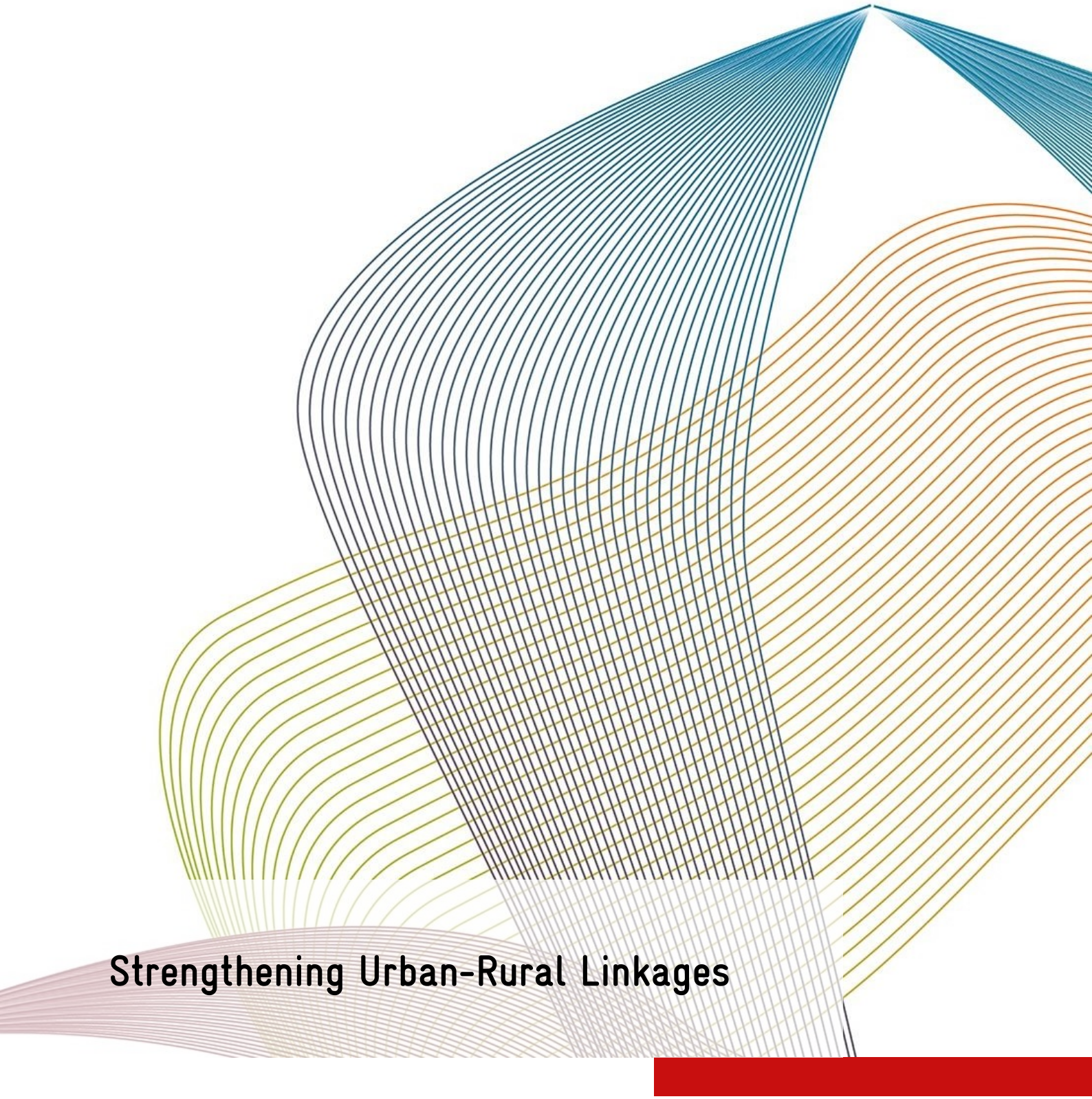

Strengthening Urban-Rural Linkages

Implementing the 2030 Agenda for Sustainable Development

Case Stories

Published by

giz Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH

Imprint

Published by
Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH

Registered Offices of GIZ
Bonn and Eschborn

Edited by
Sector Project "Integrated Implementation of 2030 Agenda in Cities and City-Regions"
Dag-Hammarskjöld-Weg 1-5
65760 Eschborn
Germany
T +49 61 69 79-0
E cityregions2030@giz.de
I www.giz.de

Authors
Barbara Scholz and Carmen Vogt (GIZ)
Lukas Frucht (External Consultant)

Editorial
Anne Kruse
Ria Büsse

Design and Layout
Ria Büsse

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On behalf of
Federal Ministry for Economic Cooperation and Development (BMZ)
Division 412 Water, Urban Development, Mobility

Addresses of BMZ offices:

BMZ Bonn
Dahlmannstraße 4
53113 Bonn
T +49 (0)228 99 535 - 0
F +49 (0)228 99 535 - 3500

BMZ Berlin
Stresemannstraße 94
10963 Berlin
T +49 (0)30 18 535 - 0
F +49 (0)30 18 535 - 2501

E poststelle@bmz.bund.de
I www.bmz.de

GIZ is responsible for the content of this publication.

Bonn and Eschborn, 2019

Strengthening Urban-Rural Linkages

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Case Stories

Barbara Scholz and Carmen Vogt (GIZ)

Lukas Frucht (External Consultant)

Content

Preface 1

Urbanisation is a megatrend, which has an influential and significant effect on the world economy and society, on people's quality of life, on the future of democracy, as well as on global consumption of resources and energy - and thus on the future of the Earth as a whole. According to predictions, up to 70 percent of the global population will live in cities by 2050. Future urban growth will almost exclusively take place in developing countries; especially medium-size cities will grow rapidly. This growth comes with a host of challenges and opportunities, such as considering climate change in urban expansion and construction, managing resources sustainably, providing adequate shelter and decent job opportunities for all, exploring options for ICT-based solutions and ensuring food security for a growing urban population. With this in mind, the 2030 Agenda for Sustainable Development states goals and targets related to sustainable cities and human settlements (SDG 11). Moreover, cities are turning out to be key actors for the implementation of two thirds of the SDGs, thereby transforming local governments and communities into crucial shapers of our global future.

Urbanisation is a process that goes far beyond the cities themselves. Spatial and functional interrelations between cities, settlements and their surrounding areas are increasing. Integrated territorial development approaches contribute to a paradigm shift towards urban and regional planning, financing and implementation across sectors, stakeholders, administrative borders and governmental level. The 2030 Agenda and the New Urban Agenda acknowledge the interdependencies between cities and regions as key potentials for inclusive and sustainable development. Furthermore, they call for integration, cooperation, coordination and dialogue across different levels of government, functional areas and relevant stakeholders.

The Sector Project "Sustainable Development of Metropolitan Regions", implemented by the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) on behalf of the German Federal Ministry for Economic Cooperation and Development (BMZ) from 2013 until 2018, has developed action-oriented advisory services and new concepts on the role of metropolitan regions as drivers for sustainable development. The focus has been on diverse social, economic and ecological challenges within urban areas, such as metropolitan governance, urban-rural linkages including City-Region Food Systems, urban resources management and climate change as well as digitalisation and regional economic development.

Under the new title "Integrated Implementation of the 2030 Agenda in Cities and City-Regions", the Sector Project promotes and implements action-oriented model projects with cities and city-regions in collaboration with the programmes of the German Development Cooperation in partner countries worldwide.

This collection of case stories aims at showing how functional urban-rural linkages can serve as a catalyst for development that benefits the most vulnerable and deprived people in both cities and rural areas. It is a rich source for all who believe that it is crucial to overcome sectoral approaches and the rural-urban divide and to use the dynamics of urban transformation as a driver for integrated development. It illustrates how policy-makers and development actors can capitalise on mutual benefits and symbiotic potentials of urban, peri-urban and rural areas, hereby translating the 2030 Agenda into concrete policies and actions. This collection forms part of the publication series "Integrated Implementation of the 2030 Agenda in Cities and City-Regions", which continues the previous series of publications on sustainable metropolitan regions. It provides conceptual guidance and recommendations for hands-on approaches for development organisations as well as partner countries in the field of sustainable development of cities and city-regions.

We encourage a critical and fruitful discussion about the publication by policy-makers, practitioners and academia!

Carmen Vogt
Head of programme "Integrated Implementation of the 2030 Agenda in Cities and City-Regions"

2 Well-managed Urban-Rural Linkages - Key for Sustainability and Inclusion

Cities in developing and emerging countries mostly spread in an uncontrolled and unplanned manner. In addition, migration and commuter movements, flows of capital, raw materials and goods between urban and rural areas are increasing in intensity and move across administrative borders. This results in rapidly growing, dysfunctional urban agglomerations or even megacities with slums and underserved peripheral areas. Furthermore, conflicts between cities, peri-urban areas and rural hinterlands over access to and use of land, water and energy increase. More remote rural areas even run the risk of becoming decoupled from promising social and economic developments. On the other hand, the growing urban demand for food and building materials but also for ecosystem and recreation services can give enormous impetus to rural development. Cities, especially secondary cities and intermediate towns assume an important role as sales markets and hinges to national and global distribution systems, as sources of innovation and technology to improve rural value chains and as supply centres for educational, health and administrative services for rural inhabitants. For this reason, public policies are increasingly promoting integrated territorial approaches across spaces, sectors and government levels. Transport infrastructure and basic services, if planned and implemented within a city-regional perspective, not only improve development opportunities for both urban and rural inhabitants but also anticipate and guide future urban expansion towards sustainable and equitable paths. Reinforced national and regional development plans on land use, natural resources management and infrastructure are essential. Nevertheless, it is on the local level where these programmes and strategies will be shaped and implemented. Local governments, the private sector and communities thus play a key role. Their mandates and capacities as well as their access to adequate funding must be strengthened to ensure that urbanisation will benefit both urban and rural development.

