

Incorporating Urban Agriculture

A Case Study Of Glen Valley

In Gaborone City Planning

Today, the scale of urban and peri-urban agriculture (UPA) in Botswana's urban settlements is still very limited when compared to the intensive agricultural practices found in other southern African cities like Nairobi, Dar es Salaam, Lusaka, Harare or Johannesburg. However, in the capital of Gaborone, one of the fastest growing cities in Africa, several agricultural projects have started that are integrated into its urban development. The aim of this article is to provide more details on these new initiatives, using a case study of Glen Valley.

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Training of urban planners

The growth of Botswana's capital, Gaborone, has necessitated encroachment on surrounding farmlands (with land being converted into housing and industrial estates) and the sprawl that has been developing since independence (1966) has resulted in dispersed suburban growth and segregated areas for retail, residential and commercial/industrial activities. The city is still spreading out, but has now reached its limits in almost every direction. The recent Gaborone City Development Plan (1997) has gone so far as to suggest acquiring even more farmland south and north of the city to accom-

modate urban development (see the Figure). Of the total area of 19,096 ha of land within the city, agricultural and forested land occupied 2,468.12 ha in 1997, amounting to 17.09 % of the total landmass (DTRP/MLHE 1997: 90).

Gaborone, like many other towns in Botswana has always been reliant for most of its food (even perishable) supplies, on deliveries from outside the city boundaries (Mosha & Cavric 1999). Today, limited agricultural production is taking place within the city boundaries. Most urban commercial farmers are situated in Gaborone North and are either private venturers, or from academic or scientific institutions. Some restricted agricultural activities are going on within the city limits on freehold farms. However, planning authorities have consented to change the two major large-scale freehold farms in Gaborone North, from agricultural use to residen-

tial and other land uses (Dithebe 1998), which has caused some land speculation and disputes.

In the southern part of the city, there are a number of small-scale poultry farms. Sanitas plant nursery, also located in this area, is both a commercial nursery and a nucleus of a botanical garden exhibiting exotic plants. In addition, Gaborone City Parks and Gardens Service has a plant nursery in Gaborone West (Ibid 1997).

ENVIRONMENTAL CONSIDERATIONS

A major problem facing the development of urban agriculture is the availability of water as rainfall is erratic and unreliable. The need to make the City of Gaborone self-sufficient in horticultural products was recognised many years ago, but the lack of sufficient water has made this task very difficult.

In August 1997, a new sewage treatment plant was commissioned, with a design capacity of 40,000 cubic metres of effluent

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water per day (Gibb 1993). The proposal for effluent reuse as a source of water for irrigation came as no surprise. This potential water supply brought back the interest to develop small-scale market gardening in and around Gaborone.

Today, about 20,000 cubic metres of effluent is being generated by the City Sewage Works per day, which is at the moment still being discarded as sewage water. It is now under consideration to treat this water to the point that it could be re-utilised as a source for irrigation. Such huge volumes of water in Gaborone

The lack of a clearly defined policy is a limiting factor

with its unreliable water supply, stimulates the idea that Gaborone could become self-sufficient in horticultural production.

It was with this in mind that an irrigated agriculture project, using effluent water from the Gaborone Sewerage Treatment Plant in the Glen Valley Area, was planned.

INSTITUTIONAL AND POLICY CONSIDERATIONS

The lack of a clearly defined policy is another limiting factor in the development of agriculture in Gaborone City. There is currently no leading institution working on its integration into urban

planning. It has also been said that UA thrives where there is no real effective planning taking place. Indeed, urban planning and land-use controls are very tight, and this may be a further indication as to why UA is so limited (Byerley 1996, Rogerson 1994).

The participation of farmers is strictly up to the individual. Some neighbourhood committees, like in White City and Bontleng, have voiced their displeasure with the development of agriculture on open spaces, alleging that the growing of vegetables and other greens attracts snakes and mosquitoes, reduces playing areas for their children, and utilises pipe water at public stands. Their concerns have been made public in the Ward Development Committee meetings.

