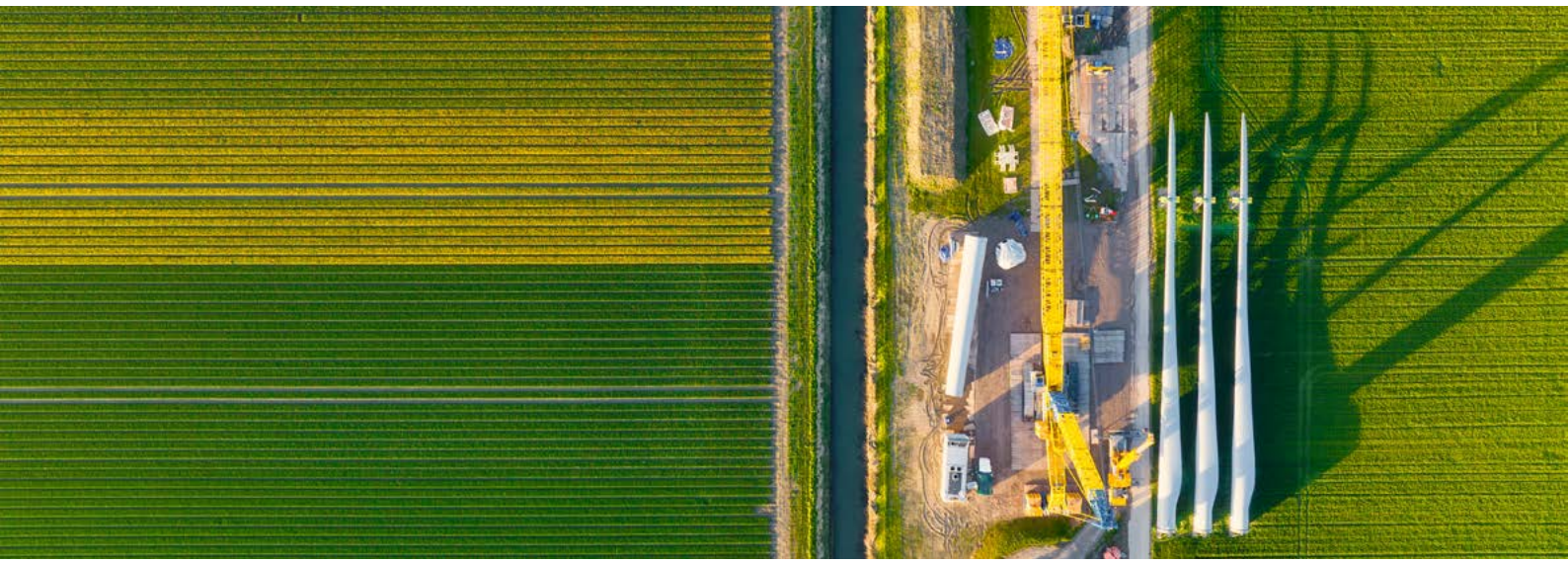
| | |
|---|---|
| **The Good Food Purchasing Program in the United States** | The Good Food Purchasing Program guides public institutions (e.g., schools, hospitals, prisons) on ways to purchase food that supports a transparent and equitable food system and promotes local economies, better health, a valued workforce, animal welfare, and environmental sustainability. The Center for Good Food Purchasing provides these institutions with tools, technical support, and a verification system to meet these goals.[174] |
| **Organic Public Procurement in Denmark** | In 2012, the Danish Government launched an organic food public procurement strategy to encourage public institutions to create healthy meals that simultaneously reduce emissions and help expand organic farming across the nation. In Copenhagen, many schools exceeded the government's expectation of providing 90 per cent organic meals and contributed to the growth of organic farming.[175] |

