

An aerial photograph of a city grid, showing a dense pattern of streets and buildings, serves as the background for the entire page. The grid is composed of light-colored lines forming rectangular blocks, with some green spaces interspersed.

GROWING GREENER CITIES

in the Democratic Republic of the

CONGO



How a project for development of urban and peri-urban horticulture in five cities is helping to

- ▶ grow 150 000 tonnes of vegetables a year
- ▶ supply fresh, nutritious produce to 11.5 million urban residents
- ▶ build sustainable livelihoods for 16 000 small-scale market gardeners
- ▶ generate jobs and income for 60 000 people in the horticulture value chain



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Sowing seeds

Phase One: 2000-2004

In Lubumbashi, vegetable growers prepare a seedling nursery

The project's first phase focused on the cities of Kinshasa and Lubumbashi. Its goal was to expand and diversify the consumption of horticultural produce, while creating jobs and generating income for small-scale urban and peri-urban vegetable growers.

When the project began in June 2000, urban and peri-urban horticulture was producing an estimated 30 000 tonnes of vegetables a year in Kinshasa and 2 250 tonnes in Lubumbashi. While some vegetables were being grown in household gardens for family consumption and on a few large commercial farms, the

mainstay of production were the 5 000 small-scale market gardeners farming an area of 1 000 ha in Kinshasa and less than 100 ha in Lubumbashi.

Producers in and around Kinshasa cultivated plots as small as 300 sq m, and growing and selling vegetables was their only source of income. Some had been organized under previous government programmes into growers' associations of from 10 to 20 members. About one third of the growers were women.

Fruit and vegetable consumption in the two cities was less than half of the FAO/WHO minimum recommended intake of 400 g per head per day. But there was great potential for production increases: both cities had an ample supply of labour (particularly rural immigrants familiar with crop production) and, around Lubumbashi especially, sizeable areas of fertile land suitable for horticulture.



In 2000, market gardens in Kinshasa produced mainly traditional vegetables, such as amaranth

BACKGROUND

An age-old survival strategy

In the year 2000, the Democratic Republic of the Congo was emerging from a five-year conflict in the eastern part of the country that had caused countless deaths and a massive flight of rural people to towns and cities. Between 1995

and 2000, the population of the capital, Kinshasa, had grown by more than one million people. With its population deeply impoverished and its food supply disrupted, Kinshasa was facing severe food shortages and rising rates of child malnutrition.

In the face of this adversity, resourceful *Kinois* revived an age-old survival strategy. Across the city, residents began growing vegetables and root

crops around their homes, on vacant lots and along roads and streams. The area under market gardens in and around the city also expanded rapidly. Many of the new growers were displaced rural people who had settled on the city's outskirts.

For the national government and FAO, that spontaneous growth of urban and peri-urban horticulture (or UPH, for short) presented an opportunity –

to look beyond the country's immediate needs for emergency food aid and to sow new seeds of hope.

Together, they launched a project aimed at building a vibrant UPH sector that would contribute to urban food security, improved nutrition and sustainable livelihoods in the future.



Congolese displaced by fighting in the country's eastern provinces

THE PROJECT

Support to the development of urban and peri-urban horticulture

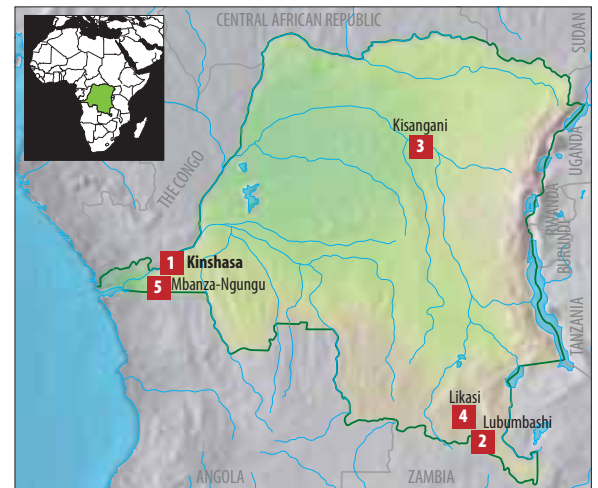
The project in the Democratic Republic of the Congo is implemented by the country's Ministry of Rural Development, with assistance from the Food and Agriculture Organization of the United Nations (FAO). Launched in June 2000, it was extended to a second phase starting in October 2004 and to a four-year third phase from January 2008. Funding totalling US\$10.4 million has been provided by Belgium.