Strengthening Urban-Rural Linkages and Integrated Territorial approaches to development is vital for many of the Sustainable Development Goals of the 2030 Agenda. Goal 11 on Sustainable Cities and Communities includes a target related to "support positive economic, social and environmental links between urban, peri-urban and rural areas by strengthening national and regional development planning" (SDG 11.a). Functional urban-rural connections critically contribute to fulfilling goals related to poverty (SDG 1) and reduced inequalities, including gender-related aspects (SDG 10 and 5). Moreover, improved access to employment, health and educational services are implicitly covered (SDG 8, 3 and 4). In terms of climate change and environment, strengthened urban-rural linkages enforce responsible consumption and production patterns as well as climate action (SDG 12 and 13) with direct links to the sustainable management of terrestrial and coastal ecosystems (SDG 14 and 15). Finally, legal and financial regulations, efficient institutions and increased options for political participation across the urban-rural continuum contribute to achieving more peaceful and resilient societies (SDG 16). Consequently, the New Urban Agenda (NUA) approved in 2016 supports "integrated, polycentric and balanced territorial development policies and plans" and encourages synergies and interactions between different spatial scales and government levels. In 2018, UN-Habitat (UNH) in close cooperation with FAO, IFAD and the German Development Cooperation among others presented the Guiding Principles for Urban-Rural Linkages as a framework for action that encourages joint activities of UN Agencies, development agencies, national and local governments, civil society, the business sector, academia and communities.

With this in mind, the Federal Ministry for Economic Cooperation and Development is drafting new strategic guidelines on sustainable urban development and urbanisation. At the interface of various sectors such as governance, financing, economic development, resource management and climate change, the BMZ emphasises the role of integrated territorial approaches to overcome the silo thinking between sectors, government levels and actors when it comes to urban and rural development. In this field, the German Development Cooperation states as a matter of priority:

- to support partner countries in applying national and regional plans for a balanced territorial development with polycentric urban grids, to ensure access to employment, education, culture and health across the whole national territory, within a sustainable and climate-friendly management of natural resources;
- to encourage inter-municipal cooperation for joined development and investment planning between local – urban and rural - governments, and to motivate partnerships with local entrepreneurs and communities to unfold the entire range of knowledge, creativity and financial resources to

achieve social and economic well-being; to strenghten small and intermediate cities as well-connected supply and market centres

- to ensure both a sustainable and resource-efficient provision of the urban population, e.g. with water and food, and an improved access to urban productive and social services for the rural population, e.g. transport, storage and distribution facilities for agricultural products or health, education and cultural services.

These priorities are strongly related to urban governance and financing topics. They underline the role of local governments and communities and require enlarged mandates for subnational governments as well as support regarding their planning and management capacities. This involves adequate funding and effective coordination between government levels and sectors, as well as access to spatially disaggregated data. Moreover, it entails effective and transparent procedures to involve local communities, business sectors and civil society in the planning, monitoring and implementation of development strategies.

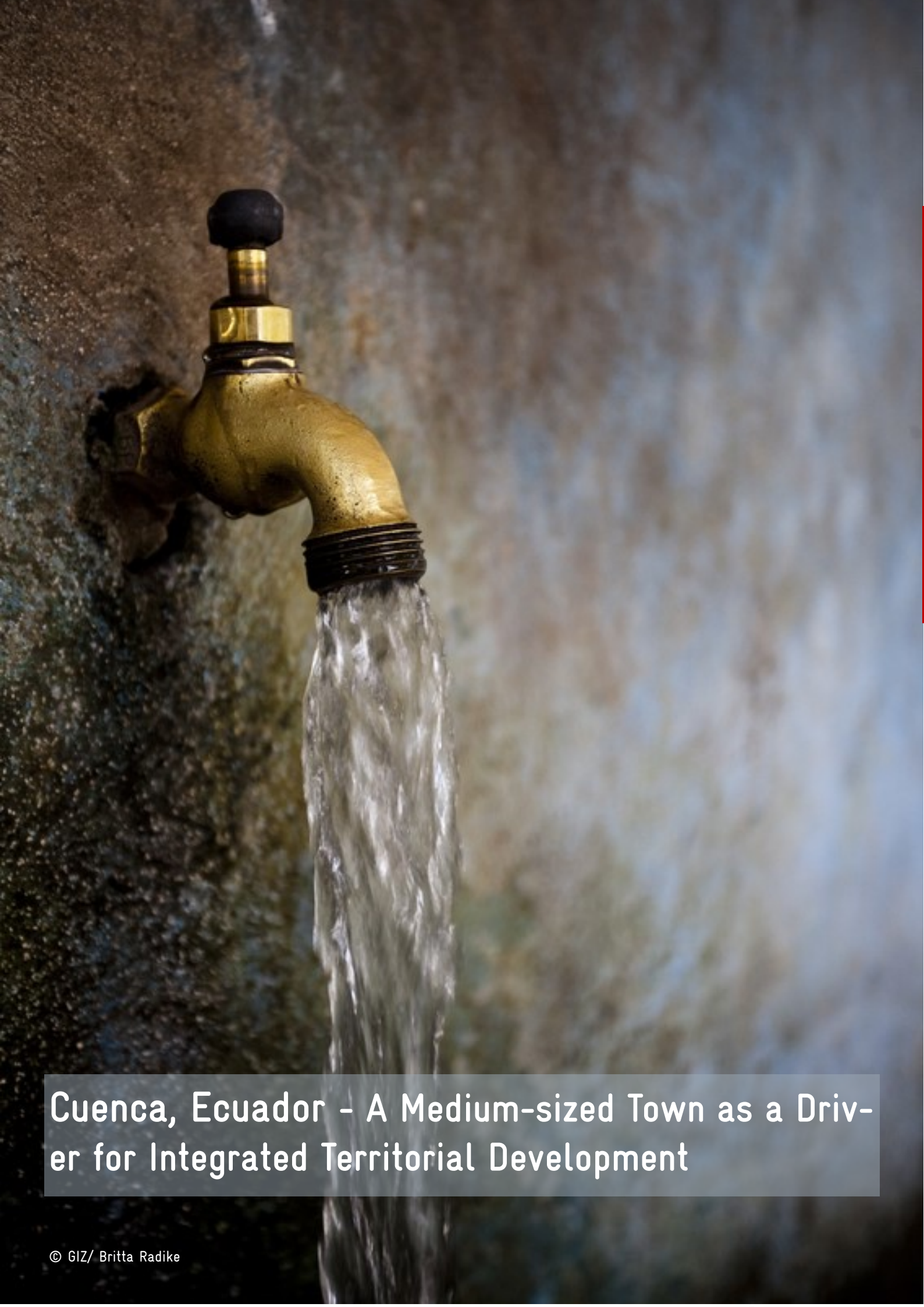
The current urban portfolio shows that working at the interface of urban and rural development is already a reality in German Development Cooperation. In 2017, 29 percent of the technical and 54 percent of the financial assistance programmes were strongly related to urbanisation due to the percentage of urban population they addressed, the mandates of the partners with whom they cooperated and the functional territories in which they were allocated. Within technical assistance, 26 percent of the urban programmes also addressed rural development, mostly in Sub-Saharan Africa (41 percent) and, to a lesser extent, in Northern Africa, Latin America and South East Europe (approx. 15 percent each). In sectoral terms, these programmes focussed on strengthening democracy and public administration, followed by water and sanitation, environment and natural resources. A more in-depth analysis of targets, indicators and impacts is still pending in order to show if and how these programmes are taking into account the specific potentials of integrated approaches, and how impacts could increase by addressing synergies between urban as well as rural spaces, actors, sectors and government levels. The question of how to advance in overcoming institutional, methodological and funding routines within the development cooperation system and incorporating a notion of functionally interlinked territories is still a huge challenge for all actors involved - far beyond development agencies and national as well as local governments in our partner countries.

This paper applies a rather "urban" lens on the topic, emphasising the opportunities of urbanisation to develop city-regions including urban settlements, peri-urban surroundings and even rural hinterlands. The case stories compiled in this paper highlight a series of strategies implemented in different parts of the world. They show key measures, tools and policies applied to address important challenges in the field of urban and territorial development and identify success factors.

With this in mind, the case stories show how strengthened urban-rural linkages contribute to:

- the sustainable development of small- and medium-sized towns through ecosystem-based approaches to compensate urban and rural development needs in Cuenca, Ecuador;
- a balanced territorial development through improved land use planning and capacity development in the Federal States of Odisha and Tamil Nadu, India;
- creating income opportunities for peri-urban and rural inhabitants by connecting urban markets with small-scale enterprises in the field of food production, transportation, storage and distribution, as shown in Nepal;
- to connect peri-urban and rural areas with towns and cities to improve the access to urban services such as health and education as well as to markets and income opportunities for rural inhabitants in India by building and extending road infrastructure;
- increasing the effective implementation of climate policies and resource conservation in local urban development strategies in a context marked by rural production patterns and fragile ecological conditions in Bobo Dioulasso, Burkina Faso;
- the implementation of ICT-based solutions for evidence-based policy-making and planning of urban growth in China.

Similar to population growth, poverty is also increasingly shifting to the cities. Hunger and malnutrition are progressively affecting the urban population and food security is becoming an important topic for urban policies. City Region Food Systems have shown their potential for ensuring the supply of sufficient, balanced and affordable food to the urban population. Beyond that, they prove viable options for sustainable and regionally produced food that improves income opportunities for smallholder farmers in urban hinterlands. Local governments in association with rural producers and urban consumers have considerable possibilities to encourage these kind of systemic approaches, such as direct sale of regionally produced food and simplified access to municipal markets and supply-systems, e.g. of public schools and health institutions. Regarding this topic, the Sector Programme published a specific compilation of case stories related to City Region Food Systems and food waste management, in cooperation with RUAF and FAO in 2016 (http://www.fao.org/3/a-i6233e.pdf).