Gender is an important issue not only in Gaborone, but in the whole country. Food production is traditionally the responsibility of women, and logically so in female-headed households, which currently make up 36% of households in Gaborone city. Production decisions, providing labour, and financial control over inputs and outputs, are activities predominantly undertaken by women. However, the role women play is insufficiently recognised by society, resulting in the lack of any organised support for female-headed households.

There is no platform for the coordination of urban agriculture activities among Government institutions, who may take uncoordinated initiatives. For example, the Department of Town and Regional Planning (DTRP) of the Ministry of Lands, Housing and the Environment (MLHE) recently launched a campaign to protect agricultural and open spaces from the encroachment of residential developments. Consequently, proper zoning and preparation of physical plans have been very rare in current planning practice. The case study of the Glen Valley area is one of the first systematic and interdisciplinary attempts to integrate agriculture into the existing urban matrix. The 1998 plan tackles adequate

access and land-use zoning problems, by involving experts from various professional fields (agriculturists, engineers, planners, environmentalists) and by conducting detailed analyses of the economic components and conditions for attracting investors' attention.

A CASE STUDY OF GLEN VALLEY

Area

Glen Valley is a peri-urban area situated in north-eastern Gaborone. The surrounding areas are primarily residential, recreational or open space. The area is relatively flat and prone to flooding due to the proximity of river channels. Despite its location, which is relatively far from the city centre, the site, consisting of 234 hectares, had been viewed as ideal for agriculture. The soils are suitable and treated wastewater from the nearby treatment plant can be utilised.

Planning and environmental concerns

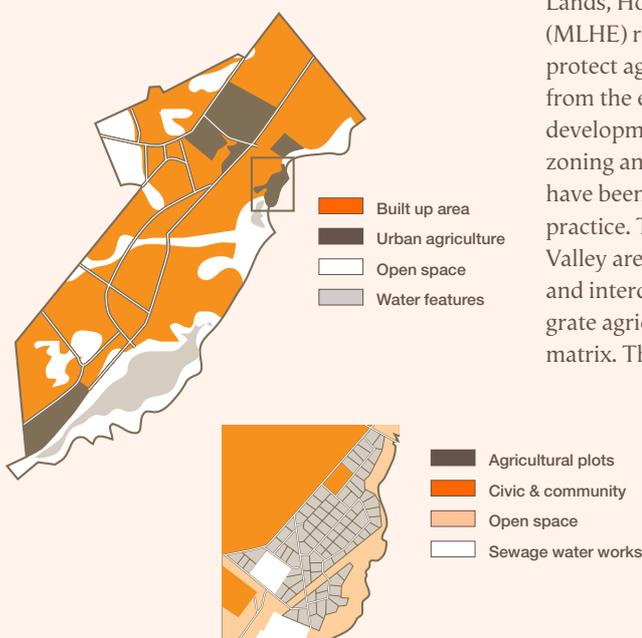
The intent of the Glen Valley Horticultural Plan was to create a well-designed irrigation project which would cater to small-scale commercial agricultural plots for horticultural purposes with some other activities like flower gardening and perhaps poultry and small stock breeding. The idea was to allocate portions of land to agricultural investors who were conversant with irrigation systems and who would utilise the land to its fullest potential, in order to produce and provide fresh agricultural products to the City of Gaborone and its surrounding areas. Unfortunately, this type of rather intensive production is aimed at those with the necessary resources, and, as seen in other cities like Harare (Mbiba 1995), the poor become excluded.

The plan was approved in September 1998 on condition that an environmental impact assessment be clearly stipulated in the lease contract. The use of the treated water was restricted to specific crops not used for human consumption, such as seedlings, grass, etc. The planning authority stated that close environmental monitoring of the project at the implementation stage was a prerequisite.

Design principles

The size of the Glen valley plots varies from 1.5 to 4 hectares. All plots are back-to-back, and so are easily serviced (see

Glen Valley Area



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Figure 1). The requirement from the Ministry of Agriculture is to reduce the buffer zone from the Notwane River and its tributaries, in order to utilise the most fertile soils along the riverbanks. As the site is a floodplain, the investors were warned of the dangers of possible loss of investments and properties. Those areas unsuitable for horticultural purposes (e.g. with soil types susceptible to salinisation) have been planned for other agricultural activities, such as the rearing of small stock, poultry, etc. As a result, 63 plots have been designed on good soil for horticultural purposes and 27 plots for other agricultural uses. No permanent residences are allowed in the project area apart from farm sheds and small quarters to house farm workers.