The project is under way in five cities:

- 1 Kinshasa** (population: 8.7 million) Located on the south bank of the Congo River, Kinshasa is the capital city and the second largest city in sub-Saharan Africa
- 2 Lubumbashi** (population: 1.5 million) Lying at 1 200 m, Lubumbashi is the country's second largest city and capital of mineral-rich Katanga Province
- 3 Kisangani** (population: 810 000) Some 2 000 km from the mouth of the Congo River, Kisangani is the country's third largest city
- 4 Likasi** (population: 370 000) A mining centre on the Likasi River in Katanga Province, 140 km northwest of Lubumbashi
- 5 Mbanza-Ngungu** (population: 100 000) A hill town located some 120 km southwest of Kinshasa

THE COUNTRY

Democratic Republic of the Congo



Area:	2 344 860 sq km
Population:	67.8 million
Population growth rate:	2.6% a year
Urban population:	23.9 million (35.2%)
Urban population growth rate:	4.5% a year
GDP per capita per year:	US\$298
Life expectancy at birth:	47.6 years
Literacy rate:	67.2%
Number of undernourished:	51 million (76%)
Infant mortality rate:	205/1000 live births
Human Development Index country ranking:	176/182

Sources: FAO, UNDP, UN



An FAO project review mission visits a market garden in Lubumbashi, Democratic Republic of the Congo



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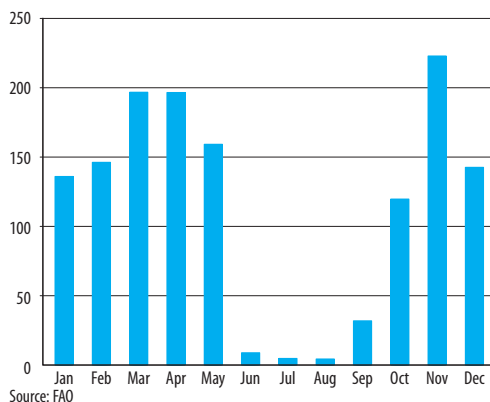


In 2000, market gardens in Kinshasa produced mainly traditional vegetables, such as amaranth

A sector in disarray. An earlier FAO baseline study of the country's urban and peri-urban horticulture sector had identified a number of constraints to its sustainable development:

- *Lack of clear government policies and strategies supporting the sector.* Urban and peri-urban horticulture was almost completely unregulated. Although the government had created a National Support Service for Urban and Peri-urban Horticulture (SENAHUP) in 1996, civil strife and unplanned urban growth had left the sector in disarray.
- *Lack of secure tenure over land used for vegetable production.* Most small growers were operating on vacant lots, without permits or land titles from municipal authorities. In Kinshasa, even growers' cooperatives had no legal title to the land they cultivated. Without secure tenure, growers' livelihoods were precarious and they had little incentive to invest in production.
- *Limited access to water, and inadequate irrigation and drainage.* Floods paralysed production at the height of the October-May rainy season, while the lack of irrigation reduced the cultivable area during the June-September dry season.

Average rainfall in Kinshasa (mm)



Women were fetching water in buckets from sources up to 500 m from their plots, and some growers used untreated wastewater.



AN INSTITUTIONAL STRUCTURE TO SUPPORT PROJECT ACTIVITIES

The Ministry of Rural Development's National Support Service for Urban and Peri-urban Horticulture (SENAHUP) provides overall guidance through a coordinator based in Kinshasa.

SENAHUP's municipal horticultural offices, staffed by a UPH adviser and specialists in agricultural economics, agricultural engineering and horticultural extension, manage project activities in each city.

Municipal consultation committees, chaired by city mayors, facilitate the integration of UPH into urban planning. They include senior municipal officers responsible for agriculture, urban development and land affairs, as well as representatives of growers' associations and NGOs.

The FAO country office in Kinshasa manages FAO's assistance through a chief technical adviser.

FAO headquarters in Rome provides technical support, reviews progress and draws on lessons learned in order to optimize policies, institutional frameworks and support services for UPH in other developing countries.