Cuenca, Ecuador - A Medium-sized Town as a Driver for Integrated Territorial Development

Ecuador

3

Implemented Key Measures

- Integrated and foresighted urban and sectoral planning
- Efficient institutional and compensatory finanacial arrangements for ecosystem services
- Empowerment of civil society through community participation

Tools & Practices

- Territorial Development Plan (PDOT)
- Solid Waste Management - Santa Ana
- Integrated Transportation Plan
- Water Management System

Success Factors

- Territorial Development Plan as a tool for strategic development and infrastructure planning of the city and the respective rural hinterland
- Creative and highly participatory approaches facilitate high levels of service provision
- Holistic and efficient management system for sustainable water supply based on a circular economy approach

Context and challenges

While Ecuador`s urban population only accounted for 40 percent of the total population in 1970, by 2010 the percentage increased to 63 percent and is still growing. In the future, Ecuador will become a predominately urban country with changing economic patterns but also social mobility and internal migration. Moreover, the majority of Ecuadorian cities experience disorganised and uncontrolled growth, social exclusion and territorial fragmentation, as well as a great human pressure on ecologically vulnerable and agro-productive land. Most local governments have low technical capacity and lack financial resources to cope with these challenges of urbanisation.

With currently half a million inhabitants, Cuenca's population is expected to grow to more than 900,000 by 2050. Within the municipality, a third of the population resides in rural areas. Growth is expected to take place mainly in the surrounding peri-urban and rural areas. Poverty statistics show a significant inequity between urban and rural areas, as well as disparities in the provision of basic services. Consequently, Cuenca as the urban regional centre experiences an immense growth through immigration. People from rural parishes or neighbouring municipalities either commute regularly or migrate permanently for mainly two reasons: a lack of employment in the rural areas and for education purposes. Cuenca´s role as the regional economic centre and service provider has been acknowledged in the polycentric system of human settlements defined in the National Territorial Development Strategy. The emerging challenge for Cuenca is how to fulfil this role and contribute to a balanced territorial development that could benefit both urban and rural inhabitants. Social inclusion, sustainable management of natural resources and suitable conditions for economic development are key. Therefore, Cuenca´s local government consolidated during the past decades a comprehensive urban and territorial development strategy based on long-term land use and infrastructure planning, efficient capacity and institution building as well as participatory governance arrangements. The focus on climate and resource protection is to be particularly emphasised.

Project description and strategies

To meet the challenges of urbanisation and territorial disparities, Cuenca can be seen as a benchmark for urban planning in Ecuador in many aspects. One important component of Cuenca's approach to urbanisation is strategic and foresighted planning practice. To illustrate Cuenca's efforts, the following section gives an overview of its strategic planning framework with a territorial development plan and the city's successfully implemented planing activities to strengthen urban-rural linkages in the fields of transport, water and waste management.

Territorial Development Plan

The territorial development plan of Cuenca (PDOT - Plan de Desarrollo y Ordenamiento Territorial del Cantón Cuenca) is the technical and regulatory instrument of planning and long-term management that involves a set of policies, actions and elements of physical planning. It guides the territorial development and regulates the use, occupation and transformation of the urban and rural areas of Cuenca canton. The plan is based on the national policy for development and territorial planning of Ecuador and transfers the national objectives to the local level. The implementing body of planning is the Planning Secretariat of the municipality of Cuenca. The plan has been approved in 2015 and is a strategic guiding framework until the year 2030. The PDOT was developed in a highly participatory process.

The key purpose was to establish guidelines and mechanisms to achieve a balanced, equitable and efficient use of land. The plan centres on the premise to avoid spatial dispersion and achieve social cohesion. Furthermore, the PDOT highlights the principle of territorial decentralisation, as well as an exchange of services between urban and rural areas. Another important component is the strategic and participatory character of planning as well as local, regional and national territorial integration. The plan covers five strategic fields of development: biophysical systems, socio-cultural development, economic development, mobility, and governance. It sees a close interrelation between biophysical, economic, social and institutional systems to foster integrated development. Human settlements, mobility, energy and infrastructure systems are interrelated through land use planning. The thematic alignment of development areas and the use of interrelated thematic systems instead of sectoral approaches facilitated efficient coordination. Moreover, the participatory planning process facilitated a high acceptance within the population and integrated citizens' needs into planning.

Transportation

In fact, changing travel patterns were the first visible sign for Cuenca's rapid urban growth. As a consequence of urbanisation and a rising population, people preferred settling in peri-urban areas in distance from the urban centre of Cuenca due to lower costs of land. The travel demand grew, while mobility was characterised by a low level of public transport as well as a limited and disjointed road network. As a result, the number of private vehicles increased by 10.000 each year. Thus, this massive rise increased travel times and created congestion. At the same time, peri-urban areas were poorly integrated into the transportation system.

To address the situation, Cuenca focused on implementing an improved public transport system: service companies were reorganised, the vehicle fleet was renewed in order to reduce environmental emissions, a new fee collection system was established to support improvements in the service and allow for higher frequencies. Furthermore, Cuenca implemented exclusive lanes for public transport buses and is implementing a tramway to restructure the urban public transport system. To guarantee area-wide connectivity, Cuenca structured the organisation of public transport into four subsystems:

1. an urban system that includes routes within the border of the city or other parishes;
2. an integrated transportation system that facilitates public transport on the six major routes through the city;
3. a micro-regional system that crosses parish and city borders to connect Cuenca and the peri-urban hinterland;
4. and an inter-parish system, which connects more remote parishes in rural areas of the canton.

Solid Waste Management - Santa Ana

Cuenca developed an innovative and efficient system of solid waste management with a service coverage level of 98,6 percent. The municipality is working consecutively on measure for waste seperation and recycling. Organic waste is processed and converted into compost and humus. The use of waste decomposition (biogas) for energy production contributes to the aspirations of the Paris Agreement and the respective Nationally Determined Contributions and takes firm steps in the search for a balanced environment and the achievement of alternative energy sources. Moreover, the biogas production allows generating revenue.

The responsibility for the integral management of solid waste in Cuenca lies within Cuenca´s Municipal Waste & Green Management Company (EMAC EP). Solid waste generated by households in the city of Cuenca is collected by the EMAC EP and transferred to Pichacay Landfill for treatment and final disposal, which is done with the highest technical and environmental standards. Pichacay landfill is located in the rural parish of Santa Ana, 21 km from Cuenca City. Operations began in 2001. EMAC EP has had financial autonomy by collecting the income for its normal operation and development based on a variable rate of waste collection service. EMAC EP does not receive contributions or economic subsidies from the central government or the municipality of Cuenca. The key to success is based on the funding system through biogas and an efficient and fair tariff mechanism. Furthermore, an important component is the cooperation with the parish of Santa Ana. The city of Cuenca produces large amounts of solid waste, which are increasing due to a growing population. For waste disposal, Cuenca depends on its surrounding rural areas for places to locate landfills. Such landfills usually implicate risks of environmental pollution, agricultural degradation and the health of the population in rural areas. As a result, these infrastructures are often clearly rejected by the rural population. In response to the massive protests of the villagers. Cuenca's approach was to establish a system of co-responsibility and management with EMAC EP and the rural parish of Santa Ana. Thus, the community of Santa Ana is involved into decision making processes and able to control environ-

mental standards through independent monitoring of the landfill. Additionally, visits to the landfill as well as education within communities and in schools have become common standards to guarantee an early awareness-raising for waste treatment. The agreement with Santa Ana also includes a financial compensation taking the form of an environmental service fund: EMAC EP transfers 5 percent of its revenues to the Parish of Santa Ana. From 2010 to 2016, this meant a total amount of nearly 4 million US$ for the parish. Besides the financial advantages for Santa Ana, the landfill also generated jobs for the local population. Due to the success of the approach, the contract between Cuenca, Santa Ana and EMAC EP has currently been prolonged for another 15 years.

Water Management System

Cuenca has been able to create an efficient system of water conservation and management to ensure drinking water supply and quality. The level of water coverage has reached 96 percent and 85 percent of the households have access to sanitation sewer service. The key to the efficient management of water started with the protection and conservation of Cuenca's surrounding environment. 60 percent of the water comes from the Cajas National Park, which is a protected nature reserve in the Ecuadorian highlands 30 km away from Cuenca. To guarantee its preservation, waste water is treated in modern processes and returned to its natural channels in appropriate condition. ETAPA, the municipal utility company, is in charge of managing the complete water cycle system, including the administration of the Cajas National Park. Municipal water management is guided through a Drinking Water Master Plan which is periodically approved by representatives from ETAPA, the local governments and civil society from both urban and rural areas. The participatory decision making combined with efficient and transparent management practices within ETAPA have been crucial for the acceptance within the population. Environmental education and training are critical parts of the programme to promote co-responsibility within communities. Moreover, rural communities play an important role in the monitoring and preservation of the water cycle system. They are responsible for the biotic and seismic monitoring in the basin, and thus co-monitor the protection of natural resources and rural land. Financial resources for these activites are provided by an environmental fund managed by ETAPA with participation of the regional energy supplier who runs a hydroelectric power station in the national park, and representatives of the rural communities. Cuenca's water cycle management illustrates how the municipality has been able to build an efficient and sustainable system by recognising the interdependence of urban and rural areas as well as between sectors (land use, water, energy). To guarantee water supply also for future population growth, it is essential to plan strategically, recognise the important role of the rural environment, and build on sustainable urban-rural linkages in the form of drinking and purified sewage water.

Results and success factors

The example of the intermediate city of Cuenca shows an outstanding experience in successful urban governance, planning and management. Implemented planning activities have achieved a significant increase in infrastructure and basic service provision. Despite pressuring urbanisation that challenges financial and administrative capacities, the municipality developed a sustainable planning strategy by focusing on specific planning principles. Moreover, the municipality was able to make use of urban-rural synergies and show the advantages of recognising integrated urban-rural development.

An important component of the approach is the foresighted planning culture. Cuenca is aware of the future challenge of urban growth and consequently adapts to cope with future urban development through a strategic territorial development plan. Thus, Cuenca is able to meet the needs of its population and achieve substantial acceptance. Community participation has been a key factor for the successful implementation of planning activities such as the development of a solid waste management system and water-cycle management. Especially in rural areas, communities were integrated into these activities to achieve inclusive processes. Partnerships between the city of Cuenca and surrounding rural parishes created a functional network, which shows how synergies between urban and rural areas can benefit both of them. Cuenca is an example for innovative and efficient concepts for securing funding and management of the programmes. The drinking water supply and solid waste disposal have high coverage rates, are self-financing and are based on environmental preservation at the same time. The developed operating systems and participatory co-management and monitoring approaches are transferable to other contexts and intermediate cities that face similar challenges. Considering future urbanisation, small and intermediate cities will need long-term planning guidelines and tools. Planning principles such as participation, urban-rural cooperation, cross-sectoral coordination and integrated territorial development can be powerful approaches.