### Public Food Procurement to Support Regional Agriculture in New York City

Shocks to the food supply and market system of the largest city in the United States from the 911 attacks, hurricanes and the COVID-19 pandemic brought local government attention to the need for a comprehensive food strategy. A 10-year plan, FoodForward NYC, was launched that included a bold commitment to implement a value-based procurement system across all food services agencies that collectively spend over 300 million USD per year. In a city of 8 million, over 1.5 million are food insecure including 1 of 4 children. Over 1000 New York schools provide a million school children with universal free school meals each school day. Together with public hospitals, senior feeding centres, early childcare centres and jails, New York City is providing healthy meals that prioritise plant-based menus and is working with regional farm organisations, food processors and state and federal government agencies to increase the regional food supply and support food system based livelihoods in both urban and rural economies.[176]

## Demand-led Policy Tools

Demand-led policy tools, such as certification and commodity roundtables, can target specific resource or commodity flows associated with URL impacts on land. Consumers pay a premium for goods and services that are certified (and labelled) for one or more components of sustainability, such as organic, shade grown, free range, fair trade, etc. These tools are increasingly tied to public land use regulations, leading to hybrid policy mixes that help avoid and reduce URL impacts on land.[177]



## Voluntary Agreements

Businesses and industries generally adopt demand-led certification and labelling programmes under one of four types of agreements: 1) engagement in "public voluntary schemes" developed by public sector agencies or CSOs and NGOs, 2) as a contribution to national level pledges or commitments to environmental sustainability, 3) unilateral commitments, such as voluntary offsets that align with net-zero emission plans, and 4) negotiated agreements via direct bargaining between stakeholders, such as ILM initiatives and payments for ecosystem services schemes, and agreed to by the private sector and land managers.[178]

One example is the Ecovida Agroecology Network in southern Brazil which supports farmers in the region by promoting a participatory certification system for their products. Led by farmers, NGOs, and urban consumers, the network is quite unique in that it encourages farmers to evaluate and certify each other's products as agroecological (i.e., organic). Today, the network has more than 4,500 agroecological families in four Brazilian states and maintains links with other similar national and international networks.[179]

Certification and their underlying standards of practice seek to address specific impacts of consumption on the environment, such as energy-related carbon emissions, deforestation, and plastic pollution. Rural producers benefit in terms of higher incomes and niche market access for land-based commodities, such as soy, banana, coffee, cocoa, timber, and meat, among others. Ultimately, these demand-led policy tools rely heavily on business and industry initiatives and voluntary agreements to enhance environmental performance beyond what is required by law. For URL over long distances, demand-led tools are an established means to promote sustainable practices that can promote LDN without engaging in complex international trade policy debates.

**TABLE 6** **Demand-led Policy Initiatives Relevant to URL and Land**

| | |
|---|---|
| **UNDP Green Commodities Programme** | The UNDP Green Commodities Programme aims to improve the national, economic, social and environmental performance of agricultural commodity sectors to 1) improve the lives of farmers and their communities, and 2) protect high conservation value forest and important vulnerable ecosystems.[180] |
| **Forest Stewardship Council (FSC)** | The Forest Stewardship Council was established in 1993 as an international non-profit, multistakeholder certification organisation that encourages environmentally and socially responsible management of the world's forests with a system of timber certification.[181] |
| **Programme for the Endorsement of Forest Certification** | The Programme for the Endorsement of Forest Certification is an international, non-profit organisation that promotes sustainable forest management, but – unlike the Forest Stewardship Council which issues certifications – this programme uses independent certification bodies to certify forestry practices, particularly in Europe.[182] |
| **Round Table on Responsible Soy Association (RTRS)** | The Round Table on Responsible Soy Association is a non-profit organisation, founded in 2006, that encourages the responsible production, trade, and use of soy by engaging actors throughout the soy value chain, from production to consumption.[183] |

