

**RURAL-URBAN LINKAGES:
FOCUS ON PEOPLE AND INTERVENTIONS IN DEVELOPMENT**

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1. SOCIO-ECONOMIC ANALYSIS OF RURAL-URBAN LINKAGES

1.1 Poverty and rural-urban linkages

In the same way that rural areas have been a source of food, raw materials and labour for cities, cities have historically been places of opportunity for rural dwellers. Cities provide markets for agricultural products, specialised services (health, higher education, wholesale, government and finance), and even sources of temporary employment and shelter for some rural household members. The nature and intensity of rural-urban linkages vary between regions of the world and even within countries, as well as in response to economic, political and environmental factors. Thus, for example, many dwellers of large African cities retain strong links with their rural birthplaces and even return there to retire and die; in Latin America, by contrast, few migrants to large cities would choose to retire away from their offspring and friends in the city. Similarly, villagers in many parts of the world often retain close ties with their urban relatives as this facilitates access to secondary education and jobs for their children and specialised health care for the elderly. Cities are also the source of cash remittances (including capital for machinery) for rural relatives, who often correspond by sending produce from the land and hand-crafted gifts.

An understanding of how rural-urban linkages operate in different contexts and how they are shaped by factors such as economic policies, administrative measures and planning regulations is important, as this has an effect on the livelihoods of many people, but particularly the poorer and more vulnerable groups within society. Governments, the private sector, aid agencies and civil society can help shape the nature of such linkages and therefore indirectly affect the quality of life of a by no means negligible proportion of households for whom these linkages represent sources of food, jobs, raw materials, and even solidarity and comfort in difficult times.

The notion of poverty underlying the present examination of rural-urban linkages is that of a dynamic concept which suggests that people tend to move in and out of poverty in response both to external shocks and stresses and their capacity to recover from these.¹ They will adopt one or more strategies to cope such as income-earning, expenditure-reducing, collective support (where social ties and kinship play an important role), and external representation (where external institutions help bring additional resources to the community). Poverty cannot be measured solely on the basis of monetary income, as this only shows one, fairly narrow, dimension of people's livelihoods and capacity to survive and even thrive. Instead, the extent to which these strategies are used is determined by a range of assets to which the poor have access in greater or lesser degree, including among others their own labour skills, natural resources (including land), solidarity ties, and financial capital (i.e. savings). The poor are seen as a heterogeneous group, with some being more vulnerable than others to environmental changes, even within the same household. Thus, for example, as cities expand, older women in many peri-urban areas in Africa tend to be more negatively affected than young men by the loss of farming land to property developers.

Rural-urban ties are important here because access to these assets is in part determined by location, be this urban or rural, not only of the household as a whole, but of individuals within the household. Natural resources such as land, water and forests are more likely to be within reach of rural households than of urban-based ones. By the same token, urbanites will find it easier to enter a job market where their labour will command a price (usually in cash, although sometimes in kind, as often happens in small family firms), as will the use of non-monetary assets such as housing to generate additional income (from, for example, renting rooms or setting up a business). Other factors which help determine access to assets are gender, migrant status and, in some cases, ethnicity, and religious and political affiliation.²

Similarly, as will be seen below, at certain times rural households may resort to having members simultaneously in the farm and the city as a way of maximising income: one or two members may temporarily be employed in the city outside the harvesting season (for example in construction work, or street hawking), while others will look after livestock and tend the fields.

1.2 The wider context of rural-urban linkages

It is difficult to generalise across countries about the nature of rural-urban linkages as these are shaped by a number of factors, including the country's urbanisation pattern, the history and geography of the city and its region, and the city's role in the world economy. Most cities retain strong ties with their surrounding regions ('hinterlands') in the form of flows of people, money, commodities and waste, while being sources of non-tradable services. Linkages often extend well beyond the immediate area of influence of the city, through for example migrants remitting part of their wage to remote villages, the consumption of exotic crops, the export of polluting substances to dumping sites and the consumption of fuelwood from increasingly distant sources. In some cases, such linkages may be comparatively weak, as is the case of cities built around seaports, city states and new administrative capitals.

Although not affecting all localities in the same way, globalisation will tend to reinforce cities' ties with the international economy. Many rural areas are also affected by global forces and policies to increase economic openness (increased cash exports, or competition from imports) but these tend to be felt more strongly in cities, particularly larger ones and those at the top of the administrative and economic hierarchy; it is there that changes associated with globalisation are more evident through shifts in the employment structure, budding international demand for prime-location properties, growing social exclusion, and increased consumerism.³ While globalisation and the shifts in employment patterns that it usually entails may widen the income-earning opportunities of some of the rural (and urban) poor⁴, many rural poor continue to live in isolated (and not so isolated) regions marked by slow or negative economic growth, unsustainable land uses and resource depletion. There, a strengthening of rural-urban links which will accelerate the negative effects of globalisation through for example pressures to produce cash crops for export at the expense of food or hasten the introduction of a consumer culture of imported manufactured goods can be prejudicial to local cultural, economic and social integrity.⁵ In this, cities might be acting as transmission points for global forces.

1.3 Rural-urban linkages and shifts in livelihood strategies

Depending on the nature and intensity of the relationship between urban and rural areas, the livelihoods of the poor will be negatively or positively affected by a number of processes. The meeting of urban and rural activities entails both problems and opportunities for the poor, depending on their sources of livelihood and their location relative to the city. In the peri-urban areas of a rapidly industrialising city, for example, the pace of change will be felt more strongly than in more isolated villages, and so will be the flow of people, information, money, commodities and waste between it and the city. As the examples presented below show, some peri-urban residents may find it hard to adapt to rapid change and will face a greater number of problems, whilst others even within the same household may be quicker to take advantage of opportunities arising.

1.3.1 Problems for poor women and men

A number of processes of change are currently taking place around cities in many countries of the developing world. Some may be specifically linked to globalisation, but others are

simply the result of demographic and economic change (be this growth or, not uncommonly, stagnation or contraction) or economic restructuring and their attendant changes. Some of these changes will impact positively and others negatively on the rural and peri-urban areas linked to the city, and more specifically on the people who either live there or derive a livelihood from these places. The opportunities created by rural-urban linkages are reviewed in the next section while this section reviews the problems associated with them.

Land use changes are foremost among changes occurring around cities, as it is from this resource that many peri-urban poor derive an important part of their livelihood. However, as is shown below, land is not the only resource affected by change as for example water bodies (essential for irrigation, drinking water, fishing) may also suffer from pollution and import policies favouring cheap pesticides and fertilisers, while greater proximity to the city may help reduce the cost of chemical fertilisers thus increasing the health risks associated with their use.

a. Land: Urban growth has an important and visible effect on land, not only in areas surrounding cities, but often in more distant locations too. Perhaps because changes in land use arising from urban change are so visible and usually involve large financial transactions, as well as greater pressure from interest groups such as developers, middle class residents or even local government institutions, they are also the best documented. The processes involved comprise conversion from traditionally rural to urban uses (or at least increased pressure to convert), and increased commercialisation of land and (where they exist) abandonment of customary practices of land allocation. These have different effects on the livelihoods of rural and peri-urban dwellers, as shown by a number of studies.