Mbanza-Ngungu. UPH adviser Bruno Kitiaka (at left) confers with members of the municipal consultation committee on growers' requests for leases to gardening areas

- *Low output and a limited number of species and varieties.* Production technologies were rudimentary and yields were low. Mineral fertilizer was generally unavailable, while improved seed was costly and its supply irregular. Average tomato yields were less than 8 tonnes in Lubumbashi, compared to a world average of around 30 tonnes.
- *Weak organizations of growers and lack of support services.* Growers' associations had little contact with extensionists. Even when inputs were available, the supply often failed to coincide with the production calendar. As bank loans were not available to small growers, the only alternative were high-interest loans from money-lenders. The lack of post-harvest and processing facilities forced growers to sell directly from their fields, creating market gluts that depressed prices.

To overcome those constraints, the project planned a series of interventions aimed at strengthening the sector's productive base in Kinshasa and Lubumbashi. It put in place an institutional structure to support those activities by linking all project stakeholders: FAO, the Ministry of Rural Development, municipal authorities, horticulture support services and vegetable growers.

Rights to land. Since most growers were operating without permits, the project helped create a municipal consultation committee in each city. The committees managed the process of surveying and demarcating existing market garden areas and obtaining permits for the growers or growers' groups that were using them.

Often, "regularization" began with the registration of informal groups of growers as associations. Once the land and its users had been identified,



Chives growing in Kimwenza valley, a 60 ha market gardening area on the southern outskirts of the capital

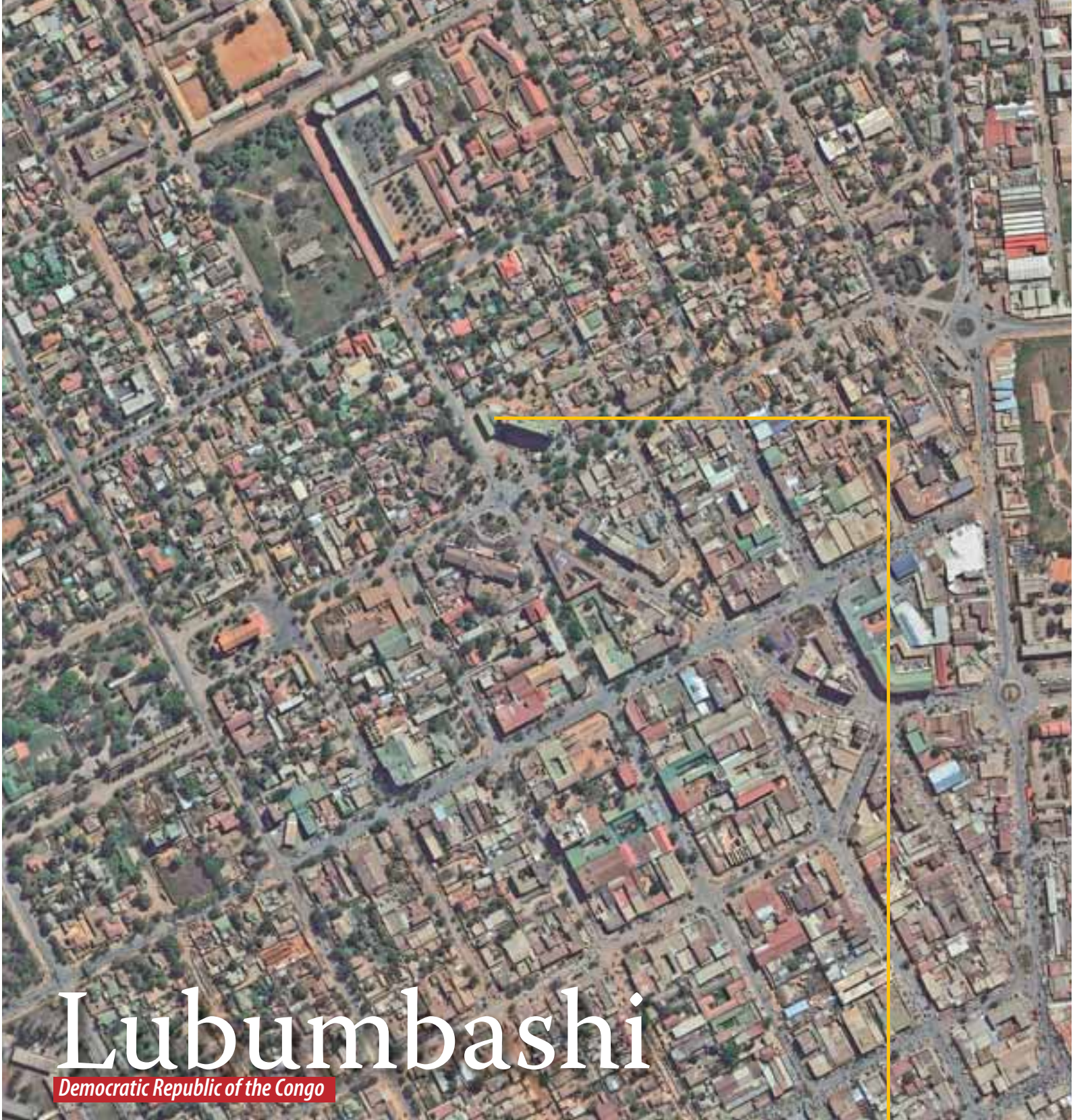
the committees processed the associations' requests for permits, usually from the municipal lands department. During Phase 1, the committees arranged leases for 600 ha of land in Kinshasa and 150 ha in Lubumbashi. In some cases, they facilitated agreements between the growers and private or customary land owners.