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India - Land Use Planning for Integrated Territorial Development

India - Land Use

4

Implemented Key Measures

- Strengthening territorial planning and governance capacities addressing an intermediate subnational level (Federal states and Districts)
- Integrated urban and rural development from a regional perspective

Tools & Practices

- Land Use Policies as Normative Guidelines
- Spatial Planning Instruments
- Organisational and Institutional Development (Districts)
- Human Capacity Development

Success Factors

- Governmental institutions at national and state level can be integrated into the project's processes
- The integrative land use planning approach contributes to building a long-term spatial governance system
- The regional perspective through the lens of districts covers both urban and rural areas and avoids emerging land use conflicts with special focus on the urban and rural poor
- Addressing the district level is a sustainable way of enabling Indian planning authorities that considers both appropriateness and efficiency in terms of existing human and financial resources

Context and challenges

With more than 1.3 billion people, India is the second most populated country in the world. Since 1975, its population has more than doubled and is still growing at an alarming rate. In the course of a growing economy with better employment opportunities, growing living standards and modernisation in cities, India faces processes of rapid urban growth and enormous rural-urban migration with an average annual rate of change of the urban population of over two percent. India has more than 50 cities with over 1 million inhabitants. However, at the same time, under the census definition, only around 30 percent of Indians live in urban settlements, while a majority resides in rural areas.

Urbanisation has put immense pressure on land – in both urban and rural directions: cities are exceeding their carrying capacity and are not able to cope with their increasing number of inhabitants. They are economic growth poles but also emerging poverty centres. Land and affordable housing are rare, slums are continuously growing and basic urban services are only available to about half of the urban population. A consequence is urban sprawl, creating pressure on land and other natural resources in the peri-urban and rural hinterland. Various forms of land use such as housing, transportation and other urban infrastructure as well as industries, mining, power and other such sectors compete with rural housing and infrastructure needs, agriculture and preservation of environmentally sensitive ecosystems. Consequently, land use conflicts are not only an urban issue but also a social issue that impact rural areas, especially due to agricultural land losses.
Hence, the importance of urban planning in India is gaining attention, but remains as a relatively new domain of interference. To understand India's planning issue, it is necessary to have a look at existing planning structures, legislation and policies. In theory, India's governance system is highly decentralised. A national policy regarding land use and spatial planning does not exist. There are only several sectoral policies such as the National Manufacturing Policy promoting industrial development; the Environment Protection Act, which defines Eco Sensitive Zones; a National Water Policy or the National Agricultural Policy, which illustrate the prevailing sectoral approaches in the planning practice in India. The Indian Constitution, specifically the 74th Amendment Act, 1992, assigns the responsibility for spatial or land use planning to the level of the federal states, specifically to the regional level of the districts. Yet, federal institutions only provide limited instruments of integrated spatial planning and district-level planning is also not consistent in practice. Only in larger cities and metropolitan areas, planning is practiced extensively, where Town Planning Departments or Development Authorities apply Master Plans and Development Plans.

However, due to the absence of regional regulations, urban sprawl into farmland and rural areas is a common phenomenon. Private developers are influential stakeholders with predominantly economically driven interests. The core challenges of spatial and land use planning are the wide range of scattered approaches and a severe lack in engagement of spatial planners in appropriate public institutions. Furthermore, there are no guidelines and regulations to structure horizontal integration of different neighbouring municipalities and village panchayats, or vertical integration of different government levels.

Project description and strategies

The increased pressure on land resources demands a robust planning and management approach that balances the competing uses of land to ensure sustainable growth. At this point, the GIZ Land Use Planning and Management Project in India implements adequate instruments of integrated spatial and land use planning within the planning institutions at state-level.
Applying a multi-level approach at national and state level as well as at the subordinated territorial entities of districts and towns, the project develops and tests modern planning tools in the two pilot states of Tamil Nadu and Odisha. The Department of Land Resources (DoLR) of the Ministry of Rural Development (MoRD) is the lead executive agency at national level and provides political support for GIZ. At state-level, the State Secretariat in Tamil Nadu and the Directorate of Town Planning and the Department of Urban Development in Odisha are the implementing authorities. They are responsible for the development of the respective policies and capacity building. External planning experts carry out planning measures at district and master plan levels. A steering committee at national level as well as at state level in Odisha and Tamil Nadu coordinates the diverse stakeholders.

The project develops standard operating procedures and guidelines for collaboration and coordination of spatial planning activities. Through the development of tools and structures and their implementation in pilot cases, the core objective is to create a basis for an integrated and regional planning culture in India. To reach this goal, the project contains four fields of action:

- Land Use Policies as Normative Guidelines
- Spatial Planning Instruments
- Organisational and Institutional Development
- Human Capacity Development

Land Use Policies as Normative Guidelines

Applying spatial planning under a multi-level approach means distributing competences to the appropriate level. With decentralised governance structures, the higher level holds guiding competences and coordination mechanism, while the lower level is responsible for the detailed planning mechanisms and likely mechanism for public participation. Thus, such a coordination could create a consistent planning culture within the whole country and a needs-based urban planning at local and regional level.

One core component of the project is to develop a national land use policy based on land use policies at state level. In partnership with GIZ, the respective nodal authorities in the two pilot states, develop and define overarching guidelines for land use policies at state level. The normative guiding principles serve as a framework for district development plans and promote the use of common standards such as land use categories, symbols, colour codes and reporting. Moreover, the project develops efficient means of coordination and mediation between governance levels, neighbouring municipalities, and sectoral policies.

Spatial Planning Instruments

One aspect of the project is to revive the constitutional provision of district spatial planning. This scale offers the chance to introduce consistent, normative and systematic spatial planning that covers the whole territory and integrates both urban and rural areas. It can continuously describe the use of land for both urban and rural areas and thus could become a tool for avoiding urban sprawl with its negative side effects on rural populations, climate and environment. The pilot cases test the practicability of the approach including both its planning instruments and institutional coordination mechanisms. In follow-up measures, the pilot cases are able to provide results for up-scaling the developed instruments and experiences to the state and national level and mainstream the integrated spatial and land use planning methodology throughout the whole country. The implementation takes place in selected pilot areas within the two states, making use of the developed standards and guidelines. Working with local and regional planning scales, the project tests horizontal coordination mechanisms, integrating different sectoral plans as well as vertical structures between the two levels. In Odisha, the pilot develops plans for the district of Ganjam and the Hinjilicut municipality in the periphery of highly urbanized Berhampur area, which is located within the selected district. In Tamil Nadu, the project aims at developing a plan for the district Coimbatore as well as for the superordinated region, covering a cluster of four districts. Making use of former experiences with the development of urban master plans, the pilots scale up these experiences to district level to include rural areas into land use plans and enable integrated planning. The plans consider ecological, economic and social aspects in a transparent participatory process.

Organisational and Institutional Development

In order to avoid emerging land use conflicts and separated sectoral development decisions, it is necessary to implement adequate organisational structures and processes that bring together different sectors and ministries within the scope of land use planning.

These steering committees establish a political will for inter-sectoral land use planning and join forces for coordinated activities to create a basis for future spatial and land use planning in India. The core objective is to apply new coordination mechanisms based on consensus findings and to strengthen regional planning authorities. Improved coordination mechanisms are further able to increase effectiveness and efficiency of authorities regarding land use. Several urban land use forms and services such as water and sanitation need to overcome administrative boundaries as they depend on the cooperation between urban and rural areas.

Human Capacity Development

Spatial planning is a continuous process and thus needs adequate government capacities. Especially regarding the newly developed integrative planning approach and the respective instruments, there is a need to build capacities of public officials and associated planners. As a basis, GIZ undertook a capacity analysis together with the project partners on state level. The results indicated a severe demand of qualified spatial planners within the respective institutions. Often, engineers instead of skilled planners take on activities related to spatial planning. As a solution, the project established partnerships with universities and educational facilities in Delhi, Odisha, Tamil Nadu and Gujarat to facilitate future training measures and capacity building. The goal is to develop adequate modules and courses to train planning experts, also considering district level and land use planning.

Results and success factors

The GIZ Land Use Planning and Management project in India is under implementation and scheduled to end in 2019. Nevertheless, it is already visible in the wide acceptance of partners and the progress of actions that its purpose is highly relevant.

Fostering governance structures and inter-sectoral coordination

In cooperation with its partners, the project develops governance structures and planning instruments to establish integrated spatial land use planning in India. Institutions at national and state level are integrated into the project's processes, which guarantees acceptance of the project activities with ownership at government levels and enables a mainstreaming of the integrated approach at all institutional levels. At the same time, the stakeholder involvement is necessary to build up vertical and horizontal coordination and consensus within the fragmented sectoral landscape in India. Previously, diverse ministries were involved in land use planning, but merely following their own interests and creating land use conflicts in view of the absence of coordinating governance structure. The results were conflicts between urban and rural functions instead of creating synergies and focussing on the advantages of integrated planning and development.

District level approach

The focus on spatial planning at the district level is following the demand of the Indian constitution through the 74th Amendment Act, 1992. Besides the constitutional mandates, the district scale is ideal for regional planning in India as the size of districts allows detailed yet fuzzy land use planning in practice. Compared to the predominant use of Urban Master Plans at the local level, a regional perspective through the lens of districts provides the advantage of covering both urban and rural areas and thus avoids emerging land use conflicts. At the same time, the approach creates a consistent, gapless territorial planning. Such planning fosters resource-efficient land use, the preservation of nature reserves and the protection of fertile agricultural lands. Moreover, the integrative spatial approach also has positive effects on sustainable urban development and supports the urban poor regarding land use conflicts. Through the development of overarching normative guidelines and standards at state level as well as its institutionalisation, the integrative land use planning approach is able to build a long-term spatial governance system.