In the case of Kumasi, Ghana's second largest city, changes in peri-urban land use have been particularly detrimental to older women who find it harder to adapt to them (see Box 1). In the country's capital city, Accra, where the rate of conversion of peri-urban land from agriculture to urban use reached 2,600 hectares per year in the late 1990s, land is primarily acquired by relatively well-to-do, middle-aged men for residential use, while the indigenous communities selling the land are dominated by elderly household heads with lower educational and wealth status, a third of whom are women.⁶ As in Kumasi, land users who had been allocated plots for cultivation by local chiefs following customary practices are neither compensated for the loss of usufruct rights nor for the loss of livelihoods in farming. This exemplifies the tensions between customary systems of land ownership regulating peri-urban areas and more modern legal frameworks governing urban land transactions found elsewhere in sub-Saharan Africa.⁷ Some displaced farmers move out to ever distant locations to cultivate, while others work locally as casual labourers, informal traders, in construction or migrate to Accra. And, unlike in Kumasi women in peri-urban Accra do not appear to be more badly affected by land sales and conversion processes, in some locations minority ethnic groups who have little recourse with traditional rulers are.

Box 1:

Land conversion, agriculture and poverty in Kumasi, Ghana

Kumasi is Ghana's second largest city and a major regional trade centre, with a population of over 700,000 growing at around 4 per cent per year. Lower land and rent prices and an increase in reliable and affordable transport in the areas within a radius of 35 km around the city are turning them into the destination of increasing numbers of people. As the demand for accommodation in many villages that once were predominantly rural has steadily risen, available farmland has declined. This has had a visible impact upon the livelihood strategies of the vast majority of the village population.

Under Ashanti customary law land belongs to the whole community and successive generations of families are only entitled to hold it in trust for the community. Local chiefs allocate farmland both to natives and outsiders on the basis of need in exchange for token money. However, as pressure rises for residential use and commercialisation, the traditional system has begun to break down. Only a minority of farmers, usually the larger ones, have the resources to compete with developers or speculators in the acquisition of land. Most often land is taken from farmers without consultation by traditional rulers and sold for the construction of new housing. As land is lost, so is the potential of peri-urban agriculture for the production of food for subsistence and high value produce which can be sold in the city.

The prospect of land conversion plays against agricultural production in peri-urban areas in that it creates a disincentive to investment. The reduction in the size of plots associated with higher population pressure and new developments, implies that the same quantity of crops now has to be produced from a smaller area of land. This can be achieved through an increased use of agrochemicals, a reduction in fallow periods and the adoption of more intensive cropping patterns.

The result in the longer term is a reduction in soil fertility and hence productivity, as well as the creation of potential health hazards associated with the widespread use of fertilisers and pesticides. As the number of residents increases, so does the amount of waste produced, in turn rendering village level waste management services inadequate. Poorer groups with little access to water and sanitation infrastructure become more exposed to health risks not traditionally found in rural areas but associated to the expansion of the city and its activities, such as non-communicable diseases and heavy metal contamination.

Women (particularly older women), who constitute the majority of peri-urban farmers, are worst affected. Not only is their capacity for any form of investment limited, but also they are consulted less than men on matters such as land use changes and plot sales. Alternative livelihood opportunities within the village for women are restricted to trading, crop and food processing, dressmaking and hairdressing. Most young men are rarely interested in traditional crop farming and prefer to look for work in the city; those who remain in the villages work in craft-making, and vegetable and rice growing.

Sources: Natural Resources Institute and Kwame Nkrumah University of Science and Technology, 1997, "Kumasi Natural Resources Management Research Project. Unpublished Inception Report", NRI-University of Greenwich, UK; Brook, Robert and Julio Dávila (editors), 2001, *The Peri-Urban Interface: A Tale of Two Cities*, School of Agricultural and Forest Sciences, University of Wales and Development Planning Unit, University College London, UK.

Similar land conversion processes are documented in other parts of the world such as Manila, the Philippines capital, where vast areas of irrigated rice farmland have been converted to an array of other uses such as speculative residential developments, industrial estates, golf courses and theme parks. Conversion has been abetted by a combination of a national policy framework favouring industrialisation rather than agricultural modernisation, flexibility in local zoning by-laws, and imbalanced power relations between landlords in search of higher financial returns and tenant farmers who are rarely compensated for the loss of farmland and lack the education or experience to exploit opportunities in the urban-industrial economy.⁸

Conversion of land from rural to urban use can also carry unwanted health risks. The development of new areas for residential use can lead initially to the multiplication of breeding sites of malaria mosquitoes (*An. gambiae*); however, later canalisation of surface water, domestic pollution and increased human densities can reduce breeding sites and replace them with nuisance mosquitoes (*Cu. quinquefasciatus*). A case study in Brazzaville in the 1980s, for example, shows that the rate of prevalence of malaria among rural children was 75-90 per cent, 50-80 per cent in peri-urban areas and under 7 per cent in urban ones.⁹

b. Natural resources: the peri-urban poor are usually more heavily dependent for their livelihoods on access to natural resources than wealthier, more urban-based groups. Consequently, they are often worse affected when such resources are lost or degraded as a result of factors such as increased population densities from an expanding urban population, larger volumes of solid waste disposed of in peri-urban locations, and untreated liquid waste from residential and industrial areas. Similarly, ecologically valuable peri-urban areas such as forests and river banks are sources of recreation for the urban poor in large cities like Mexico City so that their degradation or loss is more likely to affect these groups more than wealthier and more mobile households who can seek out these environmental services further afield.¹⁰

There are important gender and age dimensions here. In Hubli-Dharwad, in Karnataka State in India, for example, the selection, recycling and composting of municipal solid waste in peri-urban dump sites is mainly carried out by women and children. Women also collect recyclable waste from bins and dumps and sell it to itinerant traders. Within the household, women are involved in the composting of organic waste and its subsequent use in horticulture, as well as in a wide range of duties relating to the household energy needs. As firewood (a main source of energy for poorer households) becomes scarcer around the city, women have to walk further to collect it. This can adversely affect their health and leaves less time for other household chores.¹¹

It must be noted that access to, and use of, peri-urban natural resources varies between regions of the world and with a country's level of urbanisation, as well as with income level. For example, poor urban households in South Asia make greater use of forest and tree products than their Latin American counterparts, who tend to rely more on alternative materials for construction, energy and foodstuffs.¹² Poor peri-urban households in Asian and African cities use primarily fuelwood gathered by household members (usually women). Wealthier households in peri-urban Hubli-Dharwad, for example, use tractors or bullock carts to collect fuelwood only a few times a year, sometimes with the help of paid labourers; by contrast, landless labourers collect fuelwood daily or weekly, spending on average between four and ten hours a week.¹³ Gathering of fuelwood, food from forests and trees (mostly relishes rather than staples) and wood for construction are rarely income-earning occupations even in poorer and less urbanised countries like Nepal and India.