In all, some 3 500 growers in 43 market garden areas of Kinshasa and Lubumbashi were identified for



Greening Lubumbashi

The bustling city of Lubumbashi is a major commercial and industrial centre, and the hub for exports of copper and cobalt from Katanga Province. Since 2000, the population has expanded by more than 50 percent to a conservatively estimated 1.5 million inhabitants. Keeping pace with the city's growth, the project has created a flourishing urban and peri-urban horticulture sector. The area under commercial horticulture has grown from less than 100 ha to almost 725 ha.



Lubumbashi

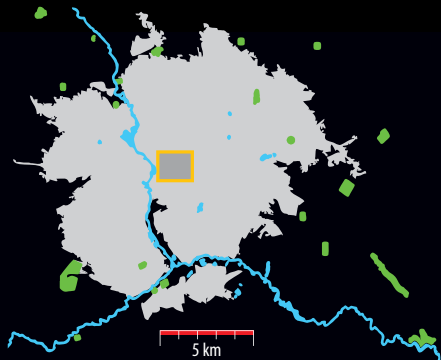
Democratic Republic of the Congo

Today, market gardens ringing the city – and, in some cases, just a few kilometres from the city centre – produce more than 60 000 tonnes of fresh vegetables a year. On pages throughout this publication, we take a closer look at Lubumbashi's UPH sector, and its 7 800 small-scale market gardeners.

 Market gardens

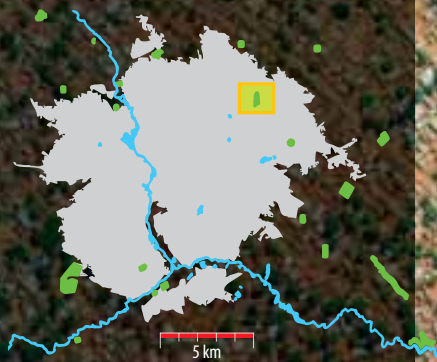


The city's mayor, Marie Grl goire Tambila Sambwe, says horticulture is a key part of her plans for a Fgreener LubumbashiH



"Historic" market garden resists urban sprawl

Naviundu is one of Lubumbashi's oldest market gardens. When the first growers began cultivating amaranth there in 1996, the area was sparsely inhabited. Today, its 8.5 ha of gardens are surrounded by new homes. But the growers' land rights are protected from urban sprawl by permits obtained through the municipal consultation committee. The Source Naviundu growers' association, which has 85 members, now cultivates amaranth, Chinese cabbage and okra, using improved practices introduced by the project. Annual vegetable production is estimated at almost 1 000 tonnes.