Consistency and transferability

The GIZ-Land Use Planning and Management Project contributes to awareness rising regarding the necessity of integrated approaches to territorial development planning. It provides policies, instruments and mechanisms based on intergovernmental and cross-sectoral coordination and stakeholder participation. This enables Indian authorities at all government levels to apply a consistent and homogenous territorial planning culture throughout the whole country and facilitates balanced, sustainable spatial development. The central challenge to align competing interests in land use and the growing disparities remains, though a consistent planning culture can be a key tool towards finding solutions.

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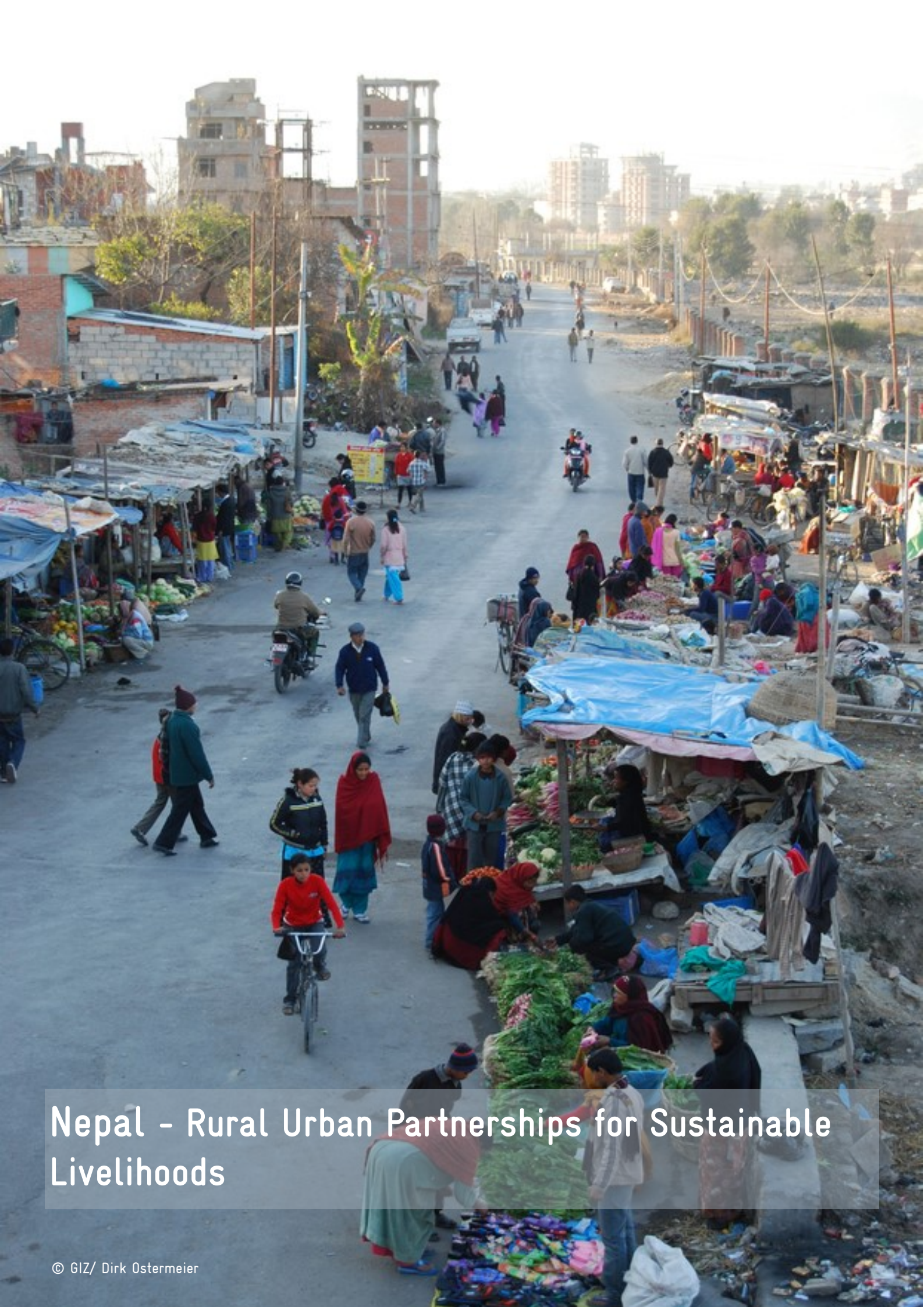

Nepal - Rural Urban Partnerships for Sustainable Livelihoods

Nepal

5

Implemented Key Measures

- Strategic selection of territorial clusters for the intervention
- Community based enterprise creation
- Small-scale infrastructure development in rural areas
- Institutional development and community mobilisation

Tools & Practices

- Multisectoral stocktaking of territorial clusters based on urban-rural linkages
- Participative approach for planning and implementation
- Technical assistance by municipal field staff for community organisation
- Capacity Development and financial assistance

Success Factors

- Clear roles of central government (multisectoral policy making, place-based strrategic planning) and local governments (technical assitance, community mobilisation) ensures effectiveness
- Participatory planning and capacity development increases community engagement and the creation of small agricultural and off-farm enterprises
- Contest-based financial assistance for small enterprises and funding of small infrastructure measures raise self-help potentials for improving livelihoods on the community level
- Low-level approach ensures sustainability of the measures and opens up opportunities for replication in different local contexts

Context and challenges

Nepal is one of the ten least urbanised countries in the world. In 2014, the level of urbanisation was only at 18.2 percent and according to the 2011 census, the urban growth rate is at three percent. Most of this urbanisation occurs in the Kathmandu valley, which creates an uneven urban population distribution.

Nepal is an agricultural-based country where more than 30 percent of the population lives below the poverty line. The past decades, the Nepalese population struggled with political instability and displacement. Of the total land area in Nepal, mountains and hills cover about 77 percent. The mountainous terrain hinders the movement of people and goods, which cuts off rural populations from participating in the wider opportunities offered by urban markets, prevents them from engaging in the regional and national economy and led to widespread poverty.

Various views have dominated the development rationale in the past 50 years in Nepal that have generally treated urban and rural areas as separate entities. In 1997, Nepal introduced the Rural Urban Partnership Programme (RUPP), which established new linkages across the country. In the context of Nepal's urbanisation, the principal objective of RUPP was to improve livelihoods and strengthen local economies by strengthened functional rural-urban linkages. The challenge at hand was how to connect rural producers and urban consumers. Rural residents needed to respond to growing urban demand for products and resources vice versa rural residents can benefit through higher incomes and well-being. With the issue of rising urbanisation and continuous stark poverty levels in urban and especially rural areas, there was a need for a comprehensive and inclusive development plan that linked urban and rural development.

Project description and strategies

RUPP was launched in 1997 as a joint programme of the Government of Nepal, the United Nations Development Programme (UNDP) and the United Nations Human Settlement Programme (UN-HABITAT). RUPP's major interventions addressed enterprise creation and small-scale infrastructure development in rural areas, supported by institutional development and community mobilisation that was assisted by the municipality. At the central level, activities aimed at influencing the policymaking and coordination. The National Planning Commission, the Ministry of Local Development and the Ministry of Physical Planning and Works formed a central level steering committee. At the outset, the programme established Partnership Development Committees within 12 municipal-

ities to implement the project´s activities (1). The programme's underlying model is rooted in the relatively small success of former mostly sectoral approaches in Nepal that either addressed rural or urban development. Consequently, RUPP focussed on strengthening urban-rural linkages by recognising the opportunities for local economic development. It chose municipalities as the level of intervention.

RUPP reasoned that existing flows of goods and people should reveal the pattern of economic connectivity across settlements and territories. Accordingly, the project studied flows of goods and people and thus identified three major market regions. Within these market regions, the project pointed out key municipalities on basis of their high economic potential and willingness to join the programme. The economic potential criteria included type and number of functional units, road connectivity and population size of the municipality. The study of flows further analysed mutually beneficial linkages between the urban centres and their hinterland and identified potential rural nodal settlements that could work as Rural Market Centres (RMCs). The programme related the criteria for selecting RMCs to the magnitude of functions, the road connectivity with rural homesteads and proximity to the partner municipality.

Governance and community mobilisation

In order to increase the capabilities of local government bodies to conduct local development, the programme saw community mobilisation as a key component. Five to seven field-level staff served as community mobilisers or market centre facilitators in each of the 12 partner municipalities. Their task was to organise community members into small associations and represent them at municipal and higher level discussions. These community associations, called tole lane organisations (TLOs), comprised the households in a contiguous area, the tole - with a remarkably high percentage of women in leadership positions. The programme regarded them as the main tool for implementing programme activities. Once established, the TLOs had the option to raise funds through member contributions. Members of the TLO were encouraged to form associations and to develop enterprise development plans, as a condition of lending. The TLO´s were also entrusted with the preparation of physical or infrastructure development plans. The integration of community representatives in the TLO´s guaranteed greater transparency of public actions for villagers. Policymakers and the public regarded RUPP's process of community mobilisation as highly successful. As a result, the Ministry of Local Development decided to replicate these community associations in other municipalities in Nepal, and establish them as a legal entity.

Training and capacity building

RUPP took extensive measures to train personnel working at different levels, including TLO members, municipality and Village Development Committee (VDC) staff, as well as national-level officers. Such training generated the skills and enthusiasm that are widely regarded as the catalysts for the success that RUPP has enjoyed. Mayors, deputy mayors, VDC chairpersons, ward members and TLO representatives attended diverse programmes such as skills training for entrepreneurs, Participatory Municipality Development Planning and Participatory Village Development Planning. The training component of the programme consisted of four major types: community enterprises training (skills transfer, enterprise management and technology transfer, and rural labour linkage), human resource training, programme staff training and additional training.