c. Shifts in agricultural practices: With urban expansion, some of the peri-urban and rural land that is not lost to residential, industrial or leisure uses may lose some productive potential, as farming will tend to rely more on practices such as intensive use of pesticides and intensive irrigation which may in turn lead to soil degradation. Such uses are more in line with the greater intrinsic value of land and the proximity of urban demand for fresh fruit, vegetables and flowers. However, this may displace poorer households who rely mainly on farming and lack the resources to upgrade to more capital-intensive methods. Such is the case in the region surrounding Asunción, Paraguay's capital, where smallholders lack sufficient land to use as collateral and therefore do not qualify for credit which they need for producing vegetables and fruit for the profitable urban market.¹⁴ This can also increase the cost of hired labour in commercial farms due to competition from manufacturing industries, as has been documented in Hubli-Dharwad, where a growing number of households have shifted from subsistence to commercial crops, though in this particular case of slow urban growth, the shift is not associated with urban expansion but rather with changes in consumption habits and an expanding food processing industry both nearby and in more distant locations.¹⁵

There are also health risks associated with more intensive farming and horticulture. Greater use of pesticides in peri-urban areas leads to groundwater sources being contaminated with nitrogen originating in fertilisers.¹⁶ Whilst there is no conclusive evidence on whether agro-chemicals are more heavily used by rural, peri-urban or urban farmers, a study in Lusaka, Zambia, suggests that household usage is greatest in peri-urban areas, followed by urban areas and then rural areas.¹⁷ Lack of knowledge and improper practices appear to be the main causes of poisoning from pesticides.

1.3.2 Opportunities for poor women and men

Rural-urban linkages in the context of change described earlier also creates many opportunities for poor women and men in different locations. Opportunities arising from rural-urban linkages for poorer households lie largely in the potential benefit from using the comparative advantages of rural and urban areas simultaneously, particularly in times of need. However, in a similar way that problems may affect some members of a household or some specific groups (such as an ethnic minority, for example) more than others, opportunities will be greater for some depending on individual circumstances.

a. Increased diversification of livelihoods: As rural-urban linkages intensify through movements of people, commodities, information and money, their importance as sources of livelihood grows. In sub-Saharan Africa, for example, many urban-based households try to retain ownership or control over village land as a supplementary source of income. In Gaborone, Botswana's capital, migrants maintain these ties for many decades, travelling frequently between city and village, and rural assets are consequently valued both in monetary and social terms; disruption of these important ties may pose a threat to the survival of urban households.¹⁸

Temporary or permanent migration to the city in search of jobs by some members of rural and peri-urban households is an age-old and well-known mechanism of increasing earnings and reducing vulnerability. Depending on the cultural context and individual circumstances, young sons or daughters will be encouraged to migrate, as might at times fathers or mothers, giving rise to a growing phenomenon of 'multi-spatial' households and enterprises. In South Asia, the Middle East and most of Africa, men constitute the majority of rural-urban migrants, while the opposite is true in Latin America and the Caribbean especially in the decades of the 1960s and 1970s when migration reached its peak.¹⁹ In Taiwan, the Philippines, Indonesia and Thailand, for example, parents prefer daughters to migrate because they are more likely to send back a larger part of their earnings as remittances to cover the needs of their parents and siblings (including education). In some regions of Africa it is increasingly acceptable for young rural women to work (and study) in cities, though under close supervision from relatives. The presence of relatives is an important determinant in the choice of destination, but migrants who engage in menial occupations or prostitution often prefer more distant locations.²⁰

Peri-urban men and women may benefit differently from the increased opportunities created by greater proximity to the city. In the village of Dialokorodji near Bamako, Mali, while men's earnings have suffered as a result of drops in available farmland, increased competition between traders, and joblessness from industrial restructuring, women (for whom access to farmland cultivation is traditionally restricted) have benefited from the proximity to Bamako's markets and opportunities for small-scale trading of agricultural products from nearby villages. The short distance to Bamako's markets has also benefited women in the village of Baguinéda, where they are also engaged in trade and horticulture. Government retrenchment and forced early retirement following structural adjustment policies have led to

the appearance of a new type of farmer, mainly guards and teachers in search of additional sources of revenue to supplement their state income.²¹

In other contexts, cheap and efficient transport infrastructure encourages peri-urban workers to commute daily to the nearest city. Examples are the cities of Aba and Port Harcourt in southeast Nigeria, where commuters travel as much as 100 km, women to work as cleaners and gardeners, and men in the construction and oil industries; but this has also led to the decline of traditional non-farm activities such as cloth weaving by women from competition from cheaper imports, as well as an inadequate support framework such as electricity supply and lack of technological innovation.²²

Proximity but relative isolation can also create (restricted) livelihood opportunities. A captive labour market has been developing in recent years in the low-density peri-urban Tuy Valley which is separated by hills from Caracas, Venezuela's capital, but increasingly linked to it by a growing transport network. Relative isolation from the city and the concentration of a growing population of low-income households re-located there from Caracas through subsidised housing programmes, has created a labour pool for Caracas-based firms attracted by the low wages to farm out components of manufacturing production (such as trouser sewing). This isolation has also generated a local market for street hawkers while the arrival of middle income inhabitants in search of cheaper housing has opened job opportunities in domestic help.²³

b. Access to services: one additional advantage of urban expansion and the associated improvements in basic infrastructure for rural or peri-urban dwellers is that access to services such as health and education can substantially improve. This will of course be determined by geography, national economic circumstances and individual strategies, as some households may decide for example that they cannot afford school fees and would rather have children work in the fields or as paid labour (decisions such as these, although producing savings in the short term, may in the longer run increase household vulnerability). But in many documented cases, urban expansion has created improved opportunities for children to study and for members of the household to benefit from more specialised health care. Average infant and child mortality and malnutrition rates appear to be lower in urban than in rural areas, in part because of the greater availability of health facilities and basic utilities like piped water supply and sanitation, but also due to the fact that urban diets tend to be more diverse and rich in energy and micro-nutrients. Notwithstanding this, malnutrition can be a more serious problem in poor urban and peri-urban neighbourhoods than in rural areas, as higher urban averages are skewed by high indicators among wealthier groups.²⁴ Recent research on HIV/AIDS and other infectious diseases in Africa has also shown that intense rural-urban interactions in the form of frequent travel of family members contribute to shared patterns of disease and risk factors for disease among poor urban and rural populations.²⁵

However paradoxical though it might seem, opportunities of increased rural-urban linkages are to be found in the growing flows of liquid and solid waste out of the city into surrounding peri-urban and rural areas. Although this might also be associated with health problems, as illustrated earlier, it represents opportunities for reducing the use of commercial fertilisers in horticulture (or indeed urban agriculture), or for re-cycling solid waste for re-sale in the city. In Hubli-Dharwad, as in many Indian cities, there is a long tradition of auctioning solid waste to farmers at dump sites, with garbage from municipal disposal sites composted and sold as soil fertiliser. In recent years increased presence of plastic, glass and construction debris in urban solid waste has made composting more difficult. Similarly, agro-industrial waste (dung, poultry manure, sawdust, rice and oil waste) is widely used in agriculture as well as for fuel, while nightsoil from pit latrines and septic tank waste are used as fertilisers.²⁶

c. Greater access to information and decision-making structures: A final overall set of opportunities created by increased rural-urban linkages arise from rural and peri-urban communities gaining greater access to information as well as to political decision-making structures, which tend to be better represented in urban than in rural areas. Although more difficult to assess, increased flows of people and information are important ways of widening the knowledge horizons of relatively isolated village communities, and improving their opportunities for realising a fair price for the product of their labour (e.g. agricultural products) as well as responding effectively to consumer preferences. Equally important are mechanisms for making effective representations to instances of local or regional power which might be some hours or even days away from remote villages.²⁷ In all this, frequent rural-urban linkages, however informal, can make an important contribution to improving farmers' lives.