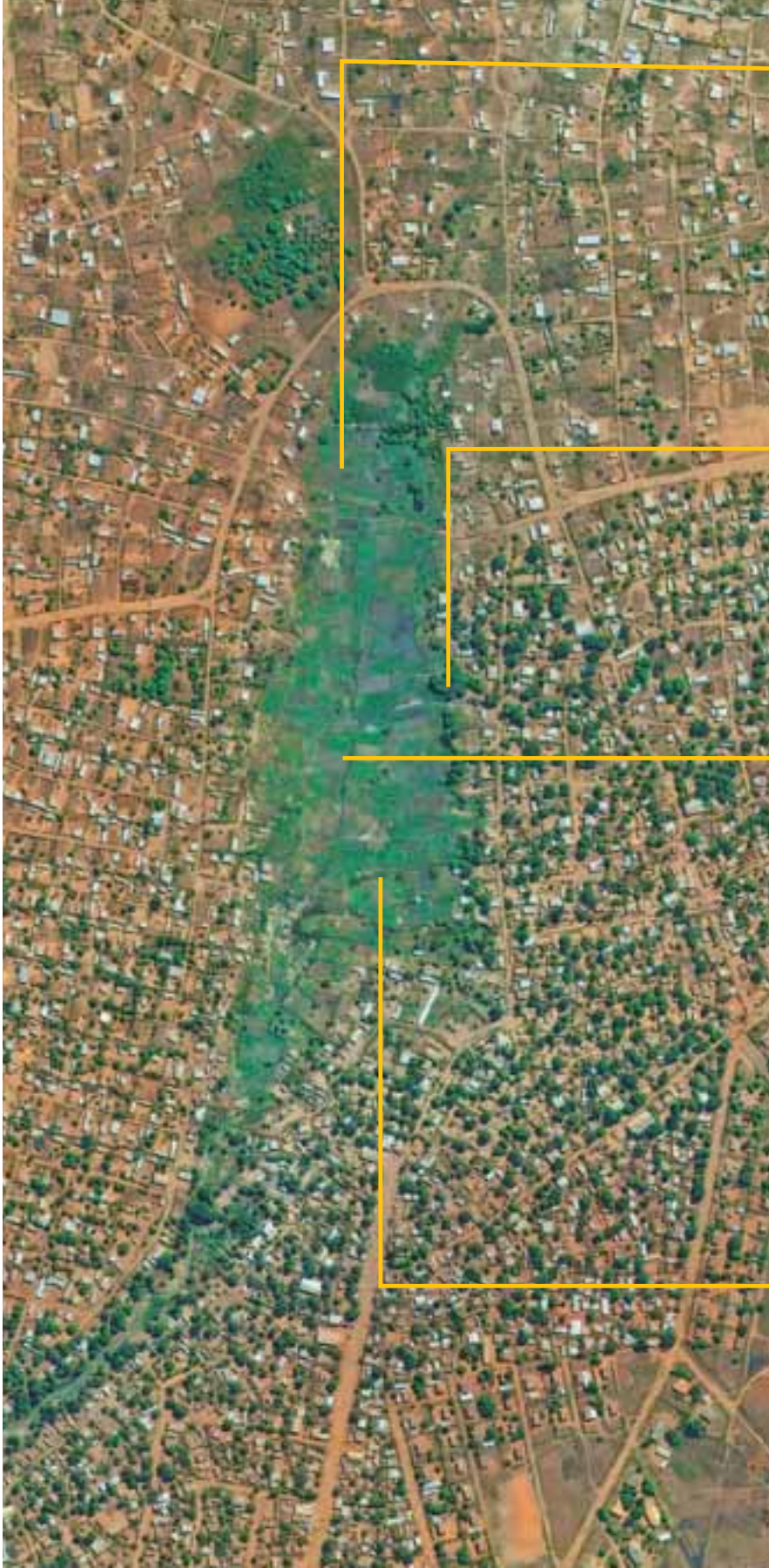
Naviundu

Lubumbashi





Freshly harvested Chinese cabbage. More than half of the growers at Naviundu are women



In 200-, the project built a small catchment to divert stream water to the market garden. A fountain supplies water for gardening as well as potable water for surrounding households



Cecile Nsoni cultivates an area of -00 sq m at Naviundu. Regular income from sales of fresh produce has allowed her to pay her child's school fees and Fbuild a brick house with a tin roofH



Growers at Naviundu employ more than -00 labourers during the main growing season from March to -uly. Average wages are around US-3 a day



Kinshasa. This canal helps irrigate 30 ha of land used by 1 250 growers in the Kimpoko gardening area

INTERVENTIONS FOCUSED ON IMPROVING WATER MANAGEMENT

The project has invested US\$1.03 million in building or upgrading irrigation infrastructure and flood control works in market garden areas of the five cities. Growers' associations provide labour and are trained to manage and maintain the structures once completed. By 2010, more than 50 water control works were in place, providing irrigation and drainage for 1 500 ha of market gardens. More effective water control has allowed growers to expand the cultivable area, and to extend the cropping period during the dry season. Side benefit: safe drinking water for neighbouring communities.