FUTURE OPPORTUNITIES

Opportunities for the future integration of agriculture into urban planning in Gaborone and the whole of Botswana are still under review. As this article has only scratched the surface of this subject, there are many more questions which need research before the municipal and

planning authorities, planning agencies and institutions can capture the full potential of this integration (Mosha & Cavric 1999, Mougeout 2000, Jarlöv 2000). The areas that need attention are listed in the box.

CONCLUSION

Unlike many countries in the subregion, the presence of UA in Gaborone and Botswana at large is still rather low and is not integrated into urban development planning. Due to the fact that more than 40 % of the city's residents live below the poverty line, UA is rather a spontaneous activity. As in other cities in Africa, as the economy gets worse, incomes are eroded and hence people look for alternative ways to supplement their income just to be able to survive (Mosha 1996, 1999). For quite a number of people, urban agriculture activities help to enhance food security and present an element of self-reliance (Hesselberg 1993, Pile 1999).

In the meantime, planning authorities and agencies are cautiously starting to open their doors and to accept this activity as part of the urban reality. The first steps are now being taken to formalise these activities through the preparation of physical plans. In the current Gaborone City Development Plan (1997), analyses of land-use patterns point out the general changes that can be expected in the next twenty years. Meanwhile, the detailed zoning of certain locations such as the Glen Valley Area indicate that UA can be controlled through proper planning.

A long period of adjustment of interests of various institutions and individuals still lies ahead. Unfortunately, some individuals have neither the time nor the means to wait for the formalising of physical and economic relations as their livelihood depends on the production of vegetables or minor stock breeding. As a result, planning regulations are contravened, particularly by people building all over their plots, in conflict with those who want to cultivate the available land. In view of this, the paper suggests that a minimum set of activities are essential for establishing a balance between the interests of the government, various NGOs and individuals within the framework of the existing urban planning machinery.

CHALLENGES AND PROSPECTS OF URBAN AND PERI-URBAN AGRICULTURE IN BOTSWANA

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Various stakeholders including central government, local government, parastatal organisations, NGOs, researchers and international organisations like FAO, attended the meeting organised under the RUIAF Programme by MDP and MOP. The workshop brought together key stakeholders, facilitated interaction among participants and provided impetus for future collaboration. It was a signal to all stakeholders that UPA is an important, relevant issue in Botswana and action needs to be taken. The government has pledged to come up with a policy on UPA and will strive to mainstream it in the next national plan due in 2003. Contact: MOSHAAC@mopipi.ub.bw

AREAS NEEDING MORE ATTENTION

- ❖ The laws and regulations relating to the planning and use of agricultural land in cities must be brought into concurrence (e.g. Town and Country Planning Act, State and Tribal Land Act, Land Control Act, Agriculture Resources Conservation Act).
- ❖ Government inter-departmental committees and agencies need to be established.
- ❖ Support needs to be provided to all NGOs, associations and individuals involved in UA.
- ❖ UA should be introduced as an aspect of the National Settlement Policy.
- ❖ UA needs to be included in the revised version of the Physical Planning Handbook and the New Physical Planning Manual and Agricultural Manual.
- ❖ A Land-Use and Land-Cover Classification system needs to be developed, and the existing planning DTRP Land Use Code in the section referring to agricultural zoning, improved.
- ❖ A Land-Use Information System to monitor the changes in the use of agricultural land in Botswana urban settlements must be developed.
- ❖ Regular soil-engineering and soil suitability mapping need to occur.
- ❖ Aspects of UA should be integrated into the Terms of References for the preparation of all future settlement development and master plans.
- ❖ An instrument of Agricultural Planning Permits must be introduced, bearing in mind the fragility of the environment in Botswana.
- ❖ UA and Planning should be introduced as a subject in the School of Planning at the University of Botswana, as well as opportunities for continued research in this field.
- ❖ Public information, participation and awareness must continue.