

Designing, Implementing and Measuring Sustainable Urban Development (DIMSUD)

Sustainable Urban Development in Gaborone, Botswana



**Branko Cavric / A.C. Mosha /
Marco Keiner / Diego Salmerón**

under the participation of

Christian Bühler

Philip Dijkstra

Michael Gravenkamp

Tobias Oberli

Balthasar Thalmann

**DRAFT FINAL
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Department of Architecture and Planning /
University of Botswana, Gaborone
Institute for Spatial and Landscape Planning /
Swiss Federal Institute of Technology, Zurich



DIMSUD Synthesis Report

**TOWARDS
SUSTAINABLE URBAN
DEVELOPMENT IN
GABORONE**

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We know that the following list of names cannot be complete. Also, the order does not indicate who contributed more. Each of the students, scientists and representatives from the national and local authorities from Gaborone was engaged.

This report is based on diploma / semestrial theses of the following students from ETH Zurich:

Christian Bühler
Philip Dijkstra
Michael Gravenkamp
Tobias Oberli
Balthasar Thalmann

They collaborated with students from the University of Botswana:

Norman Kelepang
Godfrey Radithoko
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SUMMARY

The project „Designing, Implementing and Measuring Sustainable Urban Development“ (DIMSUD) intends to contribute to new solutions for sustainable urban development through a collaborative, multi-disciplinary, and participatory approach combining research, urban design, and capacity building. The strategies developed will help improve the conditions in the three case study cities (Gaborone, Johannesburg and Santiago de Chile).

This report, based on student’s thesis and extensive field survey, comes in the form of synthesis for the case study of Gaborone. It follows a research framework worked out for all three case study cities, which will allow in a next step to compare the findings and to transfer knowledge between the partner universities and the planning authorities of the three cities.

The phenomenon of rapid urbanization that occurs in most of the developing countries is the starting point for this research. Rural-urban migration leads to severe social, economical and environmental challenges for future urban development. Gaborone is the fastest growing city of Africa. Although the capital of Botswana only counts for 186,007 inhabitants (CSO, 2001), it is a primate city that faces the same kind of problems than the so-called “mega-cities”.

A general overview of the national and local context introduces to the specific geographical, demographical, and socio-economical context of Gaborone. It also documents public finance and the system of economic planning, and reveals the deficiencies of the current development and physical planning systems in Botswana and Gaborone.

To cope with the challenges, goals and opportunities are then formulated. There are already planning approaches, instruments, mechanisms and tools in place, which are assessed and analyzed. Recommendations for their improvements and for new strategies and analytical tools are made. The most important aim of this report is an introduction of indicator’s based monitoring and controlling system for the preparation and implementation of development plans. The information produced during research also highlighted the need for the revision of the hierarchy of existing planning instruments, an improved collaboration between the national and local levels, and between Gaborone City and the surrounding peri-urban settlements mostly developed on tribal land.

Other appropriate measures are the use of GIS and scenario technique. Better public participation in the planning process is a must.

However, the recommended improvements have their limits. They do not automatically lead to sustainable urban development in Gaborone but are a necessary step in that direction. It will depend on the flexibility and on the will of Botswana and Gaborone’s political institutions, if the proposals in this report will be implemented.

ABBREVIATIONS

| | |
|--------|-------------------------------------------------------------------------------------------------------|
| AGS | Alliance for Global Sustainability; Collaboration of several Universities (MIT, ETH, Chalmers, Tokyo) |
| AIDS | Acquired Immune Deficiency Syndrome |
| ALSP | Accelerated Land Servicing Programme |
| BCA | Building Control Act |
| BHC | Botswana Housing Corporation |
| BoB | Bank of Botswana |
| BPC | Botswana Power Corporation |
| BTC | Botswana Telecommunications Corporation |
| CBD | Central Business District |
| COR | Certificate of Rights |
| CEDA | Citizen Entrepreneur Development Agency |
| CSO | Central Statistic Office |
| CTO | Central Transport Organisation |
| DA | District Administration |
| DC | District Commissioner |
| DCC | Development Control Code |
| DDP | District Development Plan |
| DIMSUD | AGS-Project: Designing, Implementing and Measuring Sustainable Urban Development |
| DTRP | Department of Town and Regional Planning |
| ETH | Swiss Federal Institute of Technology |
| FAP | Financial Assistance Policy |
| FPSG | Fixed Period State Grants |
| GCC | Gaborone City Council |
| GCLMP | Gaborone City Landscaping Master Plan |
| GCDP | Gaborone City Development Plan |
| GDP | Gross Domestic Product |
| GGSP | Greater Gaborone Structure Plan |
| HIV | Human Immunodeficiency Virus |
| KFPE | Swiss Commission for Research Partnerships with Developing Countries |
| MFDP | Ministry of Finance and Development Planning |
| MIT | Massachusetts Institute of Technology |
| MLHE | Ministry of Lands, Housing and Environment |
| MLG | Ministry of Local Government |
| MMRWA | Ministry of Minerals, Resources and Water Affairs |
| MoE | Ministry of Education |
| MoH | Ministry of Health |
| MONET | Project Monitoring of Sustainable Development |
| MoSP | Ministry of State President |
| MWTC | Ministry of Works, Transport and Communication |
| M&T | Mechanisms and Tools |

| | |
|--------|----------------------------------------------------|
| NCS | National Conservation Strategy |
| NCSA | National Conservation Strategy Coordination Agency |
| NDP | National Development Plan |
| NGO | Non-Governmental Organisation |
| NHP | National Housing Policy |
| NSP | National Settlement Policy |
| P | Pula |
| SACU | Southern African Customs Union |
| SDC | Swiss Agency for Development and Cooperation |
| SEDSS | South East District Settlement Strategy |
| SHHA | Self Help Housing Agency |
| SSKA | Sir Seretse Khama International Airport |
| TA | Tribal Administration |
| TCPA | Town and Country Planning Act |
| TCPB | Town and Country Planning Board |
| TPC | Town Planning Committee |
| UDC | Urban Development Committee |
| UDP | Urban Development Plan |
| UDS | Urban Development Standards |
| UNAIDS | Joint United Nations Programme on HIV/AIDS |
| UNFPA | United Nation Population Fund |
| VAT | Value Added Tax |
| WDC | Ward Development Committee |
| WUC | Water Utilities Corporation |

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1 INTRODUCTION

1.1 Background and scope of the DIMSUD project

1.1.1 Urbanization in Africa and Botswana

Today, the most significant factor underlying the potential for sustainable development is urbanization. Urbanization is dominated by three factors: population growth, rural-urban migration, and subsequent urban expansion. Whereas today, nearly half of the world's population is living in urban settlements, this ratio will increase to more than 70% by 2025. The number of so-called million cities and mega cities is growing unremittingly. By 2015, the number of cities with more than one million inhabitants is estimated at about 300 worldwide.

Thus, the global phenomenon of rapid urbanization is the main challenge to planning in the beginning of the 21st century. The convergence of economic growth, population dynamics and urban expansion offers both great challenges and great potential for achieving urban-metropolitan sustainability. Perhaps the challenge and potential of urbanization are nowhere more apparent than in the rapidly growing cities of the developing countries, most of all in Africa.

Currently, Africa is the continent with the lowest rate of urban population worldwide, but simultaneously, Africa is experiencing the fastest population growth rate and, especially, the fastest growth rate of urban population. For example by 2020, only sub-Saharan Africa's urban population will approach 440 million or 46 percent of its projected total of 952 million (Moor & Warah, 2001; 5). Thus, in 2025, more than 70% of the African population is expected to live in cities.

Today almost a half of Botswana's people live in urban areas (Table 1). Prognosis is that more than 50% of the country's population will have urban characteristics after year 2003. Botswana now has 2 cities (Gaborone and Francistown), 4 towns, 3 townships and 17 urban villages (agro-towns). Comparing with other parts of the world and Africa, it is almost evident that urban population growth will continue, and it is one of the most outstanding features of this country. Urbanisation in Botswana has resulted in Gaborone (in less than 50 years) becoming two times larger than the next largest town Francistown, which is larger than the other inter-immediate towns several times as well. In 1981, about half of the country's population lived within a radius of 200 km of Gaborone, and in 1991 the corresponding figure was 100 km, which shows increased concentration.

Gaborone, the capital of Botswana, is one of the fastest growing cities in sub-Saharan Africa, if not the fastest (Mosha, 1996). It is the nation's focal center, where an overwhelming part of both public and private investment is made. The population of Gaborone rose from 3600 inhabitants in

1966 (end of the British protectorate) to almost 200,000 inhabitants in 2001. Although Gaborone is at present far from being a million city, the official population projection of Botswana points out that the agglomeration of Gaborone will be a half-million city in 2021 (GoB, CSO 1997). Thus, today's population of Gaborone will double in about 20 years. Considering that the population of the 1966 newly founded capital of Botswana increased eighty-fold in only one and a half generations, the future urban problems can easily be imagined.

| | 1981 | | 1991 | | 2001 | |
|-------------------------|----------------|--------------|------------------|--------------|------------------|--------------|
| | Total | % | Total | % | Total | % |
| Botswana | 941 027 | 100.0 | 1 326 796 | 100.0 | 1 680 863 | 100.0 |
| Urban Population | 344 201 | 36.5 | 606 329 | 45.6 | 778 143 | 46.3 |
| Towns | 150 019 | 15.9 | 284 551 | 21.4 | 343 209 | 20.4 |
| Townships | 5 598 | 0.6 | 12 114 | 0.9 | 20 451 | 1.2 |
| Urban Villages | 188 584 | 20.0 | 309 664 | 23.3 | 414 483 | 24.7 |
| Rural Population | 596 826 | 63.5 | 720 467 | 54.4 | 902 720 | 53.7 |
| Villages | 596 826 | 63.5 | 720 467 | 54.4 | 902 720 | 53.7 |

Table 1: The structure of Urbanisation growth in Botswana (Source: CSO, NSP, 1981-2001)

The National Settlement Policy (1998) acknowledges and recognizes the need and the importance of urbanization in the country's economic and social development. The transition of rural settlements to urban villages and urban villages to towns is not without consequences, as large finance for higher standard housing, infrastructure, social services, their management and maintenance would be required than has hitherto been the case.

1.1.2 The DIMSUD project

In May 2002, the Alliance for Global Sustainability (AGS) sponsored the international, multi-disciplinary and cross-cultural project 'Designing, implementing and measuring sustainable urban development' (DIMSUD). DIMSUD (<http://sustainability.ethz.ch>) is carried out jointly by the Swiss Federal Institute of Technology (ETH), Massachusetts Institute of Technology (MIT), Chalmers University of Technology (Sweden), University of Botswana, University of the Witwatersrand (South Africa) and the Catholic University of Santiago de Chile. Another partner is the United Nations University (UNU) at Tokyo.

The project „Designing, Implementing and Measuring Sustainable Urban Development“ (DIMSUD) intends to contribute to new solutions for sustainable urban development through a collaborative, multi-disciplinary, and participatory approach combining research, urban design, and capacity building. The project expects to operationalize urban sustainability: to produce workable responses to the challenges to sustainable urban development. The project will enable a global overview of core problems, provide a synthesis of realizable strategies and offer both a scientific forum and an “urban field laboratory” for joint learning. The strategies developed will not only help improve the conditions in the case study cities (Gaborone, Johannesburg, Santiago de Chile), but will also provide working examples so that other cities can learn from and adapt and adopt appropriate “best practices”. As such, the project will offer practical lessons for other cities in the world on how to move towards sustainable urban development that promotes social

equity, preserves the environment, and ensures economic growth. The duration of the *DIMSUD* project is two years. Based on the successes of the findings, it may eventually be continued and expanded to apply its relevant lessons to cities in Asia and Pacific.

1.2 Assignment and tasks

Generally spoken, the project aims at elaborating practicable and feasible concepts, strategies and tools to further sustainable urban development in Gaborone. Therefore the research framework is structured around 4 common crosscutting themes in order to make the results comparable with the ones of the two other case study cities (Johannesburg, Santiago de Chile):

Indicators in sustainable and integrated planning

Although undeniable incomplete and controversial in attempting to simplify the complex concept of “sustainability”, indicators can provide a representation of the current state and thus offer a benchmark by which progress might be measured. The work is based on existing information, plus research and interviews with relevant officials and stakeholders of Gaborone. The indicators shall be used to monitor the efficiency and effectiveness of strategies, plans, policies and designs.

Challenges and opportunities of sustainable urban development

Based in part on the analysis leading to the development of indicators, research in this theme focuses on internal and external forces impacting on sustainability in Gaborone and looks at the challenges and opportunities along several lines:

- Economy
- Environmental attitudes and policies
- Demographics
- Finance and investment
- Municipal finance
- Technologies
- Institutional capacity, government structure, politics and legal framework

Sustainable strategies, tools and mechanisms for sustainable urban development

This component of the research aims at identifying and developing specific mechanisms and tools that can be employed to move urban development towards sustainability. Focus shall be given to existing public finance, planning and other instruments, which are presently used in Gaborone. Research in this field will work on refining these and other types of mechanisms and instruments that can be used for guiding sustainable urban development.

Analytical tools and models for sustainable urban development

This research theme works towards the development of models and other analytical tools suitable for measuring the impacts of the proposed designs and implementation mechanisms on the key sustainability indicators. It focuses mainly on land use and transportation modeling and includes:

- An assessment of capability in Gaborone – inventory of the tools used; transportation models, land use models, integrated models

- An assessment of the use in Gaborone – what are the tools actually used for? By whom? With what results?

Basing on this assessment, recommendations for improvements to the current modeling capabilities are made.

The system's framework of this report comprises three dimensions:

Spatial dimension

The study focuses mainly on the urban development of Gaborone, but since it is influenced by factors of which many have no direct linkage to the city, it is necessary to expand the spatial framework beyond the city boundary. It means that to understand and justify some of the proposals, facts and figures, which are not directly related to Gaborone are also taken into consideration. The concept of the general limitation of the system on the area within the city boundary, combined with the emphasis of relevant interactions with the surrounding area, results in clear and easily understandable proposals and arguments.

Thematic dimension

This study deals with all three basic pillars of sustainable development, notably economy, environment and society. Focus is given to spatial urban development and thus to physical and partly also to socio-economic planning which can be seen as mirror of all three pillars.

Temporal dimension

This dimension is strongly linked to the time horizon of physical and socio-economic planning, which normally consists of short, medium and long-term projections. The proposed results and conclusions refer to all three terms and thus cover a time span of 5 to 24 years in the case of different economic and physical development plans.

1.3 Methodology and approach

The research design aims to combine the four research themes into one single report, as well as to provide comparability of each research theme across different case cities (i.e. theme 2 Gaborone should be comparable with theme 2 in Santiago de Chile).

This synthesis report thus strongly bases on the four research themes studies, which were carried out by students from the Federal Institute of Technology in Zurich and in collaboration with students from the University of Botswana. They worked together during the joint fieldwork in Gaborone (July 9 to August 31, 2002) and later went on to draft their individual reports.