Kisangani. Local residents use water fountains as a source of water for household use



Lubumbashi. A catchment basin (top) at Kaluako, north of the city, provides irrigation water throughout the year. Above, a water control structure nears completion on a stream at Kilobelobe



project support. In those areas, the project launched a series of interventions focused on improving water management and promoting intensification of production and cultivation of a wider range of vegetable crops.

In Kinshasa, irrigation, drainage and flood control works helped growers to expand the cultivated area by an estimated 250 hectares. For example, the Kimbanseke market gardening area grew from 11 ha to almost 100 ha and the number of growers from 115 to 900. In both cities, irrigation works improved the quality of water used on crops, and made water available for longer periods during the year.

Meanwhile, the national UPH support service (SENAHUP), had opened offices in Lubumbashi and in 24 municipalities of Kinshasa, to provide technical support to the growers' associations. The project adopted FAO's Farmer Field School approach, a system of adult informal education organized around regular group meetings with extensionists. During Phase 1, SENAHUP organized 60 field schools, which trained around 720 growers in Kinshasa and 600 in Lubumbashi in improved cultivation practices and technologies.

The project also contracted recognized national and international development NGOs to channel micro-credit to growers' associations. The NGOs processed loan requests and trained growers in finance management. Credit enabled the associations to buy the inputs – mainly improved seed – they needed to expand production.

In addition to traditional leafy vegetables, such as amaranth, sweet potato, sorrel and spinach, growers began cultivating more profitable crops, such as spring onions, celery, eggplant, cabbage and tomato. A major innovation was the construction of covered nurseries that allowed for the production of seedlings during the rainy season and,

in Lubumbashi, protected them from the cold during the dry season.

Increased production, profits. An evaluation of the project in 2003 found that it had boosted horticultural production, employment and growers' incomes, thanks mainly to expansion of the irrigated area, intensification of production and diversification to more profitable vegetables. In both Kinshasa and Lubumbashi, the average annual income of market gardeners participating in the project had increased from around US\$160 a year to US\$600.

The evaluation found that city authorities had "engaged positively" with the project by delineating zones for horticulture and promoting dialogue between growers' associations and input and service providers through the municipal consultation committees. The project had also strengthened SENAHP, which was playing a greater role in planning and monitoring.

The evaluation recommended a second project phase in Kinshasa and Lubumbashi and expansion of activities to other cities. Continued support was endorsed at a meeting in Kinshasa of United Nations agencies, donors and international NGOs. A report on the country's food security situation said that while overall food production continued to decline, there had been some positive developments. "The most important," it said, "is the emergence of urban and peri-urban agriculture. The FAO-assisted horticultural project has had a great impact on those activities."

ADULT EDUCATION IN GROWERS' OWN FIELDS



Mbanza-Ngungu. A field school facilitator discusses the results of an agro-ecosystem analysis with members of the Aproman growers' association

Farmer field schools use growers' own plots as training and demonstration sites where they discuss problems and conduct trials of potentially useful technologies. Over the past 10 years, the project has organized 500 field schools for more than 9 000 growers on a wide range of topics – from preparation of beds and correct plant spacing to irrigation management and the use of organic fertilizer. Often, participants are "facilitators" – representatives of growers' associations, who are trained and later share their knowledge with fellow producers.



Lubumbashi. At a field school, growers use peat blocks to transplant tomato seedlings



Kinshasa. Growers learn the advantages of planting seeds in rows on narrower beds, at right