2. MODELS OF INTERVENTION

Planned interventions seeking positive changes in rural-urban linkages that both enhance the use and state of natural resources and improve the livelihoods and living conditions of poor women and men are still rare. However, the last few years have seen the emergence in different parts of the developing world of a number of programmes and projects pursuing these aims. These initiatives constitute a valuable ground to draw lessons about the potentials and limitations of different approaches. It should be highlighted that they are highly heterogeneous in the way they conceptualise rural-urban linkages, as well as in their underlying assumptions about the advantages and disadvantages of urbanisation, the themes they address, and above all the approaches adopted and methods deployed (see Table 1). This section first examines different conceptualisations of rural-urban linkages, and then reviews such initiatives by grouping them into three distinctive intervention models.

Table 1: Environmental Planning and Management Initiatives for the Peri-Urban Interface

Programme Name	Agencies and Partners	Actors Involved	Objectives	Methodology and Activities	Geographic Focus
Cities feeding People	CFP, IDRC (Canada), CIDA	Poor communities practising urban agriculture, researchers from national institutions, NGO's and CBO's.	Support research to remove constraints and enhance potential for urban agriculture to improve food security, income generation, public health, and waste and land management.	Activities to improve land tenure, property rights, and production systems in the PUI. Research on space intensive production systems, use of organic waste in farming, and policy to enhance urban farming, funding for research reports.	West Africa
Natural Resources Systems Programme (NRSP)	DFID, and research institutions in the UK, Ghana and India.	Peri-urban farmers, researchers, government agencies.	To develop policies for better management of the PUI natural resources that benefits the poor.	Systems based approach to peri-urban interface (and five other) production systems, cross cutting socio-economic methodologies component, participatory methodologies.	Kumasi, Ghana; Hubli-Dharwad, Calcutta, India.
FAO programmes: UPA (Urban and Peri-urban agriculture) Programme, AGSM (food supply and distribution to cities); AGPD (Peri-urban Horticulture); FORC (Urban and Peri-urban Forestry).	FAO, CIDA.	Poor communities practising urban agriculture, researchers from national institutions, NGO's and CBO's.	To help provide answers to the consequences of rapid urbanisation on the efficiency and dynamism of food supply and distribution systems (FSDS) and ultimately on the food security of urban consumers. To intensify urban and peri-urban agriculture to secure year-round market supply of fresh horticultural produce, to promote urban employment and income.	Assistance in the formulation of FSDS development programmes at urban, peri-urban and rural levels. Inter-spatial, interdisciplinary, and inter-institutional approach. Document and disseminate information and technical assistance in urban and peri-urban forestry to member countries. Awareness raising, increasing documentation and accessibility of information.	West Africa
Innovations in	DFID,	Policymakers and	To examine institutional frameworks and	Network approach, action research	Malaysia,

Development for Environmental Action (IDEA) Programme.	Commonwealth Partnership for Technology Management.	planners, community leaders, NGO's, industries, local government leaders.	management strategies and techniques, which constrain or enhance environmental/ development programmes. To identify pilot projects to serve as examples of institutional mechanisms for mediation at policy, strategy and project levels of environmental issues. To identify lessons for the management and assessment of development programmes in order to review current management practice.	methodology, and training, environmental advisory service, development of mechanisms to reduce pollution and promote watershed management. Improvement of institutional co-ordination to reduce watershed pollution, establishment of co-operative arrangement for common waste-water treatment facilities, development of policy guidelines and institutional arrangements for management of mineral exploration.	Mauritius, Zimbabwe, Zambia, Ghana, Nigeria, Guyana.
Sustainable Cities Programme (SCP)	UNCHS (Habitat)	Municipal authorities, public, private and community sector.	Improving EPM capacity, sanitation and compost for agriculture in peri-urban areas (Chennai). Natural resource management, peri-urban agriculture and urban expansion (Dar Es Salaam). Water management agricultural development and urban expansion (Ismailia). Integrated regional EPM for erosion and flooding control (Concepcion). Peri-urban land degradation/ soil contamination (Ouagadougou).	EPM techniques, city consultations and working groups, demonstration projects on the city level using EPM. Replication and scaling-up on the national level, information exchange at regional and global levels, development of reusable tools and procedures, operational support.	Kumasi, Ghana; Hubli-Dharwad, Calcutta, India.
Localising Agenda 21	UNCHS (Habitat)	Municipal authorities, public, private and community sectors.	Support for the development and implementation of broad-based but local environmental action plans. Enhancement of capacity of local and provincial authorities to integrate action plans into strategic urban development plans. Focus on urban revitalisation, buffer zone development, solid waste management and revenue rationalisation. Exploring the synergy between cities and nearby fragile eco-systems.	Strategic Structure Planning approach, EPM of geologically sensitive areas and protection of community-based water boreholes in peri-urban areas (Nakuru). EPM on the city edge/ dunes front to arrest urban expansion.	Kenya, Morocco, Vietnam.

Source: Adapted from Allen, Adriana et al., 2001, *Living between urban and rural areas. Guidelines for strategic environmental planning and management for the peri-urban interface*, Vol. 3, Development Planning Unit, University College London, London.

2.1 Conceptualisation of rural-urban linkages

There is growing recognition that the conventional distinction between 'urban' and 'rural' as discrete and clearly identified areas is insufficient to characterise patterns of settlement and production which fall between these areas. This is because rural and urban features tend to increasingly coexist within cities and beyond their limits, and related issues are emerging as priorities for action in a significant number of development interventions.

Attempts to conceptualise this new development landscape range from the emphasis on rural-urban linkages as footloose processes rapidly transforming territories, to the notion of the 'peri-urban' as a term qualifying areas with mixed rural and urban features. In the first case, place seems to be less important than flows of people and materials, commodities, resources and waste. In the second case, peri-urban areas are often characterised either by the loss of 'rural' features (reduced soil fertility, degraded natural landscape) or a dearth of 'urban' attributes (low density, lack of accessibility, lack of services and infrastructure). The term peri-urban has arisen as a way of analysing the relationship between urban and non-urban areas, focusing in the first instance on the immediate surroundings of cities. However, insofar as rural areas develop links with different cities according to different needs, the heterogeneity of cities and the way in which they relate to their hinterlands and to more distant sources of growth and sustenance should also be included in the analysis. Many intensive urban-rural interactions concerned with the supply of resources or migration of people increasingly occur over very considerable distances and not merely within a rather confined city hinterland.