The structure of the report follows the Systems Engineering approach in physical planning (Schmid, 1996) and comprises the following elementary steps, which have to be seen within an iterative process circle:

- Scope
- Analysis of the present state
- Goals and objectives
- Possible measures
- Assessment and evaluation of measures
- Selection of measures
- Formulation of strategies and concepts

This approach shall help to perceive and structure the wide range of content, sustainable urban development comprises.

The different methods and approaches used in the four research themes to elaborate the appropriate results will be explained in the corresponding chapters.

2 GENERAL OVERVIEW: THE NATIONAL AND LOCAL CONTEXT

2.1 Environmental and socio-economic context

2.1.1 Territory

Botswana is especially notable for the fact that about three-quarters of its territory lies in the Kalahari desert which is not suitable for human habitation. The country is land-locked in the middle of the southern African sub-continental plateau straddling the Tropic of Capricorn and surrounded by South Africa, Namibia, Angola, Zambia and Zimbabwe. The country's total land mass is 582,000 km², which is about the size of France or Kenya. Its territory is divided into three distinctive ecological and development zones of Hard Veld, Sand Veld and the Dry Sand Veld (Table 2). Virtually all major urban settlements, especially towns are situated in the south-eastern part of the country in the Hard-Veld zone, near areas with the highest concentration of favorable natural resources and in the vicinity of major railway and road corridors.

The main part of the country is dominantly flat terrain covered with thick sand layers of the Kalahari Desert. One of the most famous and wonderful nature area on the African continent is the Okavango Delta which is a 15,000 km² wetland area in the North-West of the country. The climate is semi-arid and the rainfall ranges from 650mm per year in the north-east to 250 mm in the south-west. The capital Gaborone lies in the eastern part of the country, close to the South-African border. Gaborone is the country's largest administrative and economic centre.



Figure 1: The location of Botswana



Figure 2: Map of Botswana

These settlements include Gaborone, Francistown and Lobatse (the home of the Botswana Meat Commission) and other major urban centres which are the homes of mining activities, for example, Selebi-Phikwe for copper, Sowa for soda ash, and Jwaneng and Orapa, the centres of diamond mining (Mosha, 1998). There are numerous reasons for such intensive development and proliferation of these settlements. In the first place the discovery and beginning of the exploitation of diamonds has provoked a real economic revolution. Radical changes in the structure of activities took place in the country that was ever since typical rural one and described as one of the poorest countries in the world. A part of the gross national product (GNP) gained through the distribution of the diamonds on the world market started to trickle and influence the development of the other sectors of the economy.

| Zone | Status | Settlement | Population Size | | |
|-------------------------|----------|-------------|----------------------------|----------------------------|----------------------------|
| | | | 1981 | 1991 | 2001 |
| Hard Veld Zone | City | Gaborone | 59 657 | 133 468 | 186 007 |
| | Town | Francistown | 31 065 | 65 244 | 83 023 |
| | Town | Lobatse | 19 033 | 26 052 | 29 689 |
| | Town | Selebi | 29 467 | 39 772 | 49 849 |
| | Township | Phikwe | 3 281 | 5 552 | 9 934 |
| | | | Ghanzi | | |
| | | | 142 503 91.6% | 270 088 91.0% | 358 502 91.1% |
| Wet Sand Veld | Town | Orapa | 5 229 | 8 827 | 9 151 |
| | Township | Kasane | 2 317 | 4 336 | 7 638 |
| | Township | Sowa | - | 2 228 | 2 879 |
| | | | | 7 546 4.8% | 15 391 5.2% |
| Dry Sand Veld | Town | Jwaneng | 5 567 | 11 188 | 15 179 |
| | | | | 5 567 3.6% | 11 188 3.8% |
| <i>Source: CSO, NSP</i> | | | 155 616 (100.0%) | 296 667 (100.0%) | 393 349 (100.0%) |

Table 2: Geographical distribution, population size and growth of major towns in Botswana

2.1.2 Population

The most significant trend over the past 30 years has been the tendency for the people to be concentrated in larger urban settlements. Distribution and growth of the major town's population shows a distinctive picture where the majority (90%) of people living in the hard veld in the largest towns such as Gaborone, Francistown Lobatse and Selebi Phikwe. It is evident that environmental conditions in these settlements combined with natural demographic characteristics, socio-economic and migration patterns have had a considerable effect on their expansive nature.

In year 2001, Botswana's population accounted for about 1.7 million. The average population growth between 1991 and 2001 was 2.4%. The future population size will strongly depend to large extent on the AIDS/HIV prevalence and its consequences. In 2002, the UNAIDS figures show prevalence rates of 35%. According to UNFPA the life expectancy dropped from 65.3 years in 1991 to 55.7 years in 2001 (MIS 2000).

In 1963, Gaborone had 3'600 inhabitants and was the administrative center for Gaborone District. Since independence in 1966, Gaborone is the capital of Botswana. Gaborone has been growing rapidly over the last decades; in 1971 it had 17,718 inhabitants, in 1981 some 59'657, in 1991 133'468 and in 2001 186'007. The average annual growth of Gaborone between 1971 and 2001 was 8.1% and between 1971 and 1991 it rose to 10.6% (Statistical Bulletin 2002). Gaborone therefore has been one of the fastest growing cities on the African continent.

Francistown and Selebi Phikwe are the second and third largest towns with 84'000 and 49'849 inhabitants, respectively. The average population density of the country is 3 persons per square kilometer. However, the population is concentrated in the eastern part of the country. In 1991, 45.7% percent of the population lived in urban areas. It is expected that this figure will steadily increase to 60% in 2021 (Population Projections 1997).

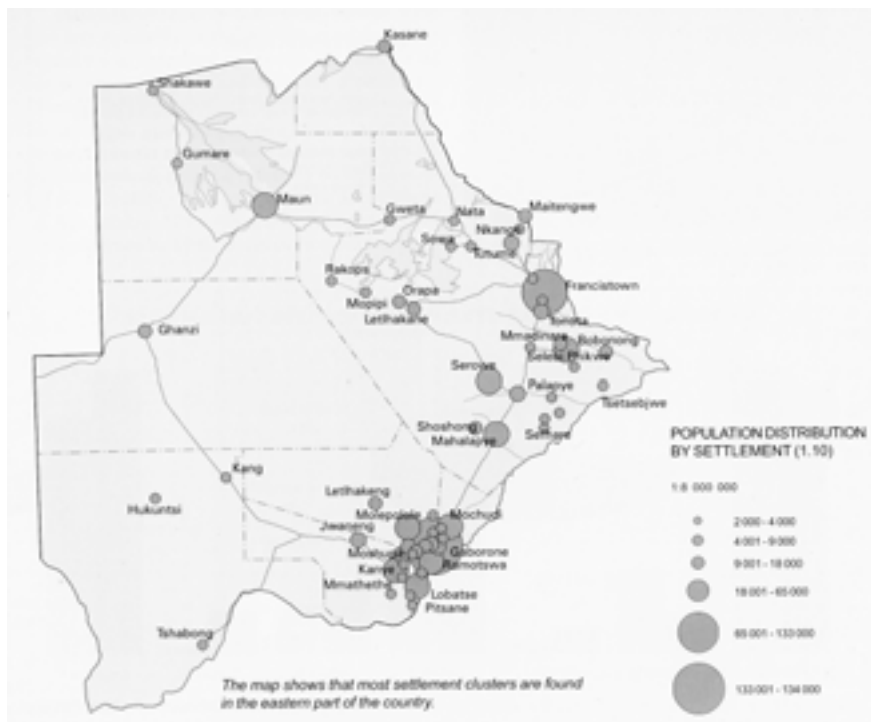


Figure 3: Population distribution by settlement

The main reason for the high urbanization rate in Botswana is the emigration flux from rural areas to urban settlements and the recategorization of villages into urban settlements. The percentage of people living in urban areas of Botswana rose from 9.6 % in 1971 to 18.3 % in 1981 and 45.7 % in 1991. For the 2001 public census, an urbanization rate of 52.9 % is

estimated. Further projections suppose that in 2021 the urbanization rate in Botswana will be that of 61.2 % (GoB, CSO 1997).

Most of Botswana's citizens are members of Setswana-speaking ethnic groups. The official languages are Setswana and English. There are many other groups (list some of them) in the country, some of which are semi-nomadic.

2.1.3 Land tenure

Land tenure defines the methods by which individuals or groups acquire, hold, and transfer property rights. These property rights can be split into the right to use, to encumber, to mortgage, to partition etc. They may be given at the discretion of the right holder. These are nevertheless subject to the national economic and development policies. Government thus issues directives to administrative bodies such as the Town and Country Planning Board, the Land Board, the District Councils and the Village Development Committees for the execution of government policy. It further provides for the establishment of administrative institutions, the laying down of norms for administrative action, and the allocation of funds and other resources. Public land tenure after all accounts for state land, forest reserves, national parks, townships, cities, open water bodies etc.

There are three main types of land tenure in Botswana. These are all regulated or administered by administrative bodies created by specific Acts. The primary ones are the Town and Country Planning Board, the Land Boards and the District Councils. Land tenure impacts directly on the nature of use and so its importance. Land tenure in Botswana takes the following forms.

- State Land
- Tribal Land
- Freehold land

The stateland occupies about 23%, communal land 71%, and freehold 6% of the country's total land area.

State Land

This is public land tenure, which is vested by the Constitution in the government to manage in the public interest as a private landowner. It is regulated under the State Land Act, the Deeds Registry Act, the Town and Country Planning Act, the Public Health Act and all other laws that affect its use and enjoyment. It is land in the possession of the State or held by private individuals under leasehold, fixed period state grant or certificate of rights. It is primarily urban land, which is held under residential, industrial and commercial uses.

Tribal Land

Tribal land is administered under the Tribal Land Act by a land board constituted in terms of the Act. The Act vests authority in the Land Board in trust and for the benefit and advantage of citizens for the purpose of promoting the economic and social development of all the peoples of Botswana. The Land Board administers both customary grant rights in land as well as common law grants. The latter has enabled it to make available common law tenure for residential, civic,

community, recreation, commercial and industrial leases. Again this land is subject to other pieces of legislation such as the Deeds Registry Act, the Water Act etc.

Freehold Land

Unlike the above-mentioned this is land held outside the above tenure systems. It is owned by private individuals or corporate entities exclusively. It is not administered under any particular piece of legislation but its owners are subject to all the laws of Botswana governing land use and planning. It is this land that impacts on development in a very real way because its use is not controlled by any authority. The owners have got legal protection in the property clause of the Constitution which guarantees their rights as private owners. This is subject to the Acquisition of Property Act, which allows in the public interest the acquisition of such land upon compensation land for development and planning purposes. Most of this land is held as freehold farms.

The Land Tenure Policy of 1985 allows for careful and moderate changes in response to particular needs with specific tenure innovations. In townships, e.g. Gaborone, Government has created Fixed Period State Grants (FPSG) and Certificates of Rights (COR). FPSG is a capitalized lease, readily hypothecated and transferable. The COR provides secure tenure for low-income urban residential plot holders. Under the COR the plot holder has the right to build a house on the plot while the state remains the owner of the land. In rural areas, tenure forms, which were created under the general tribal land tenure system, are still in effect, such as customary land rights, the common law lease for commercial plots and tribal grazing land for commercial farmers.

2.1.4. Settlement pattern and land use

Botswana

Since the establishment of modern planning services in Botswana there has always been a particular desire to introduce a settlement hierarchy which helps to recognise and articulate the differences among settlements in order to support their planning, development and management. The first outcome in treating contemporary Botswana settlement network in a systematic manner was developed by Silitshena in 1982. He introduced five distinctive settlement categories based on their functional specialisation and diversification, as well as physical morphology. His classification systems is still in use today thus influencing most of the Botswana's physical and development planning documents (National Settlement Policy - NSP, District Settlement Strategies - DSS, National Development - NDP and District Development Plans –DDP).

Seasonally changing settlements – These are temporary settlements occupied by people during ploughing and cattle rearing seasons. The provision of water in the form of boreholes, primarily for watering stock, has been a major factor for the longer occupation of these settlement sites. As a result of borehole technology, pastoralists have relatively recently encroached into territory previously used communally under an existing social system. Based on naturally occurring products which are hunted or gathered, this form of land use is of low intensity and extensive in character, and has been gradually dominated by the later incursion.

The *dispersed homestead settlement* presents the pattern in which the land is occupied permanently for residential, pastoral and arable purposes and it is usually established on tribal/communal land. This type of village basically forms an arc around a pan, associated with a source of water, and is extremely spread out. Groups of compounds are widely separated and it is often not possible to see one group from another. Cattleposts and lands are normally not far from the village and because of this proximity there is a frequent interaction between them. In contrast with urban villages and small town settlements small stock are often kept in these settlements. Due to the low population densities and their sprawling physical configuration the provision of social services in these small and dispersed settlements is still uneconomic.

The Farmstead settlement is the least documented of the settlement types, perhaps because of the smallness of their population and the fact that, being freehold, these areas are of limited concern to the planners. The farmsteads are essentially commercial ranches specialised in beef and sometimes crop production. They are large, and for example in Ghanzi District they have an average size of 12,500 hectares. This has implication for the spacing of houses, which are at least twelve kilometres apart, although two or three may cluster on a pan (Russell, 1979).

Urban Villages (formerly small agro-towns) are also characteristics of the country. They were established on tribal territories, always playing an important role of administrative, commercial and social centres, today's district/sub-district headquarters. They have been developing unplanned for a long time, and problems have arisen as a result of the concentrated population size and density, without adequate physical and social infrastructure provision. In the last 10 years a special intention has been given to these settlements in the form of physical and development planning, and implementation of numerous building and construction projects. Their role to be focal points for the development of their rural hinterlands, and as primary targets for the provision of services and income generating opportunities, has been strongly specified through government programmes and initiatives.

Towns/Townships are urban settlements of different population and physical sizes established on state or freehold land under the auspices of the Townships Act. Compared to previously described settlements types they are distinctive in economic activity and physical layouts which are in the most of cases applying land use and income group segregation. There are six modern towns namely: Gaborone, Francistown, Lobatse, Selebi-Phikwe, Jwaneng and Orapa. Except Francistown and Lobatse all other urban settlements are new towns established after 1966. Towns have a higher development level than townships, and they are fully fledged administrative, commercial and industrial centres. Townships usually do not have their own Councils and they are administered by a neighbouring rural districts council or by a Township Authority composed of appointed members.