| | |
|---|---|
| **Roundtable on Sustainable Palm Oil (RSPO)** | The Roundtable on Sustainable Palm Oil was established in 2004 to promote the growth and use of sustainable palm oil products by encouraging the adoption of global standards and multistakeholder governance.[184] |
| **Global Roundtable for Sustainable Beef (GRSB)** | The Global Roundtable for Sustainable Beef encourages, supports, and communicates efforts to improve sustainability in the global beef value chain through leadership, science, and multistakeholder engagement and collaboration.[185] |
| **Global Platform for Sustainable Natural Rubber** | The Global Platform for Sustainable Natural Rubber is an international, multistakeholder, voluntary membership organisation that encourages those within the natural rubber value chain to improve the industry's socioeconomic and environmental performance.[186] |
| **Sustainable Rice Platform (SRP)** | The Sustainable Rice Platform is a global, multistakeholder, not-for-profit alliance whose aim is to improve smallholder livelihoods and reduce the social, environmental, and climate footprint of rice production and works to supply the global rice market with a predictable supply of sustainably produced rice.[187] |

## 5.7 Financial Reporting and Incentive-based Instruments

Financial reporting and incentive-based instruments have emerged as tools to address many URL regulatory and risk management concerns, including URL impacts on land. Many of these instruments aim to manage organisational risks and their financial materiality through integrated environmental, social, and governance (ESG) frameworks and reporting, with standards developed by, among others, the Global Reporting Initiative,[188] International Sustainability Standards Board,[189] and the Value Reporting Foundation.[190] In general, private sector actors track results and monitor compliance, while oversight can be provided by financial regulators and central banks as promoted by the Network for Greening the Financial System.[191]

Public sector incentives and financial instruments can include carbon finance and carbon tax schemes to manage emissions-related URL. These often involve pricing mechanisms, structured through various government policies and programmes, that monetarily reward positive environmental and climate outcomes, whether from land and ecosystem restoration or sustainable agricultural practices. In the case of carbon taxes, there are often safeguards to prevent further burden on already vulnerable populations or to enhance transparency while targeting the underlying causes of deforestation or land degradation.

For the private sector, voluntary market standards can be used to manage URL impacts on land. Standards for carbon credits and payments for ecosystem services have been established by companies, such as Gold Standard,[192] while initiatives that support transparency include the Voluntary Carbon Markets Integrity Initiative[193] and the Taskforce for Scaling Voluntary Carbon Markets.[194] Jurisdictional and landscape-scale carbon finance can support sub-national governments in their efforts to reduce deforestation and reach climate goals, with similar approaches related to biodiversity credits being developed by companies, such as Carbone 4[195] and Nature Finance.[196]

In terms of corporate direction and goal setting, the Science Based Targets Initiative[197] and the Science Based Targets Network[198] assist with the development of measurable science-based targets for corporations that seek to align their investments with climate- and nature-related commitments. Additionally, there are many resources on reporting standards and principles for financial disclosure which allow for a better understanding of business-related risks stemming from climate change, land degradation, and biodiversity loss.[199]

## 5.8 Social and Solidarity Economies

Social and Solidarity Economies (SSE) embrace the principles and values of entrepreneurship characterised by the central place given to people and the commons, which go beyond the maximisation of profits. SSE can be designed to coordinate economic activities at integrated territorial scales to avoid and reduce URL impacts on land. Building on the efforts of grassroots organisations and working closely with public authorities, academics, civil society, and the private sector, SSE can operate across contiguous urban and rural areas to realise the socioecological transformation needed to reverse climate change and environmental degradation.[200]

**Social and Solidarity Economies** encompass enterprises, organisations and other entities that are engaged in economic, social, and environmental activities to serve the collective and/or general interest, which are based on the principles of voluntary cooperation and mutual aid, democratic and/or participatory governance, autonomy and independence, and the primacy of people and social purpose over capital in the distribution and use of surpluses and/or profits as well as assets.[201]

SSE distinguishes itself from the conventional shareholder business model by pursuing economic activities that prioritize social and environmental objectives -- rather than profit maximisation or shareholder value -- within more democratic governance structures. SSE can encompass multiple sectors, from food and water to waste management and energy. In the agricultural sector, they help reinforce demand-led policies and programmes to transform food systems through partnerships and incentives that encourage more efficient supply chains and sustainable production practices. In the energy sector, SSE can promote the production and sale of renewable energy through decentralised energy grids that are owned and managed by local communities. In general, SSE have the potential to encourage more socially and environmentally sustainable modes of production and consumption that promote biodiversity and nature conservation, integrated water and waste management, and the reduction in food waste/loss.[202]