From an ecological perspective, peri-urban areas can be characterised as an interface or heterogeneous mosaic of 'natural', 'productive' or 'agro-ecosystems' and 'urban' ecosystems, affected by material and energy flows demanded by urban and rural systems. The peri-urban interface is not only distinctive because of its ecological features but also due to its socio-economic heterogeneity and fragmented institutional context. In socio-economic terms, the composition of peri-urban systems is highly heterogeneous and subject to rapid changes over time. Small farmers, informal settlers, industrial entrepreneurs and urban middle class commuters may all coexist in the same territory but with different and often competing interests, practices and perceptions. In institutional terms, the peri-urban interface is characterised by a lack of institutions capable of addressing the links between urban and rural activities. This is reinforced by the convergence of sectoral and overlapping institutions with different remits²⁸.

These features have been further elaborated into the peri-urban typology presented earlier in this chapter.²⁹ This typology recognises a diversity of rural-urban links and urbanisation patterns as well as institutional contexts. Figure 1 shows how the different models of intervention underpinning current programmes and projects deployed over the last two decades or so tend to address different peri-urban types. Broadly speaking, these intervention models may be associated with one or more of three main planning perspectives be these rural, regional or urban planning³⁰. Thus, the rural planning perspective has tended to focus on localised and discrete actions; the regional perspective will seek to act upon rural-urban pressures and flows; and the urban perspective will seek the transformation of planning systems and their allied institutions.

It is worth noting that the boundaries between these three planning traditions are increasingly blurred as each intervention model draws from each other in terms of approaches, methods and themes. For example, localised actions aimed at improving land-based livelihoods in peri-urban villages are likely to address issues of rural-urban market flows, while

transforming planning interventions targeted at urban authorities are likely to promote collaborative efforts with rural authorities.

Figure 1: Intervention models, concepts and themes

CONCEPTUALISATION

Village Peri-urban (VPU)

Diffuse Peri-urban (DPU)

Chain Peri-urban (CPU)

In-place Peri-urban (IPU)

Absorbed Peri-urban (APU)

INTERVENTION MODELS

Rural perspective
Localised actions from a rural perspective

Regional perspective
Actions upon pressures and flows

Urban perspective
Transformations of urban planning systems

Localised actions from an urban perspective

INTERVENTION AREAS

- Decentralised water and sanitation
- Micro-credit
- Land based livelihoods
- Natural resources management
- Rural and urban economic enterprises
- Rural-urban market information
- Food supply and distribution to cities
- Urban and peri-urban agriculture
- Urban impacts and ecological footprint
- Urban planning and management systems
- Transport and land use
- Land regularisation and housing
- Infrastructure and sanitation
- Health and pollution

2.2 The rural perspective: Localised and discrete actions

The first intervention model can be broadly identified with initiatives generated from a rural planning perspective. Traditionally, rural planning has been undertaken in two main ways:

- Official planning by rural district councils executed by trained planners focusing on the provision of services (e.g. roads, schools, health centres).
- Sectoral planning for the management of rural land and natural resources as the responsibility of departments of agriculture, forestry, fisheries and so on, using techniques of resource assessment and land use planning, with little co-ordination between them.

Rural planning has sought to promote balanced development between urban and rural areas by counteracting a perceived 'urban bias' in government programmes and policies, for instance by attempting to curb rural urban migration through strengthened rural production. Examples of this include rural industrialisation programmes and integrated rural development programmes³¹ (this type of initiative might conceivably also be framed within the regional perspective discussed below).

The intention of this intervention model is to focus on initiatives aimed at improving living conditions and the social infrastructure necessary to increase rural production through localised actions. These promote discrete pilot actions in peri-urban villages, which often retain land-based livelihoods and fall under the jurisdiction of rural authorities whilst being increasingly influenced by urban areas regardless of their proximity. This model draws on a wealth of community planning techniques and methods, including rural rapid appraisal and participatory rural appraisal among others³² (many of these methods have been integrated under a common framework of 'community-based natural resource management'). As such, these methods constitute an important source to guide and implement action planning at the community level. However, in considering their application and usefulness to address the processes of change affecting peri-urban villages, two main challenges remain to be addressed.

The first is related to the need to disaggregate the process at the local level to work with communities, paying particular attention to those already marginalised even by local social structures. The second challenge is related to the fact that these methods are only marginally engaged with those planning issues that fall outside the immediate and medium term concerns of specific localities and communities within the peri-urban interface, and therefore neglect the urban regional dimension and long-term perspective required for the sustainable management of peri-urban environmental resources and services. As a result, the application of these methods alone often fails to bring into the process other actors outside the community (notably government and private decision-making makers), thus making little headway towards incorporating the process within regular procedures and long-term strategies of key stakeholders³³.

Examples of initiatives that adopt a community-based management approach whilst addressing the challenges faced by peri-urban villages include a series of projects developed in the urban regions of Hubli-Dharwad, India, and Kumasi Ghana, as part of the Natural Resources Systems Programme supported by the British Government's international aid ministry (Department for International Development, DFID).³⁴ Box 2 describes the approach adopted in Hubli-Dharwad which is currently being implemented.

Box 2:

Participatory Action Planning in the neighbouring villages of Hubli-Dharwad, India

This on-going project, funded by the Natural Resources Systems Programme (NRSP) of the British aid ministry, seeks to facilitate the identification by local stakeholders of natural resource management issues villages close to Hubli-Dharwad in response to the increasing urbanisation of the city's peri-urban interface. It also seeks to formulate plans of action to be implemented as pilot projects in the next phase of the programme. Evidence gathered so far indicates that due to their lower resilience in the face of change, processes driven by urbanisation adversely affect poorer groups in peri-urban villages. Livelihood strategies are adversely affected by natural resource degradation, pollution and shifts in the nature of agricultural enterprises associated with urbanisation.

Engaging people from target institutions, peri-urban dwellers and researchers in a carefully designed, extended, dialogue should result in a shift of, or increase in, power towards poorer groups and an improved sense of ownership by them of the plans of action so identified. Enhanced awareness of the problems faced by the peri-urban poor by institutions which formulate policy and implement regulations will increase their sensitivity to the impact of their actions and decisions upon the poor, and will facilitate identification of plans of action which take into account the aspirations and needs of the poor.

The project seeks to influence the next NRSP activity in the region, where strategies identified will be tested, modified and demonstrated through implementation of action plans in pilot projects. One additional output will be a set of methodological guidelines for collaborative development of action plans, to be tested during the project and modified accordingly. This output will be available for development initiatives elsewhere.

Sustained improvement of an environment in which the poor have better opportunities to enhance their livelihood strategies requires a greater awareness by target institutions of the factors which constrain the poor, particularly women, and commitment to development and implementation of pro-poor approaches to their work. Exposure to the views and concerns of the poor, involvement in discussions, identification of natural resource management issues, visiting relevant case studies and demonstrations and planning interventions with them, will increase awareness of the circumstances in which the poor have to survive and what plans of action are acceptable. As the programme progresses, it is expected that greater awareness within target institutions will develop into a commitment to improve livelihood opportunities for the poorer sectors of the peri-urban community.

Source: Brook, Robert et al., 2000, "Participatory action plans (PAP) development for natural resources management around Hubli-Dharwad. Unpublished project summary", DFID Natural Resources Systems Programme.