Enterprise development and the creation of economic opportunities

One important components of RUPP was the creation of enterprises. Through training and financial assistance in form of micro-credits, RUPP created three types of enterprises:

- Linkage enterprises: RUPP supported selected economic enterprises based on their potential to promote and strengthen rural–urban linkages. Common business activities included vegetable and fruit trading, food processing, handicraft trading, milk collection and selling, metalworking, and various services such as hair cutting, tailoring and small retail stores. Members of a TLO had to form a group (typically 2–5 persons) and elect a chairperson. The groups received training in enterprise management before accessing credits. They were required to generate a certain amount of equity and group members remained collectively responsible for the RUPP loan. Only until 2001, RUPP had already created 4,992 such enterprises in the first 12 selected municipalities.
- Rural labour linkage enterprises: run by occupational caste members (underprivileged castes) – exempted from the requirement of being group-owned, can be owned by a single entrepreneur and thus can be owned and operated individually; and
- Technology transfer enterprises: enterprises that help to spread know-how in the locality, for example concrete sanitary latrine manufacturing, jewellery, pickle-making, etc. (also exempted from the requirement of being group-owned).

Development of small-scale infrastructure

RUPP also provided funds, known as seed grants, which were often complemented by TLOs' own funds raised from member contributions as well as technical assistance. The TLOs used these funds for small-scale to markets and services, creating linkages between infrastructure projects according to priorities defined in the TDPs. Infrastructure projects mostly included access settlements, such as tertiary road construction, market centres with designated spaces for villagers, mountain

trail reconstruction, sanitation systems, school buses, bridges connecting mountain roads, etc. In practice, RUPP was only able to build small- to medium-sized projects mainly due to the limiting small budget.

Results and success factors

RUPP was designed as a holistic approach to meet challenges of urban development. It centred on the notion of holding urban areas as engines of growth and capitalise on the benefits and development potential obtainable through well-articulated and strengthened rural-urban linkages. RUPP addressed not only the physical aspects of urban development, such as creating new market centres and small-scale infrastructure but also economic as well as social aspects and transparency.

At the end of the programme, the trained personnel and the logistics became part of the municipality, enabling RUPP's activities to continue despite the withdrawal of central support from national government and international donors. The programme began with 12 selected partner municipalities and 31 RMCs. Nevertheless, due to its success by the third phase (2004 to 2007), the rural -urban partnership modality was already installed in 30 municipalities and 49 RMCs. Additionally, several components were added to RUPP's functions that have no immediate connection such as programmes on HIV/ AIDS prevention and facilitation for internally displaced persons. The programme's activities were widely accepted and well received and its positive outcome led to the expansion of the approach to other municipalities. Relevant infrastructures improved health and livelihood standards and education increased awareness.

One of the main components of RUPP was the promotion of Public-Private-Partnership initiatives. Such initiatives ensure resource mobilisation of the private sector and simultaneously establish partnerships between the municipality and the private sector. Enterprises run by underprivileged castes became a major tool for attempts to reduce inter-caste inequality.

The results included:

- About 640 projects ranging from the construction of link roads, schools and bridges to urban environment improvements, which benefited more than 85,000 households.
- In the first 12 municipalities, 2,390 TLOs formed, covering 93,626 households.
- More than 8,000 people received training and organised into more than 4,000 enterprises of different types, most of them based upon urban-rural linkages.
- The programme trained 4,127 participants in participatory municipal development planning and participatory village development planning.

Promotion of economic development

The guiding principle of promoting economic and social enterprises based upon rural-urban linkages through community mobilisation led towards alleviating urban and rural poverty. RUPP engaged in poverty reduction initiatives in the municipalities and Rural Market Centres as an integral part of overall urban development strategy.

Partnerships and a multi-level approach

The programme created new municipal urban-rural partnerships in functional market zones, crossing administrative borders and focussing on flows to link rural areas to market centres and thereby cover both rural and urban development. The basis for these partnerships on the local level derived from central government and UN initiative. The national level facilitated a productive cooperation through a multi-level governance approach.

Urban governance, community mobilisation and capacity building

The Participatory Municipality Development Planning process helped to establish decentralised participatory urban governance. RUPP had a special focus on building capacities of municipalities and RMC's in participatory planning to enable them to play effective roles in local governance. Community participation through TLOs in municipal decision making and planning resulted in better targeting of resources based upon specific requirements of the community as well as internal resource mobilisation on significant scale. Over the years, they have become the lowest level institutional mechanism and emerged as effective grassroots level institutions empowered to influence policy and planning decisions at the municipality level.

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(1) Nepal has a two-tier local governance system, with village and municipal bodies as the lower tier and district bodies as the higher. The village bodies are called village development committees (VDCs), with municipalities serving the same function in town areas.

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India - Rural Roads

6

Implemented Key Measures

- Transparent selection of territorial clusters and implementation standards
- Participatory funding arrangement for longterm maintenance
- Particpatory, pro-poor planning and maintenance system

Tools & Practices

- National Rural Road Programme and District Rural Road Plans
- Nationwide planning, building and operating standards
- Environmental Code of Practice
- „Transect walks“ and Participatory Road Funds as innovative tools

Success Factors

- Comprehensive and participatory planning approach, guaranteed funding and nationwide, comprehensive standards for operating the whole project cycle ensure inclusive solutions and efficient implementation
- Environmental measures improve rural ecosystems (e.g. tree plantation along roads, preservation of natural habitats of cattle and wildlife)
- On-site, joined route planning by experts, decision-makers and villagers (Transect walks) and community involvement in maintenance system ensure inclusive and viable solutions
- Funding schemes co-administrated by road users, government and private sector ensure a transparent use of tax revenues for maintenance and improve contributer´s payment behaviour

Context and challenges

Considering the growing population of more than 1.3 billion people urbanisation is an important aspect of development in India. More and more cities cross the number of one million inhabitants and become important centres of economic development. Even if India witnesses rapid urbanisation, still a very large proportion of around 70 percent of Indians lives in rural areas far away from the economic growth centres. Poverty is predominantly rural and rural areas lack access to the advantages of modernisation and economic growth, which happen mostly in or nearby urban areas. While contributing only about 17 percent of the GDP, around 50 percent of India's workforce is engaged in agriculture. In the year 2000, nearly 74 percent of India’s rural population constituting the majority of the poor was not fully integrated into the national economy. Lacking access to all-weather roads of around 40 percent of the 825.000 villages in India is one of the reasons. This constrains economic activities and access to essential services as roads facilitate connectivity. They are physical linkages between urban and rural areas and are the basis for flows of agricultural goods, services and other commodities from rural-based producers and small holders to urban markets. Thus, roads are important parts of value chains and market mechanisms both for local and regional consumers as well as for national and international markets.

Vice versa, nationally manufactured and imported goods must be transported from urban centres to rural settlements. People moving between rural and urban settlements depend on transport infrastructure as regular commuters or occasional users of urban health care, educational or financial services. Moreover, access to urban areas is the key to opening new opportunities, fostering a rural transformation and increasing inclusion. Being a state subject, the rural road sector in India lacked adequate planning and management due to poor coordination between funding streams and government agencies at different levels. Road construction also touches topics such as land rights. Additionally, roads are not completed with their construction but have to be maintained. Therefore, it requires adequate management and long-term financial budgeting. For a long time, investment in rural roads was given low priority and viewed isolated from the wider context of urbanisation.

Project description and strategies

The Rural Road Programme is part of the latest rural road development plan Vision 2025, which emphasised a rural road network development at the district level with the goal of connecting all settlements with populations over 250 by all-weather roads (1). It was launched in the year 2000 by the Ministry of Rural Development (MoRD). The overall objective of the programme is to connect about 180.000 settlements through the construction of about 372.000 km of roads and upgrade about 370.000 km of the existing core rural network to provide full farm-to market connectivity. Funding support has been provided by the National Bank for Agriculture and Rural Development of India, the World Bank and the Asian Development Bank in addition to the Central Road Fund and the state budget. Furthermore, academic institutions, the World Bank and the ILO provided technical and managerial support. The National Rural Roads Development Agency (NRRDA) – an arm of the MoRD has developed a common set of engineering standards, specifications, contract documents, operating and financing procedures, which the states apply and implement through their road agencies.

Governance and management structures

The programme enforces rational and transparent decision-making, planning and streamlining the flow of funds through a sector wide approach. This included transparent processes for selecting clusters for connectivity ruling out patrimonial preferences as well as allocating responsibilities to the adequate level of governance. On top of the system is a national consensus and coordination through the ministry that provides policy and operational guidelines, management and technical support to the states.

Nationwide operational standards have been adopted in the area of institutional structures, planning, design, reporting systems, procurement, contract management, financial and accounting systems, human skills and safety measures. These standards are implemented building on decentralised structures as well as local needs and specifics. The executive responsibility for planning and construction is located at state level, whose capacities have been enhanced through creating State Rural Roads Development Agencies. The sub-state level is responsible for the actual implementation process. The programme developed District Rural Road Plans, building up from block level master plans and identifying a core road network in consultation with elected representatives of the units of local self-government (Panchayati Raj Institutions – PRIs) (2).

Planning & Participation

The actual planning process is based on a specific cluster approach to prioritise the selection of dwellings to ensure access to mostly urban services such as educational, health and marketing facilities. Clusters of dwellings with a population of more than 1.000 were given priority in the first phase of the programme. Different from applying administrative units, the cluster approach enables connectivity to a large number of settlements and is more inclusive, particularly in the mountain or desert areas.

Another core component of the programme has been the mandatory provision for people's participation especially with regards to land use. The so-called 'Transect-walk' has been an innovative tool for socially inclusive project implementation in the field allowing consensus finding regarding the provision of land for road construction. Elected representatives of the dwellings along with members of the affected households walk the entire stretch of the planned route to incorporate their concerns such as heritage sites, seasonal water bodies or extremely poor farmer's land. Additionally, an Environmental Code of Practice has been laid down for top-soil preservation, tree plantation along roads, redevelopment of construction sites and the preservation of natural habitats of cattle and wildlife.

Maintenance

Based on guidance from the ministry MoRD, the International Labour Organization and the World Bank, states have drafted a maintenance policy framework. They further produced a guide on rural roads maintenance, alternate contracting options in the form of performance based contracts, outline the possible community involvement in maintenance activities, developed training materials and conducted training workshops, involving both the state level and the local self-government units PRIs.