Gaborone

The population and economic growth have had a direct impact on the spatial development of the city. In 1963 a Gaborone Master Plan was prepared which intended to develop Gaborone into a garden city. Subsequently, the city has been growing with a low density. One-storey buildings and large plots still characterize the cityscape. The lack of densification led to an 'urban sprawl'. The underestimation of population growth brought with it a great deal of consequences, like shortages in serviced land for housing, as well as stress on the existing infrastructure and other

facilities. The aerial photos of 1966 and 1998 (APPENDIX C) show the rapid change in land use in the center of Gaborone. Gaborone is now a city spreading over a huge area. The enormous land consumption has various adverse effects. Travelling distances between the places of living and the shopping centers and workplaces are long, resulting in big traffic volumes; residential and commercial areas are built on fertile land and the developing costs for infrastructure are high. The photo below is a view from Kgale Hill south-west of the city looking to the north. In the center it shows the industrial and commercial areas that are surrounded by sprawling residential areas. On the right is part of the lowest income residential area, Old Naledi where some 40'000 people are living.

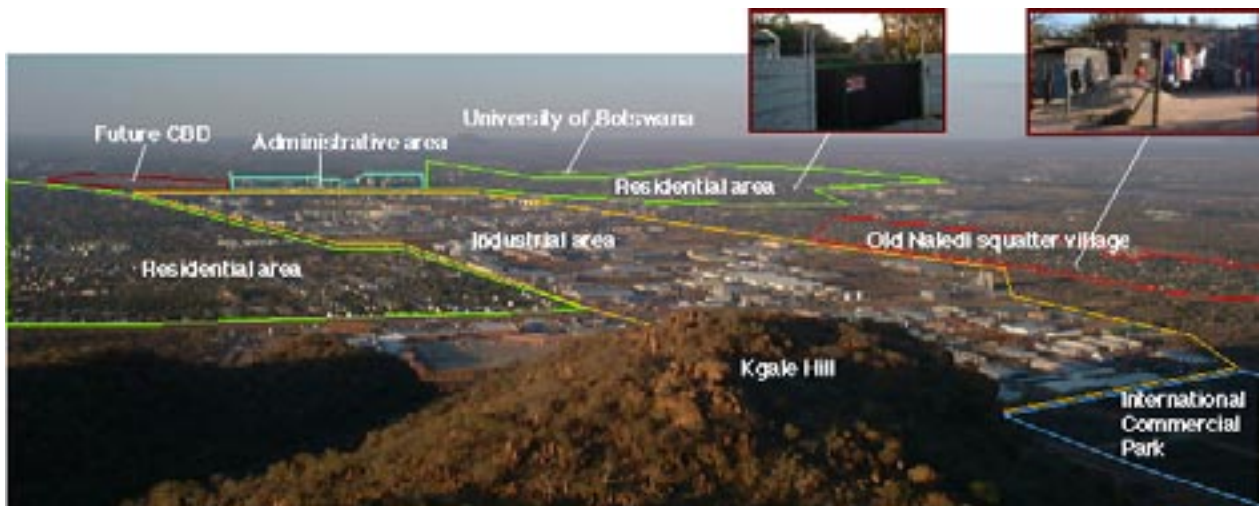


Figure 4: View of Gaborone from Kgale Hill

The ongoing uncontrolled leap-frog expansion led to an overspill of Gaborone to the peri-urban areas. A first remedy to the mushrooming of Gaborone was during the 1970s when the first acquisition of surrounding private freehold farms in the North (e.g. Broadhurst farm) took place, and in the West of the railway line in order to allow further expansion of the capital.

Also the neighboring tribal areas were and are still affected, as the satellite settlements around Gaborone have been growing at annual rates of 16% and more (Molebatsi 1996). One important result of the urban sprawl was a loss of arable land that seriously engulfed the urban fringe villages of Tlokweng, Mogoditsane, Mmopane, Gabane and Metsemothlabe. In 1981, more than 80% of the population of the Gaborone Area lived in the city. The surrounding villages were small and had only a modest growth. Twenty years later the percentage of the inhabitants of the Gaborone Area who live in the city has dropped to less than 70%. In the two largest surrounding villages Tlokweng and Mogoditshane the number of residents almost doubled between 1991 and 2001. The growth rate of Gaborone City is now much lower than that of the surrounding area. Hence, the Gaborone Area is developing towards an agglomeration where people mainly live in the suburbs and work in the central city.

The existing transportation system (public or private transport) allows people to live in the surrounding rural areas and to work in the central city. The commuter traffic, the concentration of the economy and cultural activities on the central city together with related phenomena, are the challenges these areas are confronted with.

2.1.5 Health, Education and Employment

Health/healthcare

In recent decades, Botswana has made significant progress in healthcare provision (both prevention and treatment) and increasingly geared investment to rural areas. By 1995, 88 per cent of the population lived within 15 km radius of a health facility. The mortality rate for children under five fell from 151 to 63 per 1,000 live births between 1971 and 1993. Life expectancy at birth increased from < 50 in the late 1960s to 65 in 1993, then dropped to an estimated 46% in 2000 due to the HIV pandemic according to UNDP figures. Malnutrition among children under five declined from 25% in 1978 to 13% in 2000. The disability rate of the total population was 2,2% in 1991. Care and rehabilitation for the disabled is provided mainly by the Council in collaboration with NGOs and community based organizations (CBOs).

Primary health care and first-level hospital treatment is provided for free to children, pregnant women, and the disabled and for poor people with major public health diseases. Other patients pay a low nominal consultation fee (CCA 2001, p.xi ff, 17, National Atlas 2000, p.250).

Education

Education is seen as a top priority for the national government, that's why investments sharply rose from 8 million Pula in 1997 to 40 million Pula in 2001/2002.

The government finances primary and secondary education. Since 1995, a grant/loan scheme is in place; conditions depend on the field of study. It has been classified into five categories, taking into account job market demand for graduates among other study-related factors (CCA 2001, p.4, National Atlas 2000). Urban areas have the best educational facilities, including the University of Botswana in Gaborone, tertiary and private schools as well as commercial schools (Mosha 1998, p.284).

The revised National Policy on Education (RNPE) aims to gear the school curriculum to prepare students for the world of work, particularly science and technology (CCA 2001, p.39).

The Institute of Health Sciences (HIS) is located in Gaborone and affiliated with the UB. It provides healthcare education mainly for nurses and midwives.

The Botswana Training Authority is charged with skill development training in partnership with industry. And the Department of Vocational Education and Training (CCA 2001, p.16) has developed a new technical and vocational education and training program.

Employment

Although classified as a middle income country, Botswana today has a high proportion of income poor people. Income disparities are high with a Gini coefficient of 0.537, one of the highest worldwide. The richest 20%, middle 40% and poorest 40% of households account for 60%, 30% and 10% of income (National Atlas 2000, p.11 ff).

Unemployment was relatively high at 15.8% in 1999/2000 and mostly affects young people.

Government is the main formal employer, accounting for 47% of jobs including parastatals. It is encouraging informal employment, which is a considerable share of total employment with an estimated 35% (CCA 2001, p.6, Mosha 1998, p.291).

2.1.6 Economy, public finance and economic planning

Economy

At the time of political independence in 1966, Botswana was one of the poorest countries in the world, with a per capita income of 60 Pula (equivalent then to about US \$ 80). By then, the Gross Domestic Product (GDP) was estimated at P 36.9 million, and the government budget (both recurrent and development) amounted to P 17.9 million. The budget was mainly financed by grants from abroad, particularly from Britain. By then, the major contributor to the total GDP was the agricultural sector, which accounted for over 50% of the total GDP. Beef was the leading foreign exchange earner.

Immediately after independence a number of minerals were discovered, including diamonds in 1967, copper nickel in 1970 and later coal. Mining activities started in the 1970's. The commissioning of the mines catapulted the economy into the fastest growing economy in the whole continent. The advent of the mining industry completely changed the whole structure of the economy in both GDP and foreign exchange earnings. By the beginning of the 1980's, diamonds had well overtaken beef as the country's leading foreign exchange earner. Mining stands for a share of the GDP of about 35% (Statistical Bulletin 2002).

Even though services and the construction sectors are the fastest growing sectors in Botswana, overall, diamond mining is still predominant and continues to drive the economy. The mining sector in Botswana accounts for over 33% of the GDP, making it the predominant form of economic activity. Rapid industrialization has led agriculture to play a less significant role in the economy than in the past. In 1998-99, growth in the agricultural sector only stood at 1.4 % compared with 5.4 % in 1997-98. This change is mainly attributed to the following sectors which recorded the highest nominal growth rates: general government, 28%; water and electricity, 20.3%; construction, 19.9%; banks, insurance and business services, 19.4%; and trade, hotels and restaurants, 18.9%.

Since mining isn't a long-term revenue, government is concerned about the sustainability of its economy. Therefore it uses measures to see the dependence on mineral revenues - the budget

sustainability ratio. The critical value of this ratio is one (unity). A value of the ratio greater than one signifies that Government is using part of its earnings from minerals, a non-replenishing resource, to finance expenditure which is not related to investment and therefore is not creating any asset for Government or society. Figure 5 shows the development of the sustainability ratio in the last years.

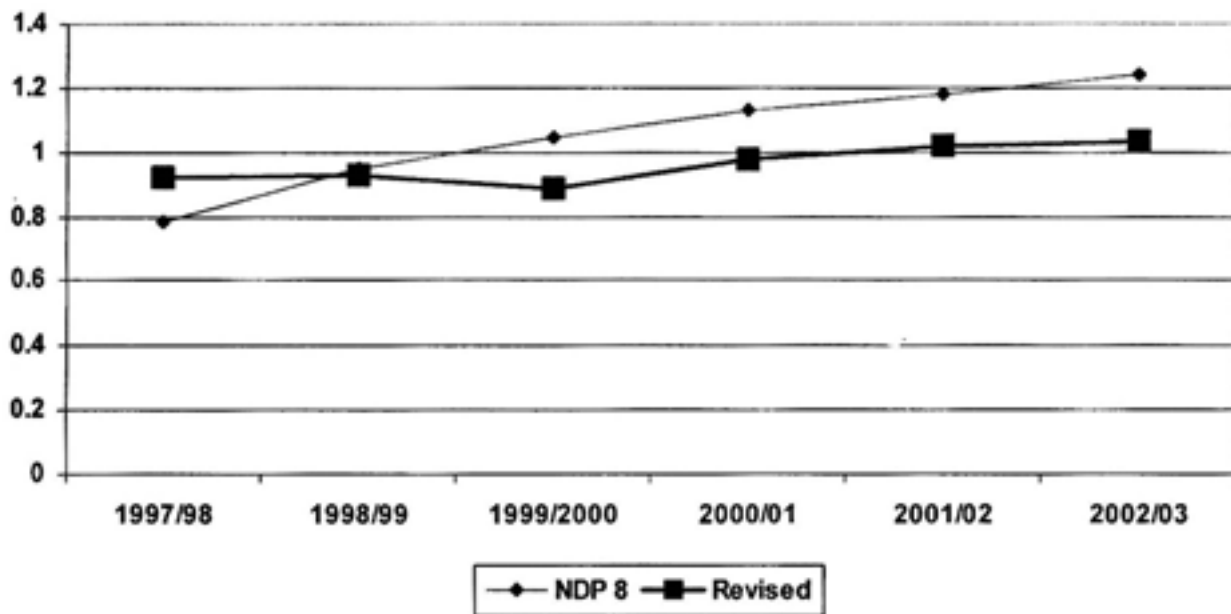


Figure 5: Budget Sustainability Ratio (Source: NDP8, Financial Statements and Revised MFDP Projections)

Following an 8.1% growth in real GDP during the year 1999/2000, economic growth was 9.1% in 2000/2001. Botswana therefore is on a steady move towards a middle income country worldwide with reasonable „per capita GDP” - P17'396 (US\$ 2753) in 2001.

Depending to a high degree on diamonds, the goals of the previous, the present and the next National Development Plan (NDP7, NDP8 and NDP9) are trying to achieve a diversified economy - a non-mining economy. Therefore, Botswana’s parliament has approved several policies in the past: Industrial Development Policy, Privatization Policy, Financial Assistance Policy (FAP), and Citizen Entrepreneur Development Agency (CEDA). Thus, the share of mining in total GDP in constant prices fell from 50.7% in 1983/84 to 30.8% in 1998/99. (GoB-Midterm Review NDP8 2000). The continuing concern of Government policy for diversification underlines the fact, that, given the low base of economic sectors other than mining and Government, the extent of diversification that has occurred already, though significant, is nowhere near adequate to ensure sustained long run growth and vibrancy of the Botswana economy and thus prosperity for Batswanas.

In spite of the glowing figures Botswana’s economy is facing some challenges. Inflation slowed down to an average of 6.6% in 2001, which is a considerable improvement on the 8.5% average in 2000. Unemployment is another problem burdening the economy. The continuing slowing down of the non-mining GDP in 2000/2001 resulted in a further increase of the unemployment

rate, which is between 37% and 49% of the population. Poverty as the third challenge of Botswana's economy is currently approximately 47%. [UN 2001] This means that 47% of the national population is poor or very poor.

UNAIDS estimates indicate that by the end of 1999, at least one in four adults in Botswana was living with HIV/AIDS (GoB, CSO 2002), whereas the official population projection 1991-2021 is based on an adult prevalence of only 10.49% (GoB, CSO 1997). The latest 2001 sentinel surveillance HIV survey estimates very high HIV prevalence of 35,6 % among the adult population (15-49 years) in Gaborone. Therefore, this virus has become and will be the main challenge of Botswana's economy in the future.

Nevertheless: today's population of Gaborone will double in about 20 years. Considering that the population of the 1966 newly founded capital of Botswana increased eighty-fold in only one and a half generations, the future problems can easily be imagined. Gaborone is the most important city for Botswana's economy. Numerous headquarters of mining companies and other large companies are situated in Gaborone. The central government structure causes a central economic structure. The centralization of politics and bureaucracy is attractive for investors who need access to the state machinery. The international airport (Sir Seretse Khama International Airport) and the University of Botswana may also contribute to economic concentration in Gaborone.

Public finance

State

As stated above, the Government's revenues strongly depend on the mining sector. Between 1976/77 and 1992/93 mineral revenues grew on average by 24.5% per year. These tremendous mining revenues have been the reason why Botswana's high expenditures did not drive the country's economy into deficit.

Customs and excise revenue is the second largest revenue for the Government. „Customs” derived from „Customs Duty” being a charge imposed on imported goods and „Excise” derived from „Excise Duty” being a levy imposed on locally produced goods. It is forecasted to decrease by P190 million or 11% from P1.73 billion in the 2001/2002 revised budget estimates to P1.54 billion in the 2002/2003 budget, due to the appreciation of the Pula against the Rand.

The Bank of Botswana (BoB), as the „national” bank, is primarily responsible for promoting and maintaining monetary stability, efficient payments mechanisms, and a sound and properly functioning domestic financial system. Next to that, the Bank is also entrusted with the management of Botswana's foreign exchange reserves. According to the provisions of the Bank of Botswana Act, the amount distributed to Government comprises 95% of the operating profit of the Bank and 10% of the Revaluation Reserve.