2.3 The regional perspective: Actions upon rural-urban pressures and flows

The second intervention model characterises those programmes that purposely focus on the development of reciprocal links between rural and urban areas.³⁵ This model is based on a regional planning approach that acknowledges that current urbanisation trends are leading to, and being shaped by, outward and inward movements of population, with 'mega-cities' becoming sub-regions within countries in their own right, greater industrial dispersal, loss of agricultural functions in rural areas, improved transport networks and the attendant restructuring of land markets. According to this approach, a country's settlement pattern is the source of its planning problems, a reflection of deeper socio-economic difficulties and inequalities, which requires tackling critical socio-economic and political issues rather than localised urban or rural solutions. Whilst regional planning is by no means new, this approach moves away from the well established 'growth pole/core-periphery' model to focus instead on creating and strengthening networks. As Box 3 shows, the main criticisms of the ability of the growth pole/core-periphery model to achieve its intended goals of 'trickle-down' regional development are based on a contested assumption that urbanisation is the key to regional integration.

Box 3:**Examples of the shortcomings of the growth pole/core-periphery regional planning model**

On the basis of a diagnosis that the vast metropolitan region of Jakarta* was giving rise to serious environmental problems in the region, the Indonesian government implemented a development planning strategy to drive urban and industrial growth away from the Central Jakarta district to a series of identified growth poles and corridors. The policy eventually failed due in part to lack of co-ordination among institutions, lack of incentives to industries and lack of political will; but also to the fact that the concentration of industry and population in the Jakarta region only served to attract more economic growth and foreign investment, which in turn led to more population growth and investment in infrastructure, thus perpetuating the trends that the government was trying to counteract.

Since the late 1970s the Chinese government initiated a policy of economic liberalisation focused partly on the South-eastern Coast (Pearl River Delta region) due to the fact that these cities had previously served as ports and were close to Taiwan and Hong Kong. While economic growth was being concentrated in the cities, growth was also being dispersed towards new districts and towns. There were large in-flows of foreign capital to small-scale industries in small towns and villages, leading to a rapid transformation in the region from an agrarian to an export-oriented industrial economy, more closely tied to the global economy than the rest of the country. Government planning was partially decentralised to the local level, but was still heavily dominated by Central Government planners. Economic pressures and lack of local planning flexibility contributed to the creation of a black market of land in the periphery of these cities which in turn led to uncontrolled urban sprawl.

Source: Adell, Germán, 1999, "Theories and Models of the Peri-urban Interface: A Changing Conceptual Landscape", paper produced for the research project on *Strategic Environmental Planning and Management of the Peri-urban Interface*, Development Planning Unit, University College London (available from www.ucl.ac.uk/dpu/pui).

* Known as Jabotabek, which comprises Jakarta, Bogor, Tangerang and Bekasi

By contrast, the 'Actions upon rural-urban pressures and flows' type of intervention perceives the territory by mean of a networked model, in which planning and policy initiatives are developed for multi-sectoral, interrelated and complementary activities.³⁶ Emphasis is placed on the connectivity of the system and in developing infrastructure in both rural and urban areas and between minor centres, rather than concentrating just on linkages with major cities.

The central assumption underlying this approach is that the breaking down of supportive reciprocal relations between cities and their hinterlands tends to aggravate unsustainable patterns of natural resources use and the transference of environmental problems to distant regions. The concept of the 'urban ecological footprint' helps understand how the relationship between cities and their hinterlands changes over time and the environmental costs associated with these changes.³⁷ This shows that, through trade and natural flows of ecological goods and services, cities draw on the material resources and ecological productivity of vast, scattered and often distant, hinterlands.

The network model promotes reciprocal rural-urban interactions. Examples of this approach are Nepal's 'Rural-Urban Partnership Programme' described in Box 4 and jointly supported by the United Nations Development Programme (UNDP) and the United Nations Centre for Human Settlements (UNCHS), as well as the 'Poverty Alleviation Programme through Rural Urban Linkages' in Indonesia, also supported by UNDP and UNCHS.³⁸ Both programmes

seek to identify specific development potentials in the linkages between rural and urban markets within a region and beyond. Central to this approach is the emphasis on acting upon the vacuum generated by urban and rural institutions and by sectoral policies that reinforce the urban-rural divide. This approach is strategic rather than comprehensive, in that it focuses on key entry points with the potential to reinforce rural-urban links, for instance by improving the flow of information between rural production systems and urban market demands.

Box 4:
Description of Nepal’s UNDP Rural-Urban Partnership Programme

Sectoral approaches to development tend to direct resources towards development in isolation with little impact on people's livelihoods. The Rural–Urban Partnership Programme came into operation in 1997 as a joint effort of His Majesty’s Government of Nepal (National Planning Commission, Ministry of Housing and Physical Planning and Ministry of Local Development), the United Nations Development Programme (UNDP) and the United Nations Centre for Human Settlements (UNCHS). The Programme focused on enhancing management capabilities at the municipality, village and community level in three market regions, institutionalising a strong network amongst the urban centre, rural market centres and villages.

The underlying premises of the Programme are:

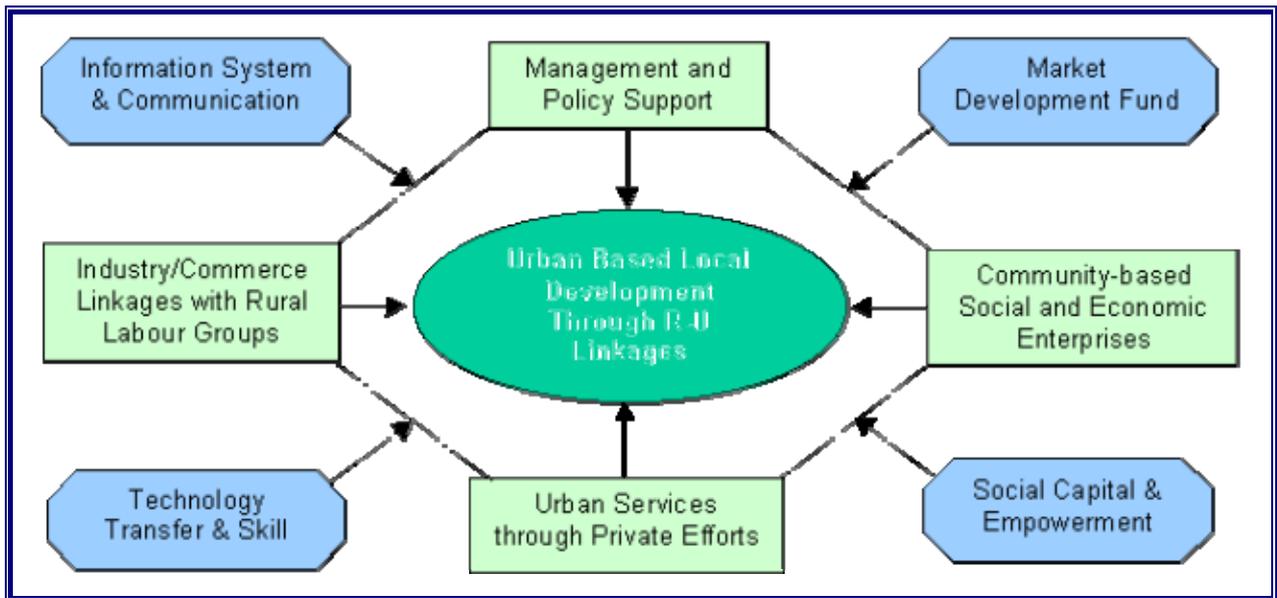
- Rural and urban development should not be perceived in isolation.
- Urban economic and physical development is possible if human, economic, social and financial resources of the region are properly mobilised at the local level.
- Urban development should encompass the development of economic, social and technical infrastructures rather than limiting to development of physical infrastructure only.
- Sustainable local development is possible only with the participation of local agencies and community.
- Development programmes should be implemented according to the aspiration of local people and incorporating non-governmental actors.