SSE can also mitigate the trends in rural out-migration by providing decent work, entrepreneurial opportunities, social protection, digital connectivity, and other essential services that contribute to increased stability and formalisation in rural economies.[203] In many developing countries, the informal economy is quite significant in both rural and urban areas, with the largest percentage of informal workers in the agricultural sector: in Bangladesh, India, Indonesia, Mongolia, and the Philippines, over 80 per cent of all agricultural workers are considered informal, many of whom are women and youth.[204] The ILO has developed a comprehensive tool to support the transition to formality through capacity needs assessments, policy formulation, and the innovative design and implementation of rural development programmes.[205] Nonetheless, the informal sector will remain a vital part of SSE with the need for social protection and disaster risk reduction benefits.

## Community-Supported Agriculture

Community-supported agriculture (CSA) is a cooperative farm-to-table arrangement that shortens URL by directly linking consumers with local and regional food producers. CSA are distinguished from other cooperative approaches, such as community gardens or food coops, by their long-term contractual relationships and shared commitments between consumers and producers, including upfront payments to cover production costs through which both risks and harvests are shared. This cooperative model helps farmers access technical assistance, credit and extension services, and support for marketing that enable them to adopt sustainable land management practices. CSA can also mitigate pressures on soil and water, reduce greenhouse gas emissions through increased resource efficiencies, and foster social inclusion and livelihood security for small-scale farmers.[206]

One prominent example is the Prinzessinnen Garten in Berlin, Germany which repurposed a vacant lot to create an urban garden in the centre of the city. It demonstrates an ecologically and socially diverse approach to urban spaces and their inhabitants which empowers underprivileged communities and creates opportunities for local and micro-economies. It has become a place for exchange and learning on issues of sustainable production and consumption, highlighting the resilience of local food systems through mobile cultivation utilising "Baker box towers".[207] CSA can also be a tool to foster social inclusion and economic security for small-scale farmers, the majority of whom are women estimated to deliver at least 70 per cent of the food produced globally using less than 25 per cent of agricultural land.[208]

**TABLE 7** **Social and Solidarity Economy Initiatives Relevant to URL and Land**

| | |
|---|---|
| **URGENCI** | URGENCI is a global network of around 3 million families that promote local "solidarity-based partnerships" for agroecology. The network brings together a broad range of actors (e.g., producers, consumers, activists, researchers, public officials) who are committed to support closer network ties as well as social and environmental justice.[209] |
| **RIPESS** | RIPESS is a global umbrella organisation representing multiple continental networks committed to the promotion of SSE. Regional member networks are comprised of smaller national and sectoral networks that provide territorial scale representation to foster intercontinental cooperation and advocate for SSE at different scales.[210] |
| **WIEGO** | Women in Informal Employment: Globalizing and Organizing (WIEGO) promotes better working conditions in informal economies for women and other groups considered to be the working poor. The global network encourages equal economic opportunities, rights, protection, and a voice for all workers.[211] |

The coherence of policy, legal, and governance frameworks, as well as the creation of trusted institutions and participatory processes, are seen as critical to create and sustain SSE around the world.[212] Government at all levels can support the development of SSE through budget allocations, fiscal measures, and policies that improve market access for all actors. Grassroots organisations and cooperatives offer an efficient way to organise the otherwise unaligned interests of small producers and marginalised actors in planning processes to help achieve a shared and more equitable vision for sustainable land use in the wider landscape. SSE have been recognised in the New Urban Agenda as an effective strategy to preserve traditional agricultural land and protect it from speculation,[213] which can be aligned with the concept of a "Right to the City" to strengthen URL that promote social, economic, and environmental justice.