New funding schemes have been created to avoid misuse of state budgets. Money from specific tax revenue such as on agriculture or fuel is put on a dedicated account. An independent body formed of representatives from road users, government and private sector administers the budget. Such road funds are based on the argument that road users should pay for the services provided in the form of a well-maintained road network.

Results and success factors

The Rural Roads Programme started in 2000. Now, around 800.000 km of new and upgraded roads guarantee the overall accessibility of small rural settlements during the whole year. First successful approaches have been developed to implement an efficient maintenance system and guarantee sufficient funding. Travel times have decreased and markets are more accessible. As a result, cash crop production is increasing, farmers are generating better prices for agricultural products and job opportunities are more diverse. The impact and relevance of adequate infrastructure and better connectivity with urban centres to boost rural transformation is evident. Now, farmers find it easier to bring their crops to towns, girls have access to schools and families have improved access to health care. In Rajasthan for exam-

ple, in some cases the distance to the closest hospital diminished from 2-3 days to only 2 hours.

The success of the project is based on its comprehensive and inclusive approach covering the whole country. Using a participatory planning approach, based on the principle that "all roads lead to cities", the programme is an important component of urbanisation, placing urban-rural linkages literally in the centre of development. A key aspect is the national impulse and guidance to facilitate appropriate organisation and planning at sub-national levels through an efficient decentralised structure.

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(1) The Indian road development plan classifies the road system into a functional hierarchy comprised of National Highways, State Highways, Major District Roads, Other District Roads and Village Roads. The last two classes form the rural road system.
(2) Panchayati Raj Institutions (PRIs) have been established as a third level of federal democracy. They are a tool to promote decentralisation and structure responsibilities at district level through a three-tier PRI system comprising the district, intermediate and village level.

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Burkina Faso - Integrated Strategies for Climate Change Mitigation and Resource Conservation

Burkina Faso

7

Implemented Key Measures

- Multidisciplinary development planning for urban and peri-urban areas
- Integrated and participatory planning of basic urban services
- Mainstreaming of reforestation and urban farming in urban planning

Tools & Practices

- Municipal Urban Master Plan
- Household-centred Basic Urban Services Scheme and piloting for waste, water and flooding
- Peri-urban green corridors for reforestation and urban farming

Success Factors

- The recognition of the key role of urban-rural linkages in the major national policy frameworks triggeres the development of local strategies
- Addressing households as smallest collective unit and considering religious and cultural traditions and values guarantee the implementation of integrated and participatory approaches
- Awareness of urban-rural linkages increases the impact and efficiency of local strategies for mitigation and adaptation of climate change
- The multi-stakeholder approach along urban-rural linkages paves the way for replication in various local contexts where planning practice is insufficient and climate change adaptation is much needed

Context and challenges

Burkina Faso, like other Sub-Saharan countries, faces a threat of desertification, water shortages and deforestation in their arid hinterlands. At the same time, 86 percent of the GDP accounts for agriculture. Climate change and demographic expansion reinforce the pressure on the vulnerable inland areas and their cities. This creates a major challenge for food security and poverty reduction, exacerbated by inadequate provision of basic services. The current urbanisation rate of Burkina Faso is 5.7 percent. As a consequence, local authorities in urban agglomerations face financial and technical shortages in combination with a lack of political guidance to meet the demand of basic urban services, adequate housing and a decent livelihood.

Bobo Dioulasso, a medium sized secondary city, is one of those cities. The current number of inhabitants is around 540.000 people but is expected to reach the number of one million by 2026. Part of the population increase in this south-western Sahel city derives from already occurring climate immigration from desertification areas in the north of the country. The proliferation of substandard settlements leads to a significant urban sprawl in peri-urban areas. The municipality entails several settlements, including three urban districts and 37 villages, where agriculture and food processing play a significant role. Wood accounts for 91 percent of the country's energy consumption. The need for fuelwood combined with expanding but low-productive agriculture in peri-urban areas causes deforestation and desertification. This is reinforced by climate change influencing the local weather conditions: it shortens the wet season, creates quasi-droughts and is responsible for occurring flash floods.

Bobo Dioulasso's key challenge towards a sustainable and climate resilient future is to prevent further desertification and provide for growing urban demand for water, sanitation, energy and food. Therefore, climate change calls for action from a larger, peri-urban perspective, as human-made and natural soil erosion combined with prospective rises in temperatures will reduce water supply and increase desertification. A related challenge for the resource-poor municipality is to change pattern of behaviour and among the largely illiterate local population that is steeped in traditional culture and religion.

Project description and strategies

Bobo Dioulasso's priorities water, food security and afforestation are in line with national interests and attracted financial and technical support from national and interna-

tional sources. The joint UN-Habitat and UN-Environment Sustainable Cities Programme has enabled the municipality of Bobo Dioulasso to implement a comprehensive string of national policies that address adaptation to climate change, poverty reduction, rural development and integrated management of water resources.

Under municipal supervision, steering and coordination committees were established that brought together municipal and central government officials as well as foreign expertise and community representatives. Based on national policies, a municipal urban master plan for Bobo Dioulasso was developed to integrate a variety of specific measures. This masterplan includes urban areas as well as the wide-ranging peri-urban surroundings in recognition of their crucial role for climate resilience, food security and socio-economic security. The multi-disciplinary approach included land use regulations, the mainstreaming of reforestation into territorial planning, adaption to climate change, the prevention of desert expansion, and household-centred sustainable basic urban services. The municipality made use of its existing planning powers, including enforcement of the planning master scheme (SDAU) and a revised municipal development plan (PDC). On top of those, Bobo Dioulasso deployed strategic and master plans for sanitation (PSAB), solid waste management (SDGD) and rainwater drainage (SDEP).

Household-centred sustainable basic urban services

A Basic Urban Services scheme (Programme d'amélioration des services urbains de base – PASUB) started in early 2004 under a multi-stakeholder steering committee, focussing on capacity building and strengthening institutions to promote and support environmental governance.

The project's pilot site, known as Secteur 21 (population: 45.000), represented the city's many under-serviced areas. At the same time, it was a demonstration project to test the chosen methodology, generate collective commitment on the ground and learn for municipal-wide up-scaling.The project brought together different levels of governance, the private sector and households to promote their cooperation. The package of services included several components, due to their close interrelation: primary household waste collection, drinking and wastewater management, and storm water drainage. These efforts were complemented by awareness raising and education campaigns among civil society and the community. Based on an initial environmental profile, the project used the "Household Centred Environmental Sanitation" (HCES) methodology. The HCES is an alternative multi-stakeholder platform approach for the specific purpose of solving environmental sanitation problems by putting local stakeholders, including households and users at the centre of solutions. It enhances shared responsibility, ownership, control and management of basic urban services, while balancing the needs of urban as well as rural inhabitants with those of the environment to achieve sustainability. Here, strengthened linkages were able to draw on synergies instead of focusing merely on challenging aspects. The micro-credit fund for loans to households who wished to have a private connection to the water supply system proved to be a catalyst for a national financial policy change. Since, it has become much easier for low-income groups to access such services. Instead of a direct solid waste system under which waste was regularly emptied into non-controlled landfills, the project implemented a three-tier system. The system consists of primary waste collection by community-based organisations, transport and disposal from collection points by a private company and management of a newly constructed and controlled landfill by the private sector.

Reforestation and land use

Besides being a source of biodiversity, forests mitigate climate change since they act as carbon sinks. Trees and shrubs break or reduce wind speed and contribute to climate change adaptation as they prevent soil erosion and desertification. However, forests are eroded to be used as fuelwood and encroachment from extensive, low-yield agriculture, leaving the city surrounded by a desert ring. Consequently, reforestation was identified as the adequate response. Burkina Faso adopted the goal of reforestation in national policy and implements at municipal level, in Bobo Dioulasso within the project framework. More specifically, the project is integrated into the municipal urban master plan, which among other things determines land use to preserve natural resources and forests. Moreover, reforestation also fits with formal municipal schemes in support of peri-urban agriculture, which is now mainstreamed in territorial-planning. Urban Farming of staple and cash crops as well as food processing are practised in two third of the peri-urban areas. In practice, the project deployed peri-urban green corridors over some 15 km north, west and east of Bobo Dioulasso, and are now mandatory in any new development plan. In Bobo Dioulasso, reforestation specifically includes wooded shrines in the area. For cultural and religious reasons, the municipality banned hunting, housing, farming or woodcutting and restricted access in the sacred groves. The municipal scheme preserves existing wooded shrines and encourages the creation of new ones, together with participatory management, integrating villagers and their cultural heritage into the preservation scheme.

Governance, decentralisation, participation and traditional structures

An important aspect of the project was its local level approach: to build capacities at municipal level but also to mainstream environmental and climate change policies within the population. Therefore, Burkina Faso has been promoting a process of decentralisation with powers being transferred to municipal bodies and locally rooted development (gestion des terroirs). Municipal

bodies are the ideal level of governance in many regards. They are close to local problems, able to mainstream environmental and climate change concerns into rules and policies and to interact directly with the population. This includes the inhabitants of urban as well rural areas, since the municipality of Bobo Dioulasso covers three urban districts but also has 37 villages under its jurisdiction. Urban planning commonly neglects these wide-ranging peri-urban areas, despite their crucial role for climate resilience, food security and socio-economic security, which are a key for a city's own sustainable future. The local efforts in Bobo Dioulasso are backed up by national framework policies on forest planning, locally-rooted development and natural assets management. Nevertheless, in both urban and especially peri-urban areas, the basic services and the reforestation schemes relied heavily on local traditional culture for proper communication with and mobilisation of local communities. Local languages and traditional wisdom and sayings as well as door-to-door canvassing helped to disseminate new sanitation rules in the cours (the central spaces shared by several dwellings). A media and an information campaign in primary schools complemented these efforts.