The objectives of the Programme are:

- To improve livelihood of poor and disadvantaged people in three market regions, by creating an enabling environment for them to undertake social and economic initiatives, through local institutions, such as municipalities, NGOs, mobilising the private sector and enhancing rural-urban linkages.
- To help the local institutions develop an urban information system and participatory development planning and monitoring procedures that will facilitate the formulation of decentralised development plans and programmes, based on optimum use of rural-urban linkage potentials.
- To support the National Planning Commission (NPC) to help formulate poverty-alleviation-oriented regional and local development policies through policy analysis and field testing of various rural-urban linkage initiatives.

RUPP’s conceptual framework is outlined in the following diagram:

CONCEPTUAL DIAGRAM OF THE PROGRAMME



Operational Strategies

1. Information System

- To develop the institutional mechanisms for supporting rural and urban economic development initiative.
- To develop information systems at the market region, zone and national levels on rural-urban spatial and economic linkages
- To develop gender specific impact assessment and monitoring system
- To develop alliterative strategies for implementation based on analysis of available information.

2. Market Centre Initiatives

- To support Municipalities and Market Centres to enhance their management and programming capabilities and capacities.
- To initiate community based urban-oriented activities in the participating urban and market centers.

3. Rural and Urban Economic Enterprises

- Community based social economic enterprises are facilitated to strengthen the inter-linkages between the urban centres and rural settlements.
- The private and community based enterprises are promoted which can serve the market demand. Female entrepreneurs are 'especially encouraged to establish such enterprises.

4. Support Provision to Economic Enterprises

The Programme advocates a demand driver approach to the provision of support. Support from this Programme to efforts, in the secondary urban centres. market centres and rural markets, to develop social/economic enterprises are provided as follows:

- Credit Assistance to support initiatives that have characteristics of "privatisable benefit".
- Seed Grants for initiatives that are more communal in nature, are not commercial, and benefit to all members of the society.
- Training to members of the participating social/economic enterprises for undertaking managerial, business and professional activities.
- Technology required by participating social/economic enterprises

Source: UNDP, 1996, "Rural-Urban Partnerships NEP/96/003. Urban based local Development", unpublished report.

End of box

Other initiatives within the same approach include the 'Rural Villages Programme', implemented by the State of Parana, Brazil,³⁹ and South Korea's Policy on Rural-Urban Integrated Cities.⁴⁰ In all cases, the emphasis is on creating new institutional arrangements that foster inter-municipal and inter-regional cooperation addressing the political imbalances and unequal relations borne out of the primacy of certain urban systems.

An important area to be further explored in this approach is the identification of specific interventions to address increasing competition with cheap imports, for instance in the form of tariffs and political support to the local economy. Another area is the introduction of resource management on a regional scale, since some resources may be seen as requiring effective planning and management, while others are assumed to be the responsibility of the private sector. In addition, there is a lack of information on supply and flows of resources and their environmental/social impacts (e.g. water, energy, solid waste, food, building materials, consumer goods)⁴¹, as well as a need to reassess the role of common property regimes, increasingly marginalised by the intervention and control of the private and public sectors.

Another set of issues to some extent addressed within this intervention model is found in sectors such as urban and peri-urban forestry and agriculture, where the focus is on removing the barriers of conventional urban planning systems to activities that support self-reliance. Interventions in urban and peri-urban agriculture include the Cities Feeding People programme managed by the Canadian Government's International Development Research Centre and a range of programmes of the UN's Food and Agriculture Organisation (FAO) such as the urban agriculture programme, the programme on food supply and distribution to cities, the programme on peri-urban horticulture and the programme on urban and peri-urban forestry. These initiatives seek to a degree to improve rural-urban nutrient flows, and challenge urban planning systems and traditional views about what constitutes desirable urban activities, showing the potential that urban and peri-urban areas might have, for instance, in securing food for the urban poor.

2.4 The urban perspective: Transformation of planning systems

A third intervention model is found in a series of environmental planning and management initiatives at the city level. A number of programmes and projects characterised as 'urban' seek to address two sets of issues:

- The management of the relationship between urban systems and their hinterlands.
- The quality of life of peri-urban dwellers.

In the first case, the underlying assumption is that cities are highly dependent on resources extracted from their immediate hinterland and beyond, so current urban planning systems and institutions need to work beyond the limits of built up areas to become more proactive in managing the inputs and outputs required and produced by the city. An increasing number of programmes and projects aimed at promoting sustainable urban development adopt this approach. Examples include the Sustainable Cities and Localising Agenda 21 programmes of the United Nations Centre for Human Settlements (UNCHS). These initiatives seek to transform conventional urban planning by building on the principles advocated in Local Agenda 21 and the Habitat Agenda.⁴² Common to these two agendas are the following issues:

- The reappraisal of the role of cities in development and of their potential contribution to sustainable development.
- The need to look at urban development articulating social, environmental and economic performance, and strike a balance in the pursuance of reducing urban poverty, improving environmental conditions in the short and long term and enhancing urban economic productivity.
- The emphasis on local actors (both state and non-state actors) as key managers of the urban development process.

Both agendas call for a new approach to urban environmental planning and management and a shift of emphasis from a focus on local government and the environment to one on local governance and sustainability.⁴³ Even though it is increasingly recognised that Local Agenda 21 involves more than environmental management and more than local authorities' initiatives, this approach stresses the need to build changes upon existing urban environmental planning and management systems, identifying local authorities as a key entry point for the institutionalisation of the process.

A general evaluation of the experience of developing Local Agendas 21 worldwide suggests that typically, multi-stakeholder processes to define the content of these agendas focus initially on more immediate issues of concern traditionally associated with basic infrastructure and sanitary engineering projects like piped water supply and sanitation. It is only through an iteration of the process over a longer period that consensus can be built so as to move away from the direct interests or concerns of participating stakeholders to more strategic long-term issues affecting the development process as a whole. The experience of the Localising Agenda 21 Programme in Nakuru, Kenya (Box 5), shows how short term actions and immediate problems can be nourished by a long-term vision that promotes sustainable linkages between urban and rural areas

**BOX 5:
UNCHS Localising Agenda 21 in Nakuru, Kenya**

Nakuru (population approximately 480,000), the fast growing capital of the Rift Valley Province in Kenya, is an example of an African town which serves as an urban centre of a predominantly rural area, demonstrating the linkages and interrelationships between urban and rural development coupled with the need for ecological protection of its own natural environment. The Localising Agenda 21 programme combines the use of Strategic Structure Plans with Urban Pacts, in an effort to create a process of vision, action and communication.