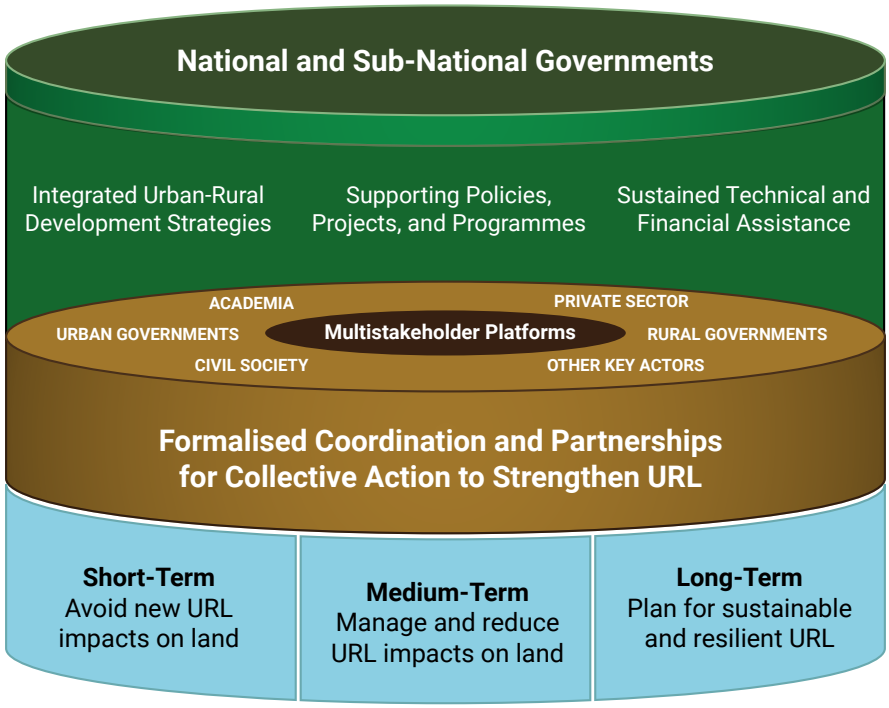
### Circular Economies and Waste Management in Sierra Leone

Circular economies encourage more resilient and sustainable URL by reducing waste, promoting resource efficiency, and strengthening local economies.[214] For example, organic waste from urban areas can be composted and used as fertiliser, while local and regional food systems can reduce emissions from storage and transportation. Makeni, the largest city in the Northern Province of Sierra Leone, developed a circular economy solution to reduce pollution problems and alleviate the growing burden on the city's waste management system. Youth Build (a youth-led NGO) introduced a circular management system that focuses on waste reduction, reuse, and recycling. The project collects and sorts waste: plastic and paper is used as feedstock for construction materials, while the remaining waste is reduced, reused, or recycled by the community. The project has created more than 400 jobs for women and youth and has shortened the supply chain for outdoor paving stones made from the waste. Discarded hospital beds and other metal items have been upcycled to produce durable and affordable trash bins.[215]

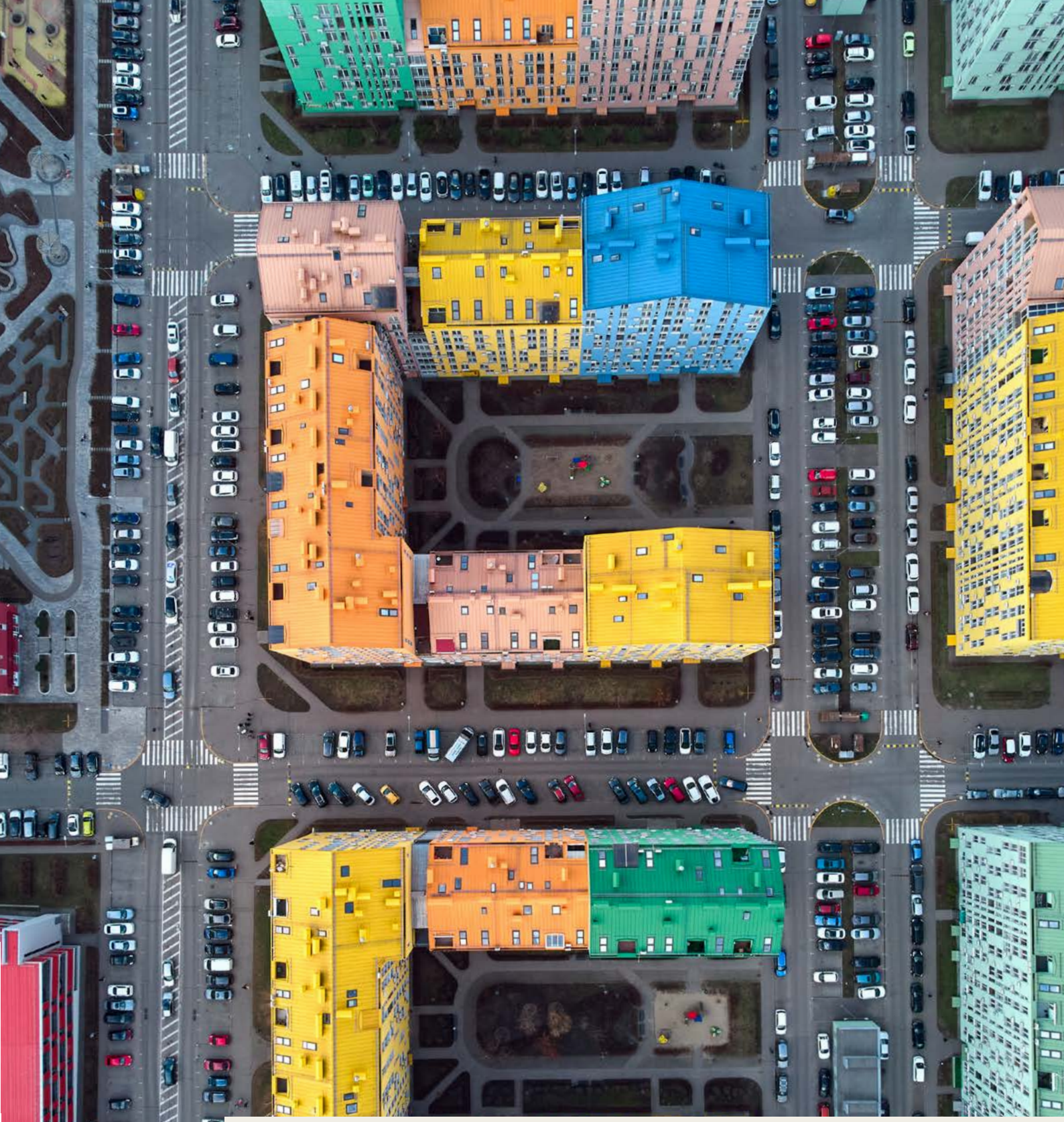
# 6 THE WAY FORWARD

URL are the lifelines that connect urban and rural communities with great potential to improve the human condition. It is hoped that this Primer on Urban-Rural Linkages and Land serves not only as a foundation but also a motivation to 1) consider and address URL impacts on the health and productivity of land, and 2) implement responsive measures into land use planning, governance, and management decisions. By providing an accessible overview of URL challenges and solutions, it highlights many of the relevant governance frameworks and spatial tools that can help strengthen the bonds between rural producers and urban consumers. The ultimate objective is to make URL sustainable, less destructive, and more resilient so that rural communities can better access opportunities and more equitably share the benefits of an interconnected world.

**FIGURE 6** **Enabling Environment for More Sustainable and Resilient URL**




The enabling environment required to design and implement sustainable and resilient URL is illustrated in Figure 6. This includes national level policy and finance; multilevel, integrated, and participatory governance and planning processes; sub-national empowerment and administrative capacities; and multistakeholder platforms and partnerships. The key findings contained in the Executive Summary may assist countries that wish to explore context-specific pathways to strengthen URL and make them more resilient as part of their efforts to improve LDN initiatives and outcomes. The frameworks and tools presented in this Primer can be applied independently or in combination to develop tailored and innovative development pathways to establish and manage more sustainable and resilient URL.



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