Results and success factors

Even if desert prevention was the project's main focus, the approach applied a multidisciplinary strategy. It was essential to recognise that the surrounding forests of Bobo Dioulasso are a critical resource as well as an important factor for climate change resilience. The project could illustrate how the awareness of urban-rural linkages increases the impact and efficiency of local strategies for mitigation and adaptation of climate change. Strengthening urban-rural linkages allows to mainstream agriculture into municipal development agendas, to consider environmentally friendly land use planning and to guarantee the sustainable provision of natural resources. Additionally, the project directly addressed the community level in urban and rural areas to mainstream environmental policies within the population but also to guarantee adequate livelihood. The basic urban service scheme at the household level was able to put in place a waste water management system and to improve freshwater access and rainwater drains. The proportion of households making use of the waste collection service has increased from under 6 percent to over 20 percent. The project is considered a success, which enables the government to upscale the approach and improve management and coordination between stakeholders and government levels in a sustainable way. There were concrete factors that guaranteed the successful implementation:

Recognition of relevant urban-rural linkages and peri-urban areas

An important step for the municipality was to recognise that cities depend on rural areas and hence to build on their synergies. The peri-urban hinterland rich of natural resources is the key for climate resilience and sustainable urban development. Therefore, planning processes and development plans need to consider and protect this natural habitat. The central government of Burkina Faso recognised the key role of urban-rural linkages in their major national policy frameworks, adopted in 2007. The comprehensive approach connects climate change adaption measures with poverty reduction goals, rural development and the integrated management of water resources. Hence, the local approach of Bobo Dioulasso is coherent with national policies as both recognise urban-rural linkages as a key tool for achieving climate resilience.

National policies and local level approach

The project harnessed Burkina Faso's decentralised structures. Based on the national legal framework condition of national policies, the municipality was identified as the critical level of implementation. Within the municipal responsibility to provide urban services and planning, it was essential to stimulate the interaction between the national and local level of governance as well as the private sector and local communities. The municipality could enable a process of mainstreaming, reaching the relevant audience, which is rooted at local level. Concerning urban-rural linkages, for this approach it was essential to widen the planning authority to include rural and peri-urban settlements.

People centred approach and integration of traditional structures

Besides the necessary framework conditions provided by national and municipal government, a relevant factor for the project's success is based on an approach that considers the needs of urban as well as rural population. It included households into planning and service schemes, but also considered existing cultural traditions and values to guarantee a broad acceptance and mainstreaming process hand in hand with rural, peri-urban and urban population. Recently urbanised areas often show a remarkable persistency of rural traditions. Often, this represents a resilience strategy for poorer households as small-scale food production decreases dependencies from other income sources. Therefore, cities should perceive this as potential they can use and support to increase the overall resilience against climate change impacts.

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China - ICT-based Planning Tools for Sustainable Urban Growth

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China

8

Implemented Key Measures

- Scenario planning for sound and evidence-based decision-making
- Anticipate impacts and interrelations between actions of different stakeholders
- Focus on longterm analysis of socio-economic and environmental impacts of urban growth

Tools & Practices

- Remote sensing and GIS (Geo Information System) tools
- Agent-based monitoring of urban dynamics and land use planning
- Scenario analysis of:
  - Baseline scenario
  - Rapid development scenario
  - Green land protection scenario

Success Factors

- The analysis illustrates long-term impacts in a simple way also for non-specialists and allows well-founded planning decisions on land use
- Scenarios along different development priorities such as economic growth on one hand or green land protection on the other illustrate the impacts of land use options and other administrative regulations, e.g. increased loss of farmland and rural settlements.
- An agent-based modelling of these land use options based on the behaviour of farmers, residents, regional authorities and real estate developers increases the credibility and probability of the forecast.

Context and challenges

Rapid urbanisation in China is a major challenge for the country. In the last 20 years, the level of urbanisation in China increased from 26 percent to almost 60 percent, as a result of China's economic approach of the „reform and opening policy“. Concomitantly, only in the last 10 years around 160 million farmers have lost their land due to urban growth. China's rapid development is aggravating an urban-rural divide with a per capita income of urban households being three times that of rural ones. A consequence is rural-urban migration and an increasing number of farmers becoming migrant workers, reorienting towards urban areas and intensifying urbanisation. A concrete example is the city of Guangzhou. With a population of more than 11 million people, the city is the political and economic centre of the Pearl River Delta, a region with a population of around 100 million people on a relatively small territory. Due to its rapid economic development, Guangzhou has become one of the fastest growing cities in China and the region became one of the most densely populated areas on earth. Besides massive changes in land use, another consequence for the city has been severe deterioration of water quality. Problems of water supply and purity of drinking water as well as adequate sanitation facilities, sewage disposal and treatment of wastewater are apparent and endanger parts of Guangzhou's population. The problem of water supply represents Guangzhou's conflict between urbanisation on the one and the preservation of green and blue land on the other hand.

Planning practice in China has mainly focused on the compact urban form of its growing cities, but at the same time it presented a challenge to farmland protection and did not address unsustainable environmental practices appropriately. As a consequence, urban-rural linkages increasingly gain attention in China and are part of the current 13th 5-year plan (2016-2020).

Monitoring urban dynamics and using adequate planning tools facilitate smart urban development and prevent emerging conflicts. Urban growth models can be valuable monitoring and planning tools to define future strategic planning and policy alternatives, as well as to analyse environmental impacts of urban growth.

Project description and strategies

The City of Guangzhou is a so-called sub-provincial city or prefectural level city. This means that Guangzhou as an administrative unit has to be considered as a region, more than a city, comprising 11 districts including a main central urban area and a much larger surrounding rural area as well as towns and villages. After recognising Guangzhou's rapid spatial expansion in 2000, it became necessary to draw up a new, long-term urban development plan. In Guangzhou, the local government used an innovative approach: as the first urban administration in China, Guangzhou's municipal government introduced a strategic urban planning tool, the so-called Urban Development Concept Plan. Starting from overarching, strategic objectives, this plan aims at defining the corresponding spatial pattern of territorial development. Technically skilled scientists and urban planners contributed to the project with the goal to model possible urban growth scenarios to illustrate future implications of the new strategic planning concepts.

To improve the understanding of the mechanisms of urban expansion, the approach is based on political, social and economic factors as the main drivers behind land use dynamics and urban growth. As most approaches to simulate urban dynamics, the project is based on remote sensing and GIS (Geo Information System) tools that compile land use related data and build the land use pattern of the whole territory. Based on a grid of singular cells and classified land uses such as cropland, forest, grassland, water body, or built-up land, the system is able to indicate patterns of rural land loss or growing settlements. On this basis, the project identified how land use is changing over time.

The underlying observation is that urban expansion is the result of social processes: a combination of human behaviour, decisions and policies. To model potential scenarios, the approach focused on the behaviour of the relevant agents: regional authorities, real estate developers, residents and farmers. Hence, the project was based on preferences that drive the behaviour and decisions of agents, e.g. the preference of real estate developers is to maximise their profit and farmers prefer to keep high-production cropland. The basis for the projection of urban land demand and development was on the one hand the spatial development strategy of the Development Concept Plan. On the other hand, the model used data on previous annual development of GDP and population in Guangzhou to predict the urban land demand. Together with the geographic information system this information was used to simulate and map spatial urban growth processes.

As a result, the project developed three scenarios for the period of 2005-2020: a baseline, a rapid development, and a green land protection scenario.

- Baseline scenario: The simulation was based on previous development and did not consider agent preferences, urban planning approaches and policies.
- Rapid development scenario: For this scenario, the agents gave attention to economic development, increasing the weighting of variables related to infrastructure, most importantly roads and railways.
- Green land protection scenario: For this scenario, the protection of forest, grassland, and water bodies was given major attention to facilitate a balanced sustainable urban development.

Every scenario allowed to quantify the amount of land that would be converted into urban land, and to specify the type of green land loss such as cropland, forest or rural residential land.

Results and success factors

The city of Guangzhou is growing into rural hinterland, affecting farmers and the existence of natural resources, which are critical to guarantee sustainable, integrated development. Policy makers and urban planners need to be able to adequately plan the respective territory to facilitate sustainable development, including social and environmental concerns. Scenario analysis is a useful spatial exploratory tool for evaluating the potential impacts of implementing different land use policies. The applied tool is suitable for the simulation of different agent interactions and negotiations. It offers a conceptual framework for incorporating multiple actors into dynamic spatial decision-making models. It can be very helpful to support decisions and outline potential implications visible through concrete numbers and mapping. The tool itself is a complex technical and mathematical construct, but the results are able to illustrate impacts in a simple way, also for non-specialists.

In practice, the project incorporated different development strategies into agent-based modelling to correctly define the behaviour of farmers, residents, regional authorities and real estate developers. Urban planning and policies have been incorporated into the model as well to better understand the spatial pattern of urban expansion. The results indicate future changing land use types. Simulating a rapid development scenario, the project was able to illustrate how a policy focus on economic development with minor administrative regulations would increase the loss of farmland and rural settlement structures. The green land protection scenario on the other hand illustrated how a policy focus on the preservation of rural land use forms would facilitate a moderate form or urban development.

Acknowledging that a model never reflects the entire dynamics of urban development, it still can be a useful

metaphor for understanding a more complex reality and the impact of strategic decisions. Due to emerging challenges of urbanisation and urban sprawl, the relevance of Cellular Automata methods, GIS and hybrid approaches for decision making processes increasingly gains attention in developing countries as well. The applied tool can be modified for different purposes and contexts. Technical approaches of scenario analysis and modelling differentiate. They are applied and transferred to link the biophysical and socioeconomic characteristics of a system but also in transportation planning, ecosystem management or resilience planning. They are useful decision making tools to facilitate knowledge based sound decisions. Hence, based on past and present growth trends, socio-economic and biophysical factors, as well as land use interactions, purpose-led use of such models can support present-day urban planning policies and their future.

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Deutsche Gesellschaft für Internationale
Zusammenarbeit (GIZ) GmbH

Registered offices
Bonn and Eschborn

Friedrich-Ebert-Allee 36 + 40
53113 Bonn, Germany
T +49 (0)228 44 60 - 0
F +49 (0)228 44 60 - 1766

Dag-Hammerskjöld-Weg 1-5
65760 Eschborn, Germany
T +49 (0)61 69 79 - 0
F +49 (0)61 69 79 - 1115

E info@giz.de
I www.giz.de

On behalf of

Federal Ministry
for Economic Cooperation
and Development