The following profile matrix shows how Nakuru's rural-urban linkages operate:

Profile Matrix

	Broadening the technological base	Human actions and natural resources	Institutional and political framework	Urban-rural linkages
Nakuru as centre of agricultural production and rural development of its region	Technology prospects and constraints of food processing, input processing, biotechnology	Challenges to meet goals of enough water for all Adequate energy supply	Strategic development planning, partnerships with civil society	Marketing of agricultural products, expansion of urban settlement into rural areas, transformation of

				agricultural into residential plots
Nakuru as guardian and protector of the ecology of Lake Nakuru	Technology of combating agricultural and urban pollution, Technology of biosphere protection	Management of ecosystem in proximity to urban and rural development	Strategies for collaboration between municipality and Kenya Wildlife	Land use conflicts between ecological protection, urban development and agricultural production

Key:

1	2	3	4
5	6	7	8

1. Nakuru offers economies of scale in the provision of services and employment to the urban population and others within its adjoining region. It is an important centre for storage and processing of agricultural produce and agro-industry. The surrounding farmlands depend on Nakuru for the processing and supply of farm inputs such as fertilisers, pesticides and herbicides.
2. Current water demand in Nakuru stands at 54,000 cubic meters per day while the amount produced is only 30,000 cubic meters. To enable the council to provide adequate water supplies to the whole population, the following proposals are under consideration:
 - Preparation of comprehensive water development strategies
 - Commercialisation of water and sewerage services
 - Harmonisation of community based water supply projects
 - Awareness campaigns on water conservation measures
3. In the Nakuru Strategic Structure Plan the Municipal Council advocates for the protection of the agricultural areas from urban encroachment. This will entail:
 - Regulating subdivisions of agricultural land into small farm sizes for urban development
 - Using large farms to the West as a buffer zone to limit city extensions
 - Defining city limits
 - Encouraging selective urbanisation, e.g. promoting urban development at strategic growth-nodes by providing adequate infrastructure in such areas
 - Enhancement of partnerships with civic society
 - Formation and strengthening of Zonal Development Committees as fora where city residents can channel their development agenda to the Council and vice versa
4. At present, Nakuru has one wholesale and five retail markets. There are plans to improve and extend these existing markets, relocate the wholesale market to a more convenient area so as to enhance its capacity and provide six new retail markets in newly urbanising areas
5. The Pollution Release Transfer Register is the pollution monitoring system developed by the stakeholders in the conservation and protection of the eco-system of Lake Nakuru basin. Product processing points maintain daily records of raw material inputs and effluent discharge which can be checked by the stakeholder authority at any time.
6. Urban encroachment, agricultural activities and building material quarries are some of the activities found along the border to Lake Nakuru National Park. In the Strategic Structure Plan the council proposes to:
 - Create awareness in relation to environmental protection within urban/ rural settlements
 - Establish, through negotiations, activities of mutual benefit between the National Park and the population of Nakuru

- Promote the crater and the forest as tourist attractions, to conserve and restrict encroachment (urban and rural activities) into the forest area so as to minimise erosion and deforestation
7. Improved 'lake-health' has both ecological and economic advantages to the town. In order to enhance these benefits, the Strategic Structure Plan recommends the following:
- Institute pollution control measures such as improved solid and liquid waste management. Calling for community and industry involvement, the council in conjunction with other stakeholders will formulate criteria as to the types of industries that may be developed.
 - Raising community awareness on environmental conservation activities such as clean-ups and greening of the town.
8. Physical development activities (e.g. construction) draw on sand mining and other building materials, often in riverbeds and hill slopes leading to soil erosion, deviation and pollution of rivers, deforestation. In the Strategic Structure Plan, the council proposes to:
- Protect riverbeds and adjoining riverbanks from farming activities and sand mining. Provision of piped water in areas bordering these rivers will discourage direct use of river water for washing purposes.
 - Investigate and map out in more detail the location of fault-lines and other geologically unstable areas; this is intended to help define appropriate land-use in these fragile areas.
 - Encourage and spearhead greening of the town, especially along fault lines.

Source: Raphael Tuts (UNCHS), personal communication

(End of box)

The second set of issues addressed in this intervention model is represented by initiatives related to the decentralised provision of infrastructure and services and more widely to the integration of peri-urban areas to the city. These include sanitation programmes promoting low-cost sanitation technologies, participatory methodologies for project design, community labour and micro-financing schemes. An example of this type of intervention is the UNICEF project on peri-urban communities in Tegucigalpa, which is based on low-cost sanitation facilities, cost sharing and use of revolving fund.⁴⁴ Similarly, the Canadian International Development Agency (CIDA) initiative in peri-urban water and sanitation emphasises the provision of drinking water supply through low-cost technologies including hand pumps, wells, boreholes, gravity-fed systems and low cost on-site sanitation. CIDA's interventions in water and sanitation projects in peri-urban areas fall within its programme priorities on meeting basic human needs and the provision of infrastructure services. Although these initiatives can be seen as localised and bearing many elements in common with the first model of intervention discussed earlier, the main difference lies in their stress on integrating peri-urban areas (defined as 'in-place' and 'absorbed' peri-urban in the typology presented earlier) to the urban fabric.

The main constraint of urban environment planning and management initiatives is that all too often they remain outside mainstream government decision-making, so results remain marginal to the development process. Another concern relates to the fact that problems affecting the peri-urban poor tend to be neglected because of the nature of power relations at the municipal level where more powerful and vocal urban-based interests are often favoured.

ENDNOTES

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¹² The information on the use of forest and tree resource in this paragraph comes from six case studies in urban and peri-urban areas in Mexico, Brazil, Ghana, Zimbabwe, Nepal and India: Wiggins and Holt, op. cit.

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¹⁴ Tacoli, 1999, op. cit.

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¹⁶ McGregor, Duncan, David Simon and Donald Thompson, 2001, "Peri-urban water quality and supply: Changing circumstances and practical interventions in Kumasi, Ghana", paper prepared for

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²⁶ Universities of Birmingham, Nottingham and Wales, op. cit.

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⁴² Local Agenda 21 seeks to put into effect at the local (municipal) level the principles of the Agenda 21 adopted by participating nations in the UN Conference on Environment and Development in Rio de Janeiro in 1992. The Habitat Agenda was similarly adopted at the UN nations Conference on Human Settlements (Habitat II) in Istanbul in 1996, and was meant "to offer a vision and a practical roadmap for sustainable human settlement, taking into account linkages with the natural environment, human rights, social development, demographic trends and population groups at risk" (UNCHS, op. cit., p. 49).

⁴³ Selman, P. and J. Parker, 1999, "Tales of Local Sustainability", *Local Environment*, Vol. 4, No. 1, 47-60.

⁴⁴ UNICEF, 1999, "The Construction of Low-cost Sewerage Systems in Tegucigalpa: A Feasible Solution for the Urban Poor", [www.wsscc/org/gesi/unicef/honduras.html], (accessed March 1999).