Progress in the heart of the city

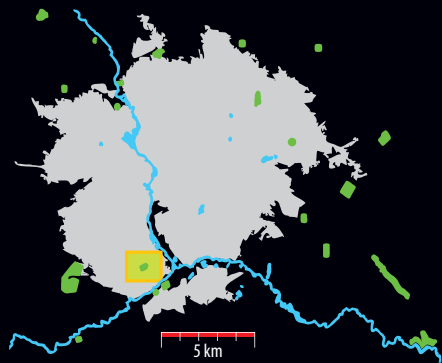
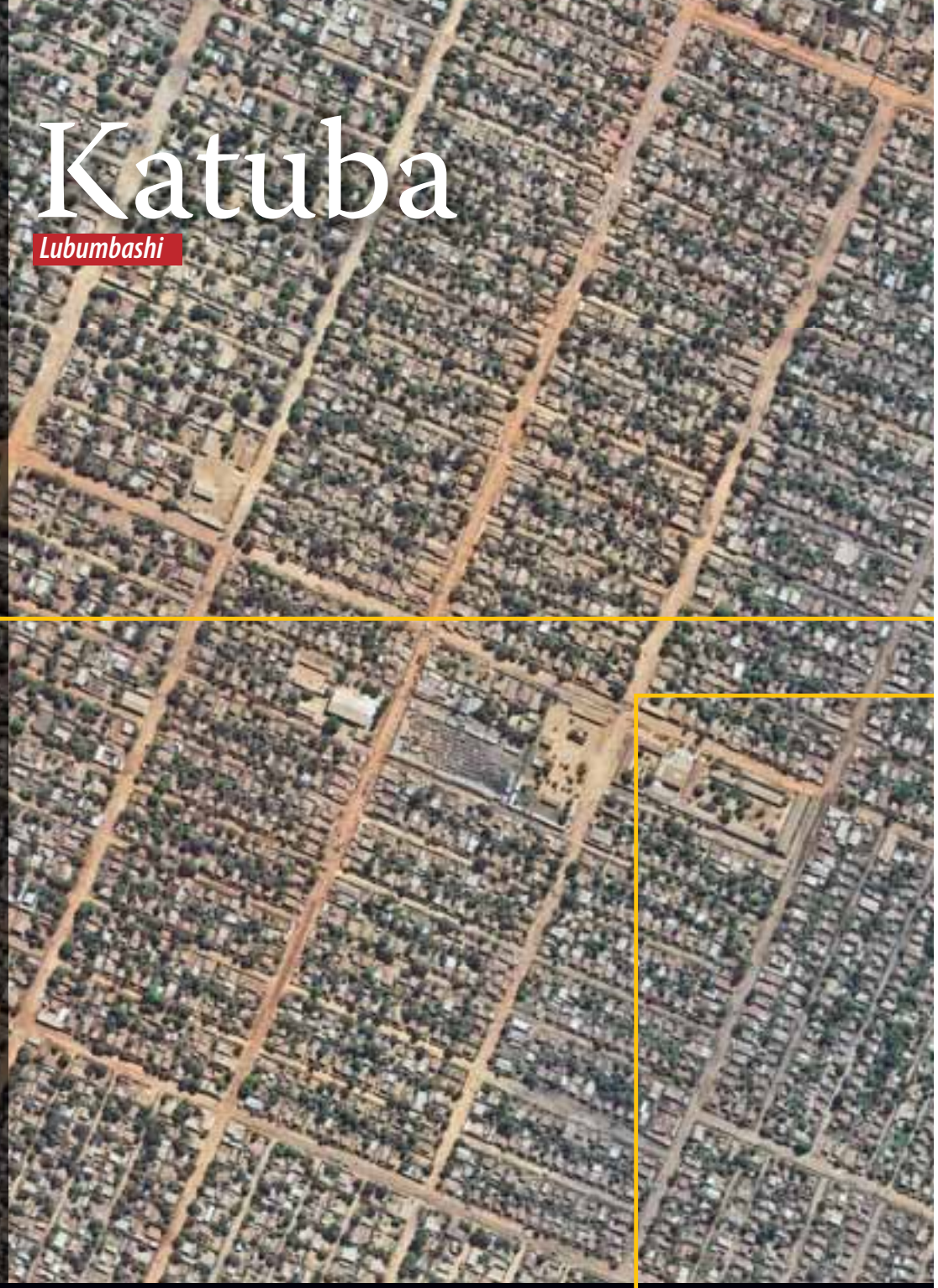
During a severe economic recession in the mid-1990s, women living in Lubumbashi's downtown neighbourhood of Katuba began growing vegetables for their families on a three-hectare field belonging to a local church. Later, they formed an association, Maendeleo (meaning "progress" in Swahili), which now has 250 members and produces an estimated 360 tonnes of vegetables a year, most of it for sale through local markets. Maendeleo is one of the city's most active associations – facilitators trained by the project conduct regular courses for fellow growers in bed preparation, composting and use of improved varieties.



Freshly harvested vegetables are bagged for transport to market

Katuba

Lubumbashi



Growing vegetables in Katuba is a community activity. In the peak growing season, hundreds of growers are working in their gardens



Growers at Katuba say income from horticulture has helped them improve their houses, pay for school fees and feed their families



AngJle Nsompso earns about US- 100 a month from the sale of vegetables



) atering plants on a Saturday afternoon