Government expenditures, both recurrent and development, are aimed at providing services to all Botswana, to put infrastructure in place to enhance development and to provide an environment conducive for private sector expansion. It has grown rapidly over the two decades since the mid 1970's. For instance total central government spending, in nominal terms, increased by 4'000%

between 1976/77 and 1993/94. Although some of this very substantial increase is due to the effects of inflation, there has also been a steady increase in government spending in real terms.

Investments: The Government of Botswana has made significant efforts to promote and improve investments and exports in the country. This has been done mainly by creating the Botswana Export Development and Investment Authority (BEDIA). Ever since it was established, BEDIA has been able to attract numerous foreign investors from diverse parts of the world, among these the contributing countries South Africa, Mauritius and India.

In July 1998, a joint venture project between the Botswana government and Botswana Development Corporation was formed under the name International Financial Services Center (IFSC) project. In order to boost its growth at the stage of its infancy, an amendment was made to the income Tax Act to make provision for an incentive tax rate of 15% for approved IFSC projects, exemption for withholding taxes on interest and dividends in Botswana and exemptions for collective investment undertakings (CIU) from corporate tax.

Furthermore, the abolition of exchange controls which took effect from February 1999 ranks Botswana amongst the few Southern African countries with no exchange controls. This move is expected to significantly increase the level of foreign investments and provide a substantial boost to the various attempts by IFSC to set up a regional financial services sector in the country. The only remaining element of exchange control is the restriction imposed on local institutions to invest up to and not exceeding 70% of their assets abroad.

Corporate tax for manufacturing enterprise is levied at 15%. Resident companies pay a basic company tax at 15% and are obliged to deduct withholding tax at 15% on all dividends distributed. Non-residents companies pay 25% company tax and capital gains tax at the rate of 25%. Capital gains accrued on the disposal of shares in companies listed on the Botswana Stock Exchange are exempt from tax.

Rates of personal income tax range between 5% and 25% according to the level of income earned. Benefits in cash and value of benefits in kind (housing, motor vehicles) provided to an employee are taxable in accordance with the level of employees' employment income.

Annual allowances range from 10% to 25% of the cost for plant and machinery, while a 25% allowance is granted for new buildings and improvement to buildings used in an industrial business. There is also a 15% tax (commercial royalties) to non-residents for the use of or rights to patents, trademarks, copyrights, commercial or scientific equipment or information. In addition Botswana has a double taxation agreement with the United Kingdom, Northern Ireland, South Africa, Sweden and Mauritius.

A general sales tax of 10% is levied, but varies for different categories of alcoholic beverages. Exceptions continue to be made in the case of food, medicines, books and stationery. In the year 2000 budget announcement, the minister of finance and development planning announced the introduction of the value-added tax as from April 2000.

Recurrent Expenditure is defined as the expenditures, which occur paying the public service salaries. Each Ministry with its Departments and Divisions has its own recurrent budget. The

total ministerial recurrent expenditure increased sharply in 1998/99 due to the implementation of the 1998 Public Service Salary Commission’s recommendations. For the financial year 2002/2003 P11.8 billion are forecasted for the recurrent expenditure, which is nearly 70% of the total Government’s expenditure budget.

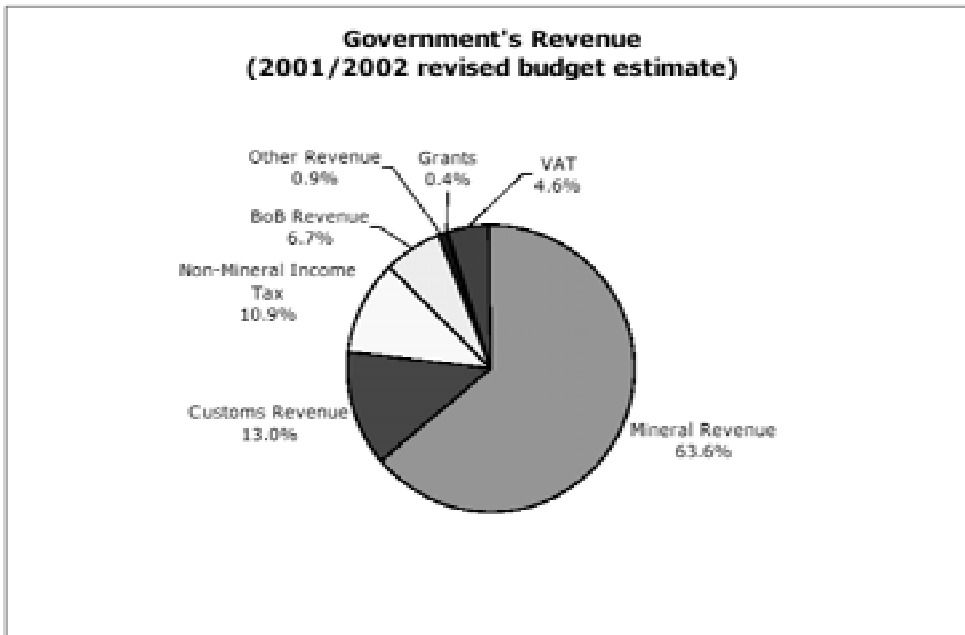


Figure 6: Government’s revenue (2001/2002 revised budget estimate)

The Ministry of Education (MoE), with a recurrent budget of P3.19 billion has the largest share, representing 28% of the total ministerial allocation. The Ministry of Local Government (MoLG) takes the second largest share of P2.01 billion, or 18%, followed by State President (MoSP) with the third largest share of recurrent expenditure of P1.72 billion, or 15%. Other shares of the recurrent budget are; 8% for the Ministry of Finance and Development Planning (MFDP), and 7% each for the Ministries of Health (MoH) and Works, Transport and Communications (MWTC), while the remaining 17% of the recurrent budget is distributed among other Ministries/Departments.

Development Expenditure: The emphasis of government policy is to create an enabling environment conducive to the development of the private sector. In the NDP, all approved national development projects for that period are mentioned and described.

The proposed budget for the year is P5.187 billion, of which P4.870 billion, or 94%, is intended for normal development projects, P225 million, or 4%, for implementation of the development program of parastatals and autonomous organizations, and P95 million, or 2%, for completion of drought-related activities carried over from the preceding year. This budget is substantially higher by P1.425 billion, or 38%, compared to the 2001/2002 revised development expenditure of P3.762 billion. Such a high growth is required to enable Ministries to consolidate and complete, as much as possible, their NDP 8 development programs so as to minimize the spill-over to NDP 9.

Gaborone City Council

Gaborone's City Council (GCC) receives its public finances to a large extent from the Ministry of Local Government and the Ministry of Finance and Development Planning. Therefore, GCC is quite depended on Central Government's bureaucracy while trying to increase the growth rate of the revenues to compete the rapid growth in expenditures.

Gaborone's City Council (GCC) is responsible for constructing and managing a large percentage of the city's social infrastructure. GCC has also the power to make bye-laws for the city area prescribing what licenses and permits are required and what fees must be paid for acquiring them. However, „No bye-law made by a council shall be of any force and effect unless it is approved by the Minister and published in the Gazette“. (Townships Act 1999). Any changes proposed in these fees and charges are subject to another bye-law, which similarly requires the Minister's approval. Some charges and levies do not require approval though. Typical examples are staff house rental and SHHA levies. These can be increased by the Local Authority, generally on the advice of MoLG. Some charges are fixed by other ministries, e.g. clinic fees are fixed by the Ministry of Health.

Even if the Gaborone City Council is financially dependent on the Central Government, it still has its own revenue. The main sources are:

- property taxes (rates and service levies) - P27,000,000 (financial year 2001/2002)
- interests on deposit - P2,070,000 (financial year 2001/2002)
- staff house rental - P1,150,000 (financial year 2001/2002)
- service levies - P1,045,000 (financial year 2001/2002)

Since GCC's expenditure far exceeds its revenue the formula determined revenue support grant from the Central Government covers at present nearly 70% of the recurrent expenditure. Development expenditure is 100% grant from Central Government.

Recurrent Budget: The approved Revenue Support Grant for the financial year 2003/2004 for the Gaborone City Council will be more than P115 million. (MLG 2002). The total Gaborone City Council's recurrent budget for the financial year 2003/2004 will be nearly P180 million, which makes about 70% of the total expenditure budget. This is due to high recurrent costs of infrastructure's maintenance.

Development Budget: The Ministry of Finance and Development Planning (MFDP) has portfolio responsibility for coordinating the formulation and monitoring the implementation of development strategies. Therefore, the MFDP is also monitoring the development budget grant, which is given to each City or District Council. Similar to the National Development Plan, Gaborone City Council outlines every single development project in the Urban Development Plan (UDP). Through Central Government's approval of the UDP its containing development projects will be implemented the following six years. For each project GCC, the responsible planning officer has to hand in additionally a project memorandum to the Ministry of Local Government in which GCC justifies the project's costs and environmental impacts. Ministry of Local Government appraises the project memorandum and determines the ceiling of the project.

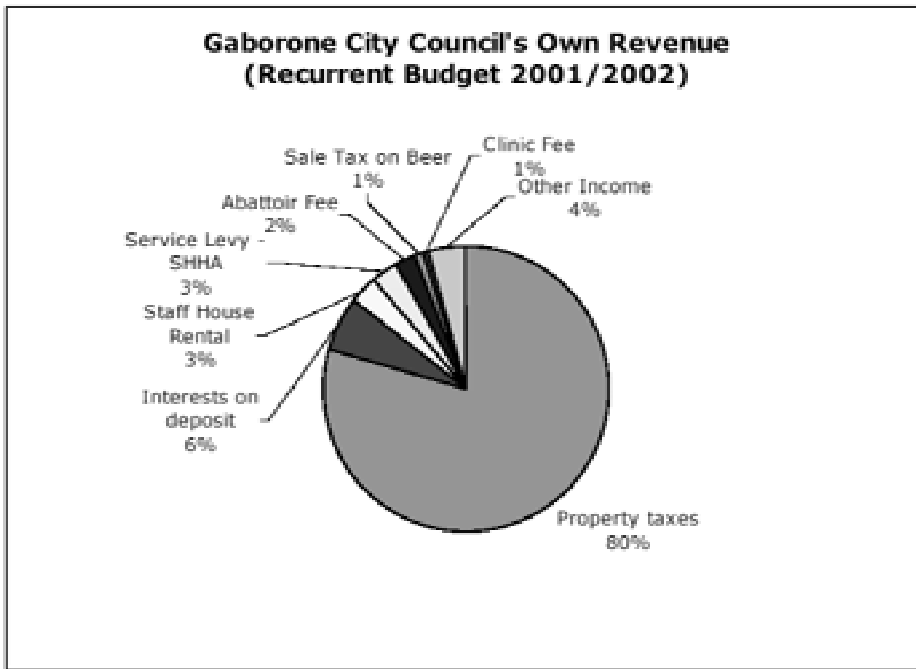


Figure 7: Gaborone City Council's own revenue

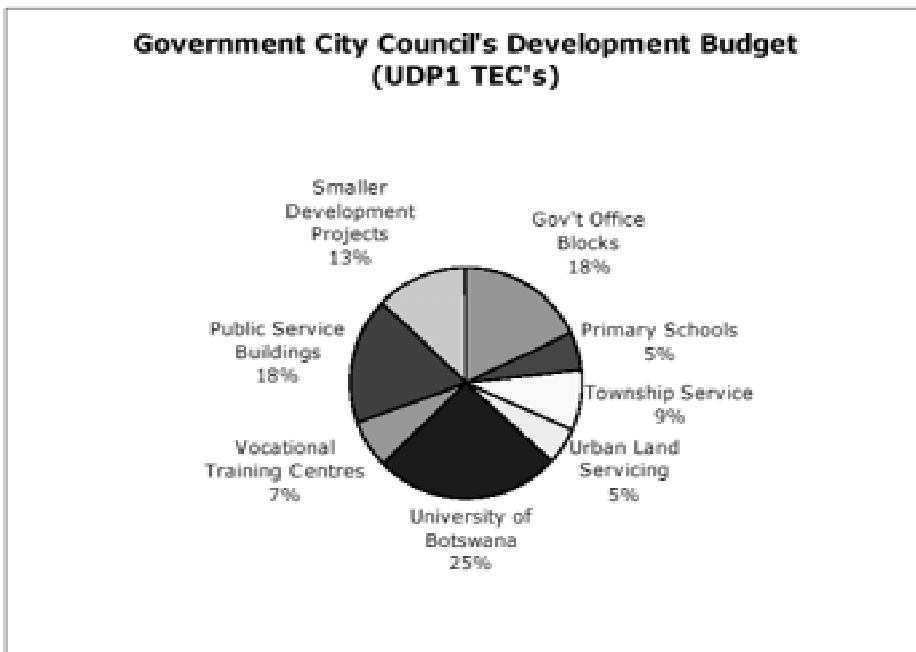


Figure 8: Gaborone City Council's Development Budget

Afterwards, Ministry of Finance and Development Planning approves the budget for the project and the Gaborone City Council implements the project.

Gaborone's City Council received during UDP1-period (1997-2003) in total P968.4 million grants for development projects from the Central Government.

Economic development planning

In order to understand the nature of development planning in Botswana, it is necessary to make a clear distinction between two types of planning. These two types are referred here as economic development planning and physical development planning. Although, the main focus of this research is on sustainable physical development planning it is necessary to explain roots and basics of economic development planning in Botswana, suggesting the adoption of an interdisciplinary approach and bridging the gaps between the two.

Economic Development Planning is preoccupied with the economic and financial aspects of development and most development planners are economists involved in regular preparation of National Development Plans (NDPs) and District Development Plans (DDPs). Similarly to other African and Third World countries, Botswana's model of economic development planning has been derived from original Soviet model based on planning cycles of 5 to 7 years. This model offers a number of attractions, bringing about radical social and economic change. It was designed to allow a high degree of state control over the major economic resources. It is significant that even countries with multi-party system of government like Botswana, have introduced a system of national and district economic planning which resembles in many respects the Soviet model.

The other important factor shaping Botswana's economic planning arena was the influence of market planning approach which came from USA and Europe. This model known as "anticyclical planning" have demonstrated potential of both private and public sector to play pivotal role in directing growth rates in Botswana's mixed economy. Gradually, the scope of economic development planning has extended beyond macro-level and it has become increasingly concerned with the planning of individual sectors, areas and projects

Economic development plans are project oriented plans and closely related to the budgeting process. They are used to prioritize (in a political process) the projects to fulfil the tasks of the government and councils. Since independence in 1966 a National Development Plan has been prepared regularly. Beside this, at the national, regional and local level economic (project) plans, physical master plans and infrastructure master plans have been elaborated.

National Development Plan (NDP) 1997 - 2003

In 1997, the NDP 8 was approved. The National Development Plan is a very comprehensive document covering almost all issues faced by Botswana. It is a seven-year plan providing background information, performance reports, policies and strategies as well as projects.

The planning objectives for the NDP are the following:

- Sustained development
- Rapid economic growth
- Economic independence
- Social justice

Additionally, each plan has its own theme, which for the NDP 8 is 'towards sustainable economic diversification'. To obtain an overview of the implementation of the projects a mid-term review

of the NDP is elaborated. Development plans are also prepared at the district and local level, so that the goals and objectives of the NDP can be precised at lower levels.

Gaborone Urban Development Plan (UDP) 1: 1997 – 2003

The National Development Plan 8 builds the framework for the elaboration of the UDP. The Gaborone Urban Development Plan is a project-oriented economic plan - it is not directly related to physical planning. It identifies how the resources for the future growth and development of the city are distributed.

The UDP considers the long-term planning framework (Settlement Policy, Physical Plans etc.). As part of the UDP, various sectoral development plans are proposed, for production, physical infrastructure, public services, parastatals, NGOs, community based and voluntary organizations and district institutions future capacity. The political authorities prioritize the projects. The UDP therefore has the character of a 'project management tool'.

South East District Development Plan 5: 1997 –2003

The South East District Development Plan is also a project-oriented economic plan and is based on the National Development Plan. The content is very similar to that of the UDP, but at the district level. Although the city of Gaborone is geographically part of the South-East district the South East District, Development Plan does not refer to it, since, according to the Administrative Districts Act (Declaration of Administrative Districts) Order and the Township Act, Gaborone is declared as a city and as such not affected by decisions of the South-East District Council.

2.2 Institutional context

2.2.1 Policy framework

Botswana became an independent Republic in 1966 after being a British Protectorate for 80 years. The Botswana Constitution establishes a non-racial democracy, which guarantees freedom of speech, freedom of the press and freedom of association, and affords all citizens equal rights. The Constitution provides for a unicameral legislature, the National Assembly, which has 40 directly elected members. The President is head of the Executive Branch of Government and appoints his Ministers from among the members of the National Assembly. In addition to the National Assembly, there is a House of Chiefs with 15 members, an advisory body for matters affecting custom and tradition. Botswana has a two level governance, the central and the local level. Districts and towns are at the local government level. The district councils and the town councils have the same status. There are ten districts and various declared towns (Townships Act 1999, Local Government 1999). The political system is very stable so that Botswana did not have to face severe riots.

2.2.2 Institutional framework

In this chapter, only those planning authorities are regarded at, which are relevant for planning in Gaborone. The Township Act provides more detailed information about the duties of the mentioned authorities. It is important to point out that the organizational structures and responsibilities change frequently.

Central Level

At the central level, the ministries dealing with planning duties are the Ministry of Finance and Development Planning for economic planning and the Ministry of Lands, Housing and Environment for physical planning. The main duty of the Ministry of Local Government is to ensure the linkage between central and local government levels. Three parastatal organizations are very often involved in the planning process.

| Level of Planning | Coverage | Responsibility | Products | Adoption | Approval |
|---------------------|--------------------------------------|----------------------------------------|--------------------------------------------------------------------------|--------------------------------|-----------------------------------------|
| National | Whole Country | Central Government (DTRP) ¹ | Planning laws / policies; Standards; Guidelines (NSP, TCPA) ² | Central Government; Ministries | Parliament |
| Regional | (i) Region | Central Government (DTRP) | Regional Planning; Policies/ Studies; Regional Plans | Councils | MLHE ³ ; Cabinet; Parliament |
| | (ii) District | DTRP, Local Authorities | District Settlement Strategies | Councils | Councils |
| Settlement Planning | Settlements (e.g. town and villages) | Councils, DTRP | Development plans | Councils | Councils, MLHE |
| Local Planning | Portion of a town/village | Councils, DTRP | Detailed layout plans, studies | Councils | Councils, MLHE |

Table 1: Planning Process and Levels of Planning [Source: Planning Handbook]

1.DTRP: Department of Town and Regional Planning

2.NSP: National Settlement Policy, TCPA: Town and Country Planning Act

3.MLHE: Ministry of Lands, Housing and Environment

Town and Country Planning Board (TCPB)

The TCPB is responsible for the control of developments in all declared planning areas in Botswana. Its functions are:

- consideration of planning permissions for developments whose scope and scale make the Board's approval necessary.

- advice to the Minister of Lands, Housing and Environment on any planning matters, especially on the preparation of development plans.
- The Board consists of representatives of ministries that are involved in physical planning issues and three other members who are selected by the Minister.

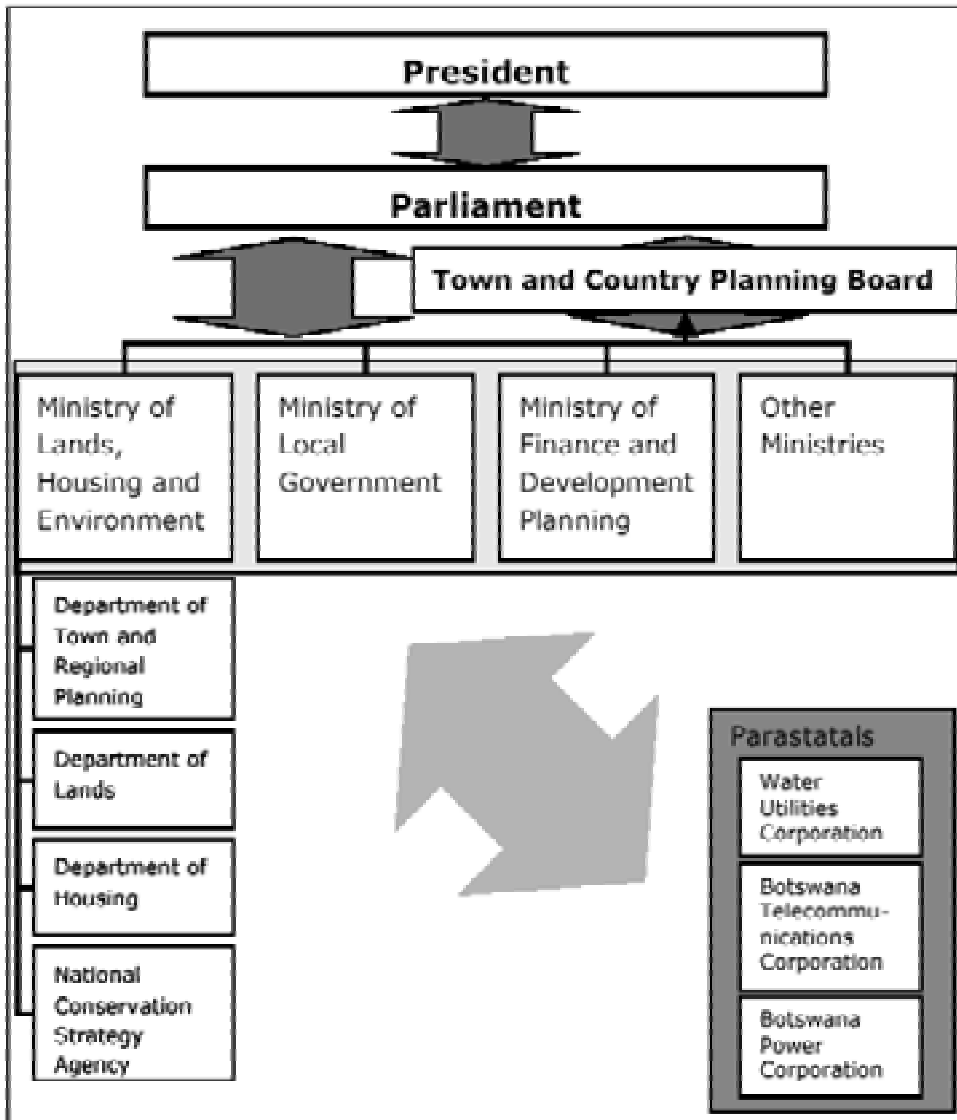


Figure 9: Planning authorities on the central level

Department of Town and Regional Planning (DTRP)

The DTRP depends on the Ministry of Lands, Housing and Environment. It is responsible for physical planning in Central Government. The main functions of the DTRP are the formulation of national physical planning strategies and policies and the provision of technical advice to the Town and Country Planning Board (TCPB) and the Minister of Lands, Housing and Environment. The department also provides professional support to physical planners in local authorities.

Department of Lands

The Department of Lands is responsible for the administration of land. Its main functions are to administer land statutes and advise other departments and Land Boards on matters of land administration. It also oversees the administration of state land.

Department of Housing

The Department of Housing within the Ministry of Lands, Housing and Environment is responsible for the designing and formulation of the National Housing Policy. It also monitors and guides the local Self Help Housing Agencies (SHHA), private developers and other institutions, which are involved in the implementation of the National Housing Programs and related infrastructure projects.

Ministry of Finance and Development Planning (MFDP)

MFDP is responsible for economic planning, i.e. it identifies the socio-economic development requirements, and it balances and integrates the needs and priorities of these requirements for all sectors and for all levels.

Ministry of Local Government (MLG)

The MLG is the body ultimately responsible for the efficient operation of the local authorities. It approves Council budgets and bye-laws. A major part of the Council's recurrent budget and the complete development budget of the council is funded by the central government. The MLG is responsible for the distribution of these grants. The MLG also coordinates the national policy issues on district administration, land allocation, town and regional planning, tribal administration and community development.

Parastatals

Botswana Power Corporation: BPC is responsible for the planning and the provision of electrical infrastructure and supply of power in the city. It works closely with GCC Engineering Department, which is responsible for the maintenance of street lighting in the city. All parastatals work closely with the GCC Roads Section because they all share road servitude.

Botswana Telecommunications Corporation: BTC plans, provides and maintains the telecommunication infrastructure. It works closely with GCC Engineering and Physical Planning Unit. The Physical Planning Unit assesses and appraises all the applications for telecommunication infrastructure.

Water Utilities Corporation:

WUC has the absolute mandate to plan, provide and maintain water infrastructure in the city of Gaborone. WUC provides public standpipes for the city. It deals mainly with GCC – SHHA Management on water upgrading schemes for SHHA areas.

Local level

The local government level in Gaborone consists of a District Administration (DA), Urban Development committee (UDC), Gaborone City Council (GCC) and Tribal Administration. The District Administration and the Tribal Administration play a less important role in the towns than in the districts (Mosha 2001). Most of the territory of Gaborone is state land and is administered

directly by Central Government (Department of Lands), so there is no Land Board within the City boundary.

District Administration (DA)

The DA is under the Ministry of Local Government. The head of DA, the District Commissioner (DC), is the link between central and local government. According to Local Government Act and the Township Act the DC is a senior representative of Central Government and a development and planning coordinator in Gaborone City. He ensures that government policies are implemented properly and he supervises and advises the local authorities, parastatals and NGOs. He also sits in the Full City Council, where council policy decisions are made. He settles land disputes with regard to planning issues. Together with the City Clerk he chairs the Urban Development Committee.

Urban Development Committee (UDC)

The UDC prepares and oversees the implementation of the Urban Development Plan (UDP), the annual plans and any other plans in the city. For that reason the UDC has the overall responsibility for the co-ordination of all development activities in the city. Representatives of NGOs, City Council, District Administration, Tribal Administration, Heads of Central Government Departments, and Heads of parastatals are members of the UDC. It advises local and central government agencies in planning matters concerning Gaborone. There are some UDC Sub-Committees, particularly the State Land Advisory Allocation Committee, which is responsible for the allocation of state land in the city, and the Plan Management Committee, which is in charge of the monitoring and the preparation of the annual plans that are relevant for planning matters.

Gaborone City Council (GCC)

GCC is made up of two elements: councilors and public servants. While councilors make the policy decisions, the public servants execute and implement those decisions. The councilors are elected by the people or nominated by the Minister of Local Government. The statutory responsibilities of the council are to provide

- Primary education
- Sanitation services
- Maintenance of public roads
- Public water supplies
- Protection of common property
- Physical planning services
- Administration of Self Help Housing Agencies.

The GCC is also in charge of raising revenues for the City's operation and development projects. The tasks are carried out through a system of standing committees. GCC has seven standing committees, namely

- Town Planning Committee
- Finance and General Purpose Committee
- Self Help Housing Agency (SHHA) Management Committee
- Health Committee
- Education Committee
- Trading and Liquor Licensing Committee

- Social Welfare and Housing Committee

Because the City of Gaborone is declared a planning area and the City Council is declared as planning authority (Town and Country Planning Act), there exists a *Town Planning Committee* (TPC), which is responsible for physical planning issues in Gaborone City. Its main functions are

- Consideration of every application for planning permission for any development of land use within the planning area. The committee checks the observance of the development plans and guidelines in the area
- Approval of those applications for planning permission that do not need the Town and Country Planning Board approval
- Advice to the Minister of Lands, Housing and Environment in the course of preparing a development plan
- Advice to the council on any matters relating to physical planning

The duty of the *SHHA Management Committee* is the monitoring of the implementation of the housing scheme for low-income citizens. It provides loans, monitors the development of the SHHA plots and provides infrastructure.

The departments dealing with planning issues are:

- Department of Treasury, responsible for controlling funds, financial records and collection of Council revenue
- Department of Engineering, responsible for construction and maintenance of roads, parks and transport
- Self Help Housing Agency, responsible for low cost housing

The Physical and Economic Planning Units are also responsible for planning matters. The Physical Planning Unit provides technical advice to the council on all matters related to land use and development planning. The unit identifies suitable sites for all the council's projects and do the detailed site planning. It is also in charge of the preparation of development plans. The Economic Planning Unit ensures that all funds for projects of the council are secured by the Ministry of Local Government. The units co-operate with the other departments of the GCC to fulfil their duties.

Tribal Administration (TA) / Ward Development Committee (WDC)

The TA is the link between communities and government authorities. The Kgotla is a real instrument for articulation of public and individual interests in Botswana. Its functions are similar those of a local parliament. The Kgotla is a meeting place in a ward. Wards are subsets of Council political areas. There are 26 wards in Gaborone. The Kgotla is regarded as a legitimate institution for public decision-making. Once a decision has been made at the Kgotla, it is binding on the entire community. It is where ideally development proposal should come from and ratified by the Kgotla. The Kgotla holds public meetings for development activities (beside the customary court function) concerning the city. Kgotla forms an important forum that brings urban development issues to the attention of the government. It is the starting point for bottom up development and forms the basis for involving the people in the decision-making. The execution arm of the Kgotla is the Ward

Development Committee (WDC). It represents the lowest level in the hierarchy of planning bodies. Apart from the ex-officio members (councilors, officers of the city council) the members of the WDC are elected by the Kgotla and are, among others, responsible for

- identifying the development needs of the community,
- the co-ordination of development planning and project implementation within their area of jurisdiction,
- co-ordination of development activities of voluntary organizations
- informing and assisting members of the public in preparation of Urban Development Plans, Physical Development Plans and other socially related policies and plans.

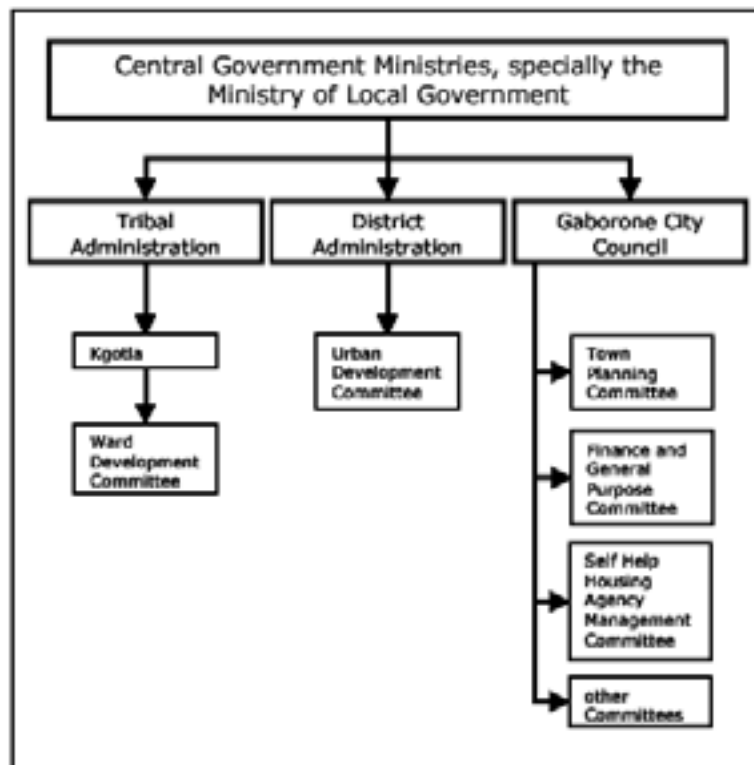


Figure 10: Planning authorities on the local level in Gaborone

2.2.3 Planning practice

Botswana, like many other African countries, did not have the opportunity to develop a continuous system of urban thoughts. According to Wareus (1997) there was a tendency for concepts which are first learned, and then practiced, to become doctrines without critical consideration in which is evident that they originate in societies quite different from those of Botswana. For example, the concept of urban settlement planning, based on foreign premises arrived in Botswana with colonial rule and establishment of Francistown and Lobatse in 1897. Francistown which is the oldest town in Botswana was established as a gold mining town, and Lobatse, in the south, was established as result of the railway construction by the Protectorate Government.

Nowadays Botswana urban milieu is a myriad of traditional, colonial and new elements, and both, tall iron framed buildings with glass facades, and mud huts seem to coexist together. Although the country experienced radical changes in the last 30 years, the mixture of “domestic features” and “foreign novelties” is influencing heavily the scenery and morphology of major urban settlements. The process of Botswana’s urban transformation is still well underway.

The prime objective of physical or spatial development planning is to plan the proper use of land, ranging in scope from the detailed design of the layout of individual sites in either urban or rural areas to the spatial distribution of activities between different regions of a country. With the ongoing decentralisation of planning functions and expected changes in the current Town and Country Planning Act – TCPA of 1977, there is an opportunity to consider how land use planning at different spatial levels should provide the context for planning by the central and local government authorities.

From the early post-independence plans for Gaborone and other new towns, to the latest National Settlement Policy (1998) and numerous settlement, district, regional and detailed plans, the need for mutually consistent urban and regional planning activity has been acknowledged by Botswana government authorities, para-statal and private stakeholders.

The outdated TCPA (1977) based on British planning legislative model introduces development plans without classifying them in accordance to the spatial and territorial levels of planning areas. However, The Physical Planning Handbook for Botswana (1997) generally recognises four major levels of physical planning: national, regional, settlement and local (p.78-83). The Handbook tried to reflect the advances in the planning profession, which have taken place over the last two decades and the growing complexity and urgency of contemporary planning and land problems. It asks for a fundamental shift in the responsibilities of the national and local planning authorities, for the preparation, consideration, public consultation and approval of plans.

The proposed amendments of the TCPA (1977) call for a three tier planning classification based on national, regional and local physical plans. After adopting the new TCPA, planning authorities will need more detailed advice about the full range of plans that may be prepared under the new system, and their function, form and contents, which should be given in the form of an operative manual.

Nowadays, physical planning in Botswana is still rather centralized; the major part of physical planning is done by the Department of Town and Regional Planning of the Central Government. The basic planning act is the Town and Country Planning Act, which was approved in 1980. This act makes provisions for the planning procedure and the content of development plans.

Due to the fact that modern physical planning in Botswana is still a young topic, there are inadequacies concerning the coordination of plans and policies or the organization of planning procedure. The planning system and the related framework are important for a sustainable urban development.

Legal Framework

In the Constitution of Botswana there is no regulation directly related to physical planning, urban development and environment conservation, respectively. However, several other laws have a direct link to urban development. The most important act is the Town and Country Planning Act (TCPA) and, closely related to it, the Building Control Act.

Town and Country Planning Act

The Town and Country Planning Act (TCPA) is the legal basis for all planning and development procedures in Botswana. The overall goal of the act is to make provision for the orderly and progressive development of land in both urban and rural areas and to preserve and improve the amenities thereof; for the grant of permission to develop land and for other powers of control over the use of land; and for purposes ancillary to or connected with the matters aforesaid. The Town and Country Planning Act consists of two main parts - the Act itself and its associated orders.

The Act defines the duties and responsibilities of the Minister and authorities, the meaning and content of development plans, the procedure of preparing development plans for declared planning areas and the planning permission procedure. The associated orders describe in detail the above-mentioned issues. The provisions of the TCPA applies only to designated planning areas which are declared by the Minister. As of today, only parts of the country are designated planning areas. Within two years after the declaration of a planning area 'the Minister shall prepare in draft a development plan consisting of a report of the survey together with a plan indicating the manner in which he proposes that the land in the planning area may be used.' (TCPA 1980, 6(2)). The content of a development plan is described in the Second Schedule and comprises regulations about all kinds of land uses.

Building Control Act

The Building Control Act (BCA) is an 'Act to authorize the making of building regulations and to provide for matters incidental thereto' (Building Control Act 1962). It provides engineering guidelines, standards and describes the building permission procedure. Together with the Urban Development Standards and the Development Control Code the Building Control Act forms the official engineering guidelines for the development of land. The implementation of this Act is executed by the Local Planning Authority, in particular the Council Engineer not Urban Planners in DTRP who only give advice on the orientation of the buildings within plots and the setbacks.

Land Administration

Since there are three main types of land tenure in Botswana (tribal land, state land and freehold land), the land administration legislation has a considerable impact on spatial development. The State Land Act, the Tribal Land Act and the Land Survey Act regulate land administration. The State Land Act is an 'Act to define the state land of Botswana, to provide for its disposal and to provide for matters incidental to, or connected with, the foreign matters'. State land mainly comprises National Parks, Game Reserves, Wildlife Management Areas and urban areas. In general, urban areas are declared planning areas; the TCPA therefore applies mostly to those urban areas. About 70% of the total land of Botswana is tribal land. Land administration of Tribal Land is regulated in the Tribal Land Act. This Act is an 'Act to provide the establishment of tribal land boards: to vest tribal land in such boards: to define the powers and duties of such boards and to provide for matters incidental thereto'.

Since freehold land is privately owned, there is no particular act regulating the administration of this type of land.

Environmental Legislation

Currently, legislation dealing with environmental management and environmental impact assessment is in preparation. The Public Health Act and the Water Act are the most important 'environmental acts' related to urban development. Other laws, such as the Fauna Conservation Act, National Parks Act, Herbage Preservation Act, Forest Act, Atmospheric Pollution Control Act, Agricultural Resources Conservation Act and the Mines, Works and Machinery Act, are indirectly linked to environmental planning in urban areas as well.

The present statutory framework regulating town and country planning in its present form is inadequate and out of line with current environmental policy as stated in the National Conservation Strategy of 1990. Environmental law is fragmented and thus is operational through a number of different pieces of legislation, which are administered through a number of different administrative bodies allowing for incoherent decision making.

Conflicts resulting from contradictory acts

Both, Town and Country Planning Act and the Tribal Land Act make provisions for land use zoning and planning. According to the Town and Country Planning Act, for all declared planning areas development plans should be prepared which 'may in particular allocate areas of land for use for agricultural, forestry, mining, water resource, industrial, residential, or other purposes of any class specified in the plan' (TCPA 1980, 6(3b)). The provisions in the TCPA applies to declared planning areas only. For those areas the Minister may transfer planning functions from the Town and Country Planning Board at ministry level to the local authority (TCPA 1980, §22).

Land Boards are in charge of the land use zoning and planning of tribal land according to the Tribal Land Act. Consequently, for tribal land which lies in an declared planning area, two authorities are responsible for the development planning simultaneously - the Town and Country Planning Board because the particular area is a declared planning area and the Land Board because the land is Tribal Land.

Standards

Due to the fast growing of villages and towns standards had to be worked out to guide and monitor the development. In Botswana two of these formal standards are have been implemented.

Urban Development Standards, 1992

The Urban Development Standards (UDS) officially apply to declared planning areas only - and among these only to the urban areas (Physical Planning Handbook 1994). To provide affordable housing to members of all income categories, housing is planned and developed according to income levels. Plot sizes for residential, commercial and other uses are defined in the UDS. The third main part of the Standards includes engineering standards, which deal with guidelines for roads and other amenities.

The present Urban Development Standards (UDS) of 1992 are in actual fact revision of the Urban Development Standards Report of 1981, necessitated by Botswana's fast development, and after being found inadequate, by the Urban Development Committee (UDC) in 1985. The 1992 UDS were approved in May 1992 by a Presidential Directive Cap. 15/92. Recommendations given in UDS are an attempt to make an affordable environment for both authorities and people as end users.

The fact that 1992 standards made consentaneous attempts to address the inadequacies of the 1981 Standards, has made them very responsive and ideal to the present situation. This is given credence by reduction in lot sizes, which make the cost of provision of infrastructure minimal and above all, reduces the cost of serviced plots and hence more affordable to the community. Therefore, the UDS are used as a guide in the preparation of development plans and detailed layouts.

Development Control Code, 1995

The Development Control Code (DCC) is an integral a part of the Town and Country Planning Act. The Town and Country Planning Board must observe this code when dealing with applications for planning permission. The DCC is to 'permit more intensification of development of land.' Thus, the DCC regulates the siting of a house on a plot, plot coverage, maximum number of storeys and other designing standards for every particular kind of land use.

The prime motive of establishing the Development Control Code in 1978 was to provide a set of regulations for consistent development in the declared planning areas and more flexibility in land-use zoning. As time went on, the Development Control Code of 1978 was found to be unduly rigid, inadequate and outdated in that it could not open and/or match the increasing urbanisation trends and rapid modernisation. Therefore this necessitated the preparation of Development Control Code of 1995. Another point noteworthy why the 1995 DCC was devised is the fact that the United Nations (UN) Enabling Settlement Strategy emphasises more on flexibility in that it calls for as much freedom of choice as possible in siting of buildings on the plot, selection of building types, materials and construction to create a conducive living environment. Furthermore, the 1995 DCC has incorporated development control requirements for civic and community mixed land uses; advertisements signs; and petrol stations which were not absorbed by the 1978 DCC. According to the DCC informal

economic activities may take place and small shops are allowed in residential areas. However, the DCC implementation goes slowly.

Planning strategies and policies

The following list shows the most important planning strategies and policies of Botswana and the city of Gaborone. A more detailed list can be found in Appendix C (“Physical planning policy framework”).

Vision 2016

Vision 2016 is multi-dimensional, encompassing the economic, as well as the social, environmental, political, cultural and spiritual aspects of the lives of Botswana. Vision 2016 outlines Botswana’s future aspirations. It seeks to propel this country’s socio-economic and political development into that of a competitive, winning and prosperous nation. Seven strategic goals have been identified to steer Botswana towards that vision. These are:-

- Educated and informed nation – All people will be able to have good quality education that is adapted to the needs of the nation.
- Prosperous, productive and innovative nation – Botswana will be a hard working and disciplined people with a diversified economy. Agriculture, industry, mining and services will be productive and vital components of economic activity.
- Compassionate and caring nation. – Income will be distributed equitably and poverty will have been eradicated.
- Safe and secure nation.
- Open, democratic and accountable nation – There will be a system of decentralized democracy and political tolerance;
- A moral and tolerant nation – There will be high standards of personal morality and tolerant social attitudes towards people of different cultures, ethnic traditions, religions or disabilities and;
- United and proud nation – sharing common ideals, goals and symbols.

The Vision will become a reality only if all Botswana are active participants in its implementation. The government must play its role, but the communities, business people, farmers, employees, employers and other stakeholders must pool their resources for the common goal of the Vision.

The key national institutions, including Government, parastatals and nongovernmental and voluntary organizations must incorporate the principles of the Vision into the plan. They will be called to play their part. The goals of the Vision will be the starting point for all future National Development Plans and mid term reviews. They will also guide the design of future national policies and programmes. Hence all urban and rural development plans prepared by planners will be guided by this Vision.

National Settlement Policy

Due to the rapid urban growth resulting in excessive polarization between urban and rural settlements, government introduced the National Settlement Policy (NSP) during the National Development Plan (NDP) 5 (1979-1985) period. The main goal of the policy is to achieve spatially balanced development across the whole country. Each settlement receives trained manpower and financial support according to its needs. Some of the objectives of the NSP are

- to provide guidelines and long term strategies for the sustainable development of human settlements.
- to promote conservation of natural resources for the benefit of existing and future generations.
- to reduce the rate of migration to urban areas.

National Policy on Housing

The National Housing Policy (NHP) has been amended and approved in 1999. The main goal of the NHP is to facilitate the provision of decent and affordable housing for all, within a safe and sanitary environment.

Government, therefore, channels its resources mainly to low and middle lower income housing in both urban and rural areas. It promotes housing as an instrument for economic empowerment and poverty alleviation. Government also encourages partnerships with the Private Sector and all with major employers in home development and in facilitating home ownership.

National Population Policy

The actual policy paper was approved in 1997. The main objective of the policy is to set explicit guidelines to influence population growth trends in a desired direction in order to improve the quality of life and the standard of living for all people in Botswana. With these guidelines Government seeks to enforce several principles such as the fundamental human rights and freedoms written in the Botswana Constitution or the four national guiding principles of democracy, development, self reliance and unity.

Some of its objectives are to

- reduce the total fertility rate
- reduce the spread of HIV/AIDS and their impact on individuals and on society
- reduce the incidence of maternal mortality
- reduce infant/child and adult mortality
- reduce rural-urban migration
- promote the provision of adequate and affordable quality housing and related services.

National Conservation Strategy

The National Conservation Strategy (NCS) was approved in 1990. The primary goal of the strategy is to pursue policies and measures, which optimize the use of natural resources and minimize harmful environmental impacts. It also coordinates the work of the many sectorial ministries in natural resources conservation aspects.

Strategy goals have been identified: development goals and conservation goals, for example

- Development of new and better natural resources uses, which are sustainable.
- The optimization of the existing uses of all natural resources.
- The development of multiple, rather than single purpose, natural resource uses.
- The conservation of all main ecosystems, wildlife and cultural resources.
- The protection of endangered species.
- The control of the depletion of exhaustible resources (e.g. minerals) at optimal rates.

As a result of this policy an Environmental Impact Assessment Legislation has been drafted, but has not been approved yet (July 2002).

Planning instruments

According to the Town and Country Planning Act, the Minister has to prepare physical development plans for all declared planning areas. Infrastructure plans are mainly engineering guidelines to implement the projects of the physical and economic plans.

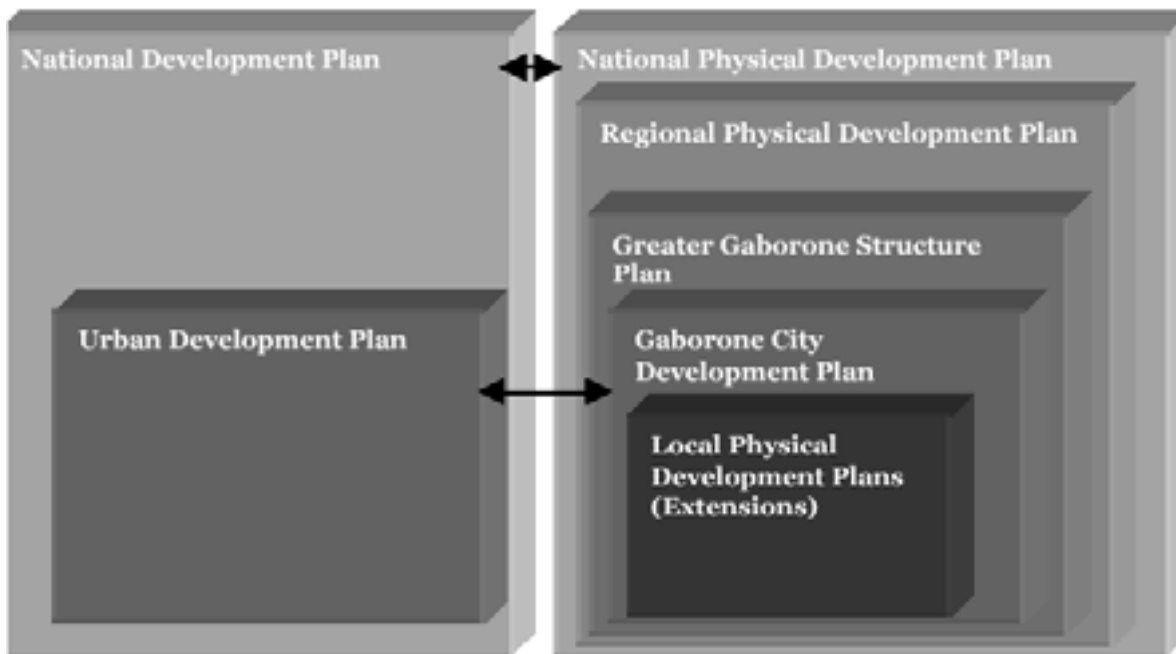


Figure 11: Overview of the existing planning levels for economic and physical planning related to Gaborone.

The National and Urban Development Plan are economic plans (see chapter 2.1.6); the others are physical master plans. The Regional Physical Development Plan for the South-Eastern Region, where Gaborone is part of, is currently in preparation. There is no National Physical Development Plan in place but proposed in the NSP. The arrows between the National Development Plan and the National Physical Development Plan and between the Urban Development Plan and the Gaborone City Development plan earmarks the strong relation between these plans.

All these plans are underpinned by several strategies and policies, such as Vision 2016, the National Settlement Policy, the National Policy on Housing, the National Population Policy, the National Conservation Strategy and the Land Tenure Policy.

Greater Gaborone Structure Plan (1994 - 2014)

The Greater Gaborone Structure Plan stipulates growth directions, facility requirement and services during the plan period for the Greater Gaborone Region. The planning area declared in the Town and Country Planning Order was extended by additional areas for the preparation of this plan (GGSP 1994, p.1). The plan provides a framework for integrating economic, social, institutional and physical development within an area of approximately 1000km². The report contains extensive information about land tenure and land use, population, housing, education, health, traffic and infrastructure for the region and is the conceptual framework for the future development of the entire region. The GGSP has not been approved yet.

Gaborone City Development Plan (1997 - 2021)

The Gaborone City Development Plan (GCDP) is the most important plan in terms of spatial development of the city. It is a masterplan for the development of Gaborone within the city boundary; and a 'document which explicitly makes clear the goal, objectives and policies which will guide and shape the future development growth of the city in a sustainable manner.'(GCDP 2001, 1.3.1). It provides a comprehensive view of the development of the city in the past and makes proposals for the future development. The time period taken into account is from 1997 to 2021.

The area covered by the GCDP is part of the declared planning area 'Gaborone Planning Area'. The GCDP area neither includes any of the freehold farms around Gaborone nor tribal territories like Tlokweng Village and Mogoditshane Village, which actually are part of the 'Gaborone Planning Area' (GCDP 2001. 1.2.6, TCPA 1980, 32:140).

The GCDP plan designates areas for different land uses:

- Residential
- Commercial
- Civic & Community
- Industrial
- Mixed Land Use
- Infrastructure (Areas)
- Petrol Stations
- Open Space & Greenery
- Sport & Recreation
- Agriculture & Forestry
- Other Areas for Game Reserve, Roads, Airport etc.

There are no further regulations in this plan which would determine in more detail the land use in any particular areas (like building heights, density etc.). Considering the engineering issues of planning and building permissions the authority has to rely on standards, building control code etc.

Gaborone Central Business District Master Plan 1994

The Gaborone Central Business District (CBD) Master Plan is a detailed plan for the development of a 97 hectare area in the center of Gaborone, close to the Government enclave and the Main Mall. This plan can be categorized as a Local Physical Development Plan. In 1979, the Gaborone West Structure Plan was approved to guide new development west of the rail line including the CBD area. The Gaborone CBD Master Plan provides detailed information about the physical requirements in the CBD area. To propose future development in the CBD area, market demands and engineering studies were considered. The plan would have provided a physical framework for a booming economy in the center of Gaborone. However, in that area no single building has been built yet, because the implementation of the plan was delayed by politics.

Gaborone City Landscaping Master Plan 1995

The Landscaping Master Plan is a concept making proposals for the distribution and design of open spaces within the city. It contains plans and guidelines, for example, for the design of primary roads. Furthermore, guidelines for lighting, park spaces or maintenance work for open spaces are provided in this plan. There is no legal backing for this plan; but it is merely advisory for planners and developers.

Central Gaborone Detailed Planning, Intensification of plots Development and Engineering Proposals for upgrading of infrastructure Services 1996

This plan is related to the Central Gaborone Area, which comprises of some 500 hectares and nine extensions (wards, parts of town). Before this plan existed no other plan but the Gaborone Master Plan of 1963 dealt with this area. It is a more detailed part of the Gaborone Development Plan for that particular area. The 1963 plan stipulates a low density of less than 5 plots per hectare but the new plan follows a more densely built area. The Central Gaborone Detailed Plan addresses zoning, intensification and redevelopment in the area. The plan was reviewed in 2001. According to that review, the goals of the 1996 plan have been achieved for the most part.

Upgrading of Infrastructure in Central Gaborone, 2001

In addition to the above mentioned review report on the Central Gaborone Detailed Plan, a detailed Engineering Design Report was prepared (CGA 2001, 1). Due to the rapid growth of Gaborone, the infrastructure is loaded to or even beyond design capacity. The report gives priority to the upgrading of roads, stormwater drainage, water, sewerage, power and telecommunication over a period extending to 2020.

Gaborone City Storm Water Drainage Master Plan

Due to some severe floods in the city of Gaborone during the summers 95/96, 99/00 and 00/01, the Gaborone City Council decided to develop a storm water master plan which addresses the problems of flooded houses and areas and destruction of facilities. An extensive study was made then, showing that a lot of work for upgrading the drainage system must be done.

Assessment of the Planning Instruments

The planning system and the instruments of Botswana is a basis to pursue a sustainable development of Gaborone. The basic infrastructure, the institution and the planning legislation provide a framework to launch a sustainable planning practice. However, what is missing is the synchronization of the various plans and a systematic monitoring and review concept.

There are some major problems concerning coordination between plans and policies as well as a lack of systematic monitoring and reviewing of the physical plans:

The Gaborone City Development Plan refers to the time period from 1997 to 2021. It was approved in 2001 at the time when the first review should have been made already. Due to rapid growth and change of the built environment of Gaborone and the surrounding areas, some of the assumptions made in the plan did no longer reflect reality at the time of approval. The longer the plan horizon the more important is its regular modification. The Greater Gaborone Structure Plan has never been approved. Despite the recommendation in the plan to review it continuously no review or systematic analysis of the development of the region has been made so far.

The National Settlement Policy (NSP) and the National Housing Policy are the most important policies affecting physical planning. Due to the rapid change of the economic, social and environmental framework for the society and the settlements of Botswana, these two policies were reviewed in 1997 and 1998, respectively. To assure a proper implementation of the policies, physical plans should be reviewed periodically and the impact of policy changes on the physical plans should also be taken into consideration, so that the objectives of the physical plans will conform to those of the policies.

3 CHALLENGES, GOALS AND OPPORTUNITIES FOR SUSTAINABLE URBAN DEVELOPMENT IN GABORONE

3.1 Challenges

This chapter deals with current and emerging urban development problems of Sub-Saharan African cities in general, and of Gaborone in particular. Of course, only the biggest challenges can be addressed here. These were assessed on the base of an intensive literature review, study of development plans, strategies, and interviews with stakeholders in Gaborone.

3.1.1 General urban challenges in Sub-Saharan Africa

In Africa, since decolonization, the forming of new nations and the founding of capital cities combined with the world's highest population growth rates and a high rural-urban migration rate has contributed to rapid urban growth. But, unlike Asia and Latin America where large-scale manufacturing created an impressive volume of jobs, only a small number of employment opportunities have been generated in urban Africa during the last two decades.

Many of the mushrooming cities in Africa share common features. Rural-urban migration is certainly an important force. The motivation of the migrants to leave their homes comes primarily from the promise of economic opportunities in cities (Silitshena, 1996), in addition to the generally poorer living conditions in rural areas, natural hazards such as flooding or drought problems in disaster-prone rural areas, and human-driven disasters such as war and social destabilization.

The opportunities that big cities offer lead to the hope for a better life, attracting migrants with the expectation of finding paid employment in the secondary and tertiary sectors. However, this promise is not always realized and often, rural-urban migrants are stranded jobless in metropolitan areas. In general, the migrants cannot afford to buy or rent one of the few available houses or flats, and are forced to live in squatter settlements, illegal shanty towns with severe crime and drug trafficking, or even homeless in the street. Rural poor who migrate to cities become, in general, urban poor. However, in detail, there is much more variation in this aspect across different developing cities. Especially in the African context, social networks between established migrants and new arrivals exist. Relatives or descendants from the same village, who have moved into urban areas earlier, may offer primary accommodation and give the stragglers a hand (Chabal and Daloz, 1999).

By the year 2030, the UN projects that virtually all global population growth will take place in urban areas. Only in Africa will the rural population continue to grow (at 0.9% per year; UN, 1999), however, the growth in urban population, at 3.2% per year, will far outstrip that of rural areas, mainly due to continued rural-urban migration. As a result, in 2025 more than 70% of the African population is expected to live in cities (Toepfer, 2002). This tremendous growth of African cities, despite the disastrous impact of AIDS/HIV on the population, will present unprecedented social and planning challenges.

Thus, beyond social challenges, urbanization can effectuate severe stress on urban resources and leads to environmental and health problems, both in the city and in its surrounding settlements. The most obvious problems are:

- Loss of agricultural land for urban purposes
- Lack of access to safe water
- Lack of sanitation, which leads to pollution of groundwater by nitrates and bacteria and causes infections from cholera to tuberculosis
- Poor drainage and poor waste management, entailing contamination of rivers and streams by sewage outflows and waste disposal
- Deforestation because of fuel wood needs (mostly low-income households), leading to a complete depletion of the vegetation around the cities with beginning gully erosion
- Air pollution because of increasing traffic, industrial activity, firewood and litter burning, mixed with dust
- Pressure on land and housing, poor land tenure security, lack of affordable housing
- Poor urban design, neglected public parks and green areas
- Urban poverty in general, combined with unemployment and low educational level

These problems are not new, but what is new is their scale. Despite new allocation opportunities, for example, in the mass transportation sector (Newman and Kenworthy, 1999), there is a tendency that the bigger the cities are, the more natural resources in the urban area are degraded and the more waste and pollution of air and water is generated. The problem of a missing or leaky sewerage system, for example, can much more easily be coped with in a small town of, say, one thousand inhabitants who mostly know each other and who are aware of the problem, than in the anonymity of a city of one million or more inhabitants. In the case of the latter, the problems are not only bigger, there are more social, ecological, and economic problems and all these problems are interlinked and self-energizing.

The challenge is further exacerbated by ongoing physical expansion, whereby cities explode and spill over administrative boundaries, impairing city management and impacting surrounding settlements and satellite towns. They are unable to provide basic services like drinking water, electricity, health care facilities, and so forth. If public administration cannot offer those services to its citizens, the gap between urban rich and urban poor becomes even more evident. Only those who can afford it have access to better living conditions – sending children to private schools, for example – while the poor are struggling for their sheer survival. On a global scale, a similar disparity exists, as the poorest cities remain disconnected from the global economy. The long-term prospect for the poorest cities, particularly those in Africa, looks dim. As Hall and Pfeiffer

(2000) suggest, there is “no mechanism in sight capable of reducing the gap between the richest and poorest urban areas,” and these areas are largely located in Africa.

3.1.2 Challenges for the urban development of Gaborone

All the above-mentioned challenges for urban development in Sub-Saharan African cities also occur in Gaborone. In the following, their specific forms are shown in more detail. They are grouped according to the three dimensions of sustainability—society, economy, and environment—although most of the challenges are overlapping.

Society

Housing

The growth of the urban area is also putting high pressure on the provision of adequate housing facilities. In this context, especially the very poor do not have the possibility of affordable shelter. At the moment, few people have too much space while many live in crowded conditions. Since land is getting rare within the city’s boundary, servicing new allocated plots takes time and is expensive.

With the Botswana Housing Corporation (BHC) and the Self Help Housing Agency (SHHA), Botswana has good instruments to make housing affordable to many citizens. Unfortunately, the program does not include the very poor. What happens if immigrating poor people cannot afford to buy a plot and build their own small residence on it can be seen in „Old Naledi“. This is the last remaining squatter-like settlement in Gaborone, where people illegally settled many years ago. After a project to resettle these people in „New Naledi“ failed, government decided to upgrade the quarter. Access roads, fresh water and sanitation are provided step by step. But it is not easy to do so because the structures are completely unplanned and thus not always easy to be reached.

Urban Poverty

The most obvious cause of urban poverty is lack of income. The causes for an insufficient income are lack of wage employment and insufficient opportunities for self-employers. The degree of income distribution in Gaborone and the whole country is very high. But the problem of unemployment is not only caused by insufficient opportunities of work. Another cause to be mentioned is the lack of skilled manpower. Since the demand for skilled workers is increasing, the unskilled remain unemployed. The rural-urban migration causes a lot of unemployment in the urban centers. Within the city, the low-income residential areas show the highest population densities. The results are a high level of alcoholism, unemployment, school dropouts, crime and prostitution (Policy on Housing 2000).

Poverty also has an influence on health issues. Infant and child mortality is common, among other reasons because of malnutrition. In 1996, the under five mortality rate was 7.5% (MIS 2000).

Migration

The motivation of the migrants is mainly economically driven (Silitshena 1996). Central is the expectation to find paid employment in the secondary and tertiary economic sectors. In 1994, the monthly average household income in urban areas was more than five times higher than in rural areas (GoB, CSO 1996). Migration is also a response to push factors resulting from poor living and working conditions in rural areas and limited accesses to basic community facilities. For example, only 53 % of the rural population and 100 % of the urban population has access to potable piped water. 82 % of the urban population has access to toilet facilities, whereas only 26 % of the rural population are deserved with this (GoB, CSO 1996). Young people are chiefly attracted by the western-life style in the cities and try to escape from traditional ways of live and social controls in rural areas.

Natural disasters cause additional migration:

Botswana has, in the past, regularly been suffering of droughts. Gaborone also suffers of recurrent floods during the rainy season. But decisive is that the natural disasters that occur in the rural areas are another push factor for people to migrate to urban areas.

Children / Youth

In 1991 (Census), 70% of Gaborone's citizens were aged 29 years and younger (Statistical Bulletin 2002). These young people are the ones that the country will depend on in the future.

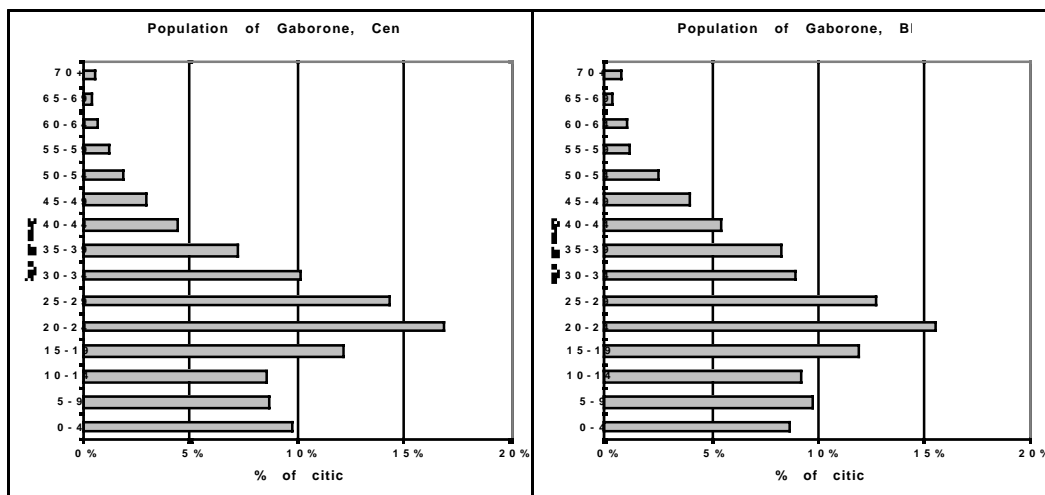


Figure 12: Population age classes, Gaborone

At the same time, children belong to the most vulnerable groups of society. Government must be aware of the fact that children out of engagement, e.g. by school dropout, tend to start begging or commit small-scale crimes. This can be aggravated if both parents have to work to earn a sufficient income, or if the children are taken out of school to help the family survive. A good education of every child is a precondition to lead the country to an educated and informed nation. In 2000, only 81.8% of Gaborone's children of primary school age attended primary school (MIS 2000). It is also worth to mention that the emergence of HIV/AIDS has increased a rise in the number of orphanages in Botswana.

Education / Professional skills

Most of the primary schools are constrained in physical development, which causes shortages of classrooms and high pupil per classroom ratios. The problem of too small plots also occurs within secondary and tertiary education.

In 2001, 8.7% of primary school teachers and 7.9% of secondary school teachers in Botswana were untrained (Statistical Bulletin 2002). Although these figures have been much higher in the beginning of the last decade, they are still too high to ensure that the young generation will be able to bring up a prospering economy.

Botswana shows a general lack of trained manpower. Especially in technical and health care professions, there is a shortage of well-trained workers. But the economy more and more needs skilled work force, last but not least because technology is one of the possible markets Botswana could get a hold of in the Southern African Development Community (SADC). The few skilled workers who graduate or immigrate from abroad are taken in by the private sector. So especially government has capacity constraints, which leads to a vicious circle, since programs can hardly be implemented and thus again a lack in job opportunities and skilled workforce are the results.

Health

AIDS/HIV is one of the most severe problems Gaborone and the whole country have to deal with. Present UNAIDS figures show prevalence rates among those aged between 15 and 49 of 44% and more. Life expectancy in Botswana is expected to drop from 64 to 42 years between 1998 and 2010 (Mmegi 2002). Although the problem of HIV/AIDS is discussed day by day in the newspapers, and anti HIV/AIDS programs are obviously implemented all over the place, people don't seem to be realize what a big impact AIDS will have on the society, the productivity and the labor force.

Some of the primary health facilities are expected to congest in the future. Princess Marina Hospital, the main second health facility, was opened in 1991 and is congested already. There is hardly any space for further expansion.

The problem of lack in manpower also occurs here. One hospital has to remain closed because there is no staff to run it.

Gender issues

Equal opportunities for women and men is a precondition of a functioning modern society. Anyhow, this issue is discussed day by day in the newspapers and therefore not yet solved. There are many problems to be mentioned concerning gender equality: Single headed households; teenage pregnancy; defilement; rape; equal pay for same work. For example, in 1994, 50% of female-headed households were living in poverty, compared to 44% of male-headed households (BDS 2001).

Economy

Decentralization / Privatization

Almost 70% of the city's recurrent budget is given as a grant by the central government. The development budget is granted by the State. It is very difficult for the local authorities to open up new sources of income, although there would be some to find. An example worth mentioning here is that there is no parking fee charged over the whole city area.

Between 1994 and 2001, the number of employees in the private sector rose from 136'200 to 152'900. In the same time, the number of employees in central and local government rose from 81'800 to 106'400, so the growth rate of employment in the public sector is higher than the one of the private sector (Statistical Bulletin 2002).

Industrial areas have not been planned in a proper way. There are not enough plots for small-scale operations, so these activities take place in residential areas, which inhibits further expansion.

Unemployment / Diversification

Labor-intensive industry suffers from the South African market, which plays a key role in the whole region. In South Africa, a functioning market as well as the necessary infrastructure already exist, resources are cheaper, and the quality of products is better. Thus, small-scale producers are very much competed by South African enterprises, though assisted by the Citizen Entrepreneurial Development Agency (CEDA).

In March 1994, the employees in Botswana's private sector were estimated at 136'200. Until September 1998, this number declined by 10'000 (Statistical Bulletin 2002). This is no good sign for a developing country, which tries to strengthen its economy.

Another reason for high unemployment rates is the development towards a more skill-intensive employment mix. That is the reason why more and more unskilled workers remain unemployed.

Informal sector

The growth of manufacturing, the engine of industrialization, has not been able to match the rate of urbanization. The result is a lack of employment, which causes an engagement of the people in the informal sector. This economic sector is not consistently treated by the authorities. The informal commerce is situated on „no-mans-land“, that is, within road reserves, on parking slots and the like. Most of the structures (vending stores) are constructed with temporary materials like card boards, corrugated iron sheets and cartons. Apart from the eminent visual pollution, these structures pose the danger of converting the cityscape into a slum (GCDP 2001).

A lot of peripheral shopping centers are popping out of the ground. These centers cannot be reached by unmotorized people within a reasonable time, so street vendors settle all over the city's area. But street vendors also follow the customers and settle next to the big malls. The local government describes the informal sector as a “visual damage” to the city.

However, it is to be considered that street vending etc. gives at least a minimal income and thus helps a lot of people to survive.

Environment

Water / Electricity

Due to ongoing growth of residential and commercial areas, the pressure on existing water and electricity supply and sewage networks is rising.

Land use

The 1963's Master plan for Gaborone followed the principle of a Garden City, allowing low densities. Even with the expansion of Gaborone City, the demands for plots continued to outstrip supply. Planning could neither satisfy the high demands for plots nor could it turn the page from cost-intensive low-density, low-floor housing to low-cost high-density and multiple floor housing. In 1997, there were 33,339 planned, developed and undeveloped residential plots covering 2,544 hectares of land in the city. This is an average plot size of 760m² which is about 25x30 meters. It is to be taken into consideration that most of the plots are covered with only one single storey house (see aerial photo). The need to densify is obvious, and the sprawl situation in the city is evident. Older residential zones for high-income groups have plot sizes of 2,500 m² and more. Mostly, vast single storey houses cover only between 100-150 m² of the plot, which gives very low ratios of sum of all floor spaces to plot area (0.4 to 0.6). Even with the revised SHHA (see below) the maximum plot size for the high-income categories is limited only to a maximum of 1000 m². On those plots, building coverage is approximately around 10-20%. The consequences are an uncurbed urban sprawl and still long waiting lists for new plots.

Motswana (the people of Botswana) are not used to live in multi storey buildings. As the migrants come from rural areas, where land seems to be an ubiquity, there is no need to build technically complex and costly two- or more floor houses. Moreover, on the tribal land in the surrounding villages, like Tlokweng or Mogoditshane, every indigenous person gets a plot for free. This partly explains the enormous growth of these settlements, which are becoming huge dormitories for people working in Gaborone. The population of the neighboring town of Mogoditshane, for example, grew between 1991 and 2001 by an annual rate of 10.54% (Statistical Bulletin 2002).

Living in single storey houses on his own plot means high living standard on the one hand. On the other hand, such a type of settlement is very inefficient in terms of maintenance and servicing, the land use is enormous and maintenance and other services are very cost intensive.

There are hardly any mixed land use areas in the city. Commercial activities are mostly concentrated on commercial and industrial areas so far. Thus, it is not possible to go for daily shopping on foot within a few minutes walk in many areas, because shopping facilities are concentrated in huge shopping malls in peripheral sites.

More and more agricultural land is taken away and developed. This means a cultural loss to the city and a loss of diversification of income from urban agriculture.

Transport / Traffic

Traffic volumes are consistently increasing, due to an increase in vehicle ownership and population growth. This has resulted in traffic congestion during peak hours in some places of the city's network. Especially the area around the Station needs to be upgraded in terms of road network.

Due to lack of maintenance, Gaborone's streets are not very safe. This might be one reason—besides culture or tradition—why hardly any bicycles are seen on the city's roads. This looks strange to visitors from abroad, since the terrain is completely flat and thus would be predestinated for the use of bicycles. In 1997, about 30% of the transport modal split was in respect of walking (Statistical Bulletin 2002). Public transport within the city is completely run on private base. There are some defined routes where mini buses (10 to 20 passengers) run during the whole day. These vehicles are mostly in a bad condition and often overcrowded. In addition, the drivers of the mini buses have the vice to hoot all the time in order to attract more clients. This may provoke accidents and be very annoying to other citizens. In the evening, after 8 p.m., there is no adequate public mass transport. At least normal taxis and the so-called "combis" (taxis which take one everywhere but can not be ordered to every place) are available all day long.

Social Segregation, Poor Mixture of Functions

Due to its designation to be the administrative center of Botswana, only residential zones for government staff were planned in the decade 1965-75. The in-migrating rural population was ignored for a long time. This led to unplanned squatter settlement (for example, Old Naledi; see box) and also to a segregation of social classes and income groups in Gaborone's residential areas. As a result, social mix between high-income and low-income families became one of the most important strategies for urban planning in residential areas (Mosha 1996). But still, there is no culture of neighborhood (Silitshena 1996). People are mostly oriented towards living inside the electricity-fenced walls of their plots.

Besides the social mix, the functional mix is also poor. Until the Development Control Code (see below) was enacted, the Gaborone City Master Plan did not allow mixed uses and changes of use were rigidly controlled. Residential zones in Gaborone are mainly huge mono-functional areas and do typically not comprise shopping facilities for the daily need. For the provision, long distances have to be covered to the American-style shopping malls and commercial centers that have been installed at the periphery of the city. The preferred mean of transportation are private cars. Although traffic in Gaborone is not yet perceived as a major problem, peak-time congestions are usual. The ongoing use of leaded gasoline will lead, however, to serious health problems. Public transport is non-existing. Privately run mini busses ensure the traffic needs principally for working commuters from the surrounding settlements on main roads, but there is no overall coverage for transportation. The poor conditions of roads and signaling as well as the condition of the mini busses cause high accident rates (Mosha 1996).

Past Planning Failures: Expansion and Shortage of Land

At the eve of independence of Botswana, a first master plan for the future capital was prepared in 1963. It was designed for an administrative function with maximum of 20'000 inhabitants by the end of its planning horizon in 1983. Essentially, the plan was characterized by a comparatively low-density form of development based on the Garden City model with generous provision of pedestrian walkways, open spaces and closely tied neighborhood units. Equally important, the plan contained two significant features, which today would be regarded as inappropriate. Firstly, housing development was polarized with high and medium income on one side of the town and low income on the other; and secondly, the urban structure was such that it allowed little space for expansion outside of the original layout.

In addition, the plan did not take into account any possible growth from in-migrating job seekers (Mosha 1996). In reality, the population in 1983 was threefold than assumed. This underestimation of population growth brought with it a great deal of consequences, like shortages in serviced land for housing, as well as stress on the existing infrastructure and other facilities.

The ongoing uncontrolled leapfrog expansion led to an overspill of Gaborone to the peri-urban settlements. A first remedy to the mushrooming of Gaborone was during the 1970s when the first acquisition of surrounding private freehold farms in the North (for ex. Broadhurst farm) took place, and in the West of the railway line in order to allow further expansion of the capital.

Also the neighboring tribal areas were and are still affected, as the satellite settlements around Gaborone have been growing at annual rates of 16% and more (Molebatsi 1996). One important result of the urban sprawl was a loss of arable land that seriously engulfed the urban fringe villages of Tlokweng, Mogoditsane, Mmopane and Metsemothlaba. In 1994 the Greater Gaborone Structure Plan was prepared to serve the expansionary needs of urban fringe areas for a period of twenty years (1994-2014). The dominant objective of the plan and Gaborone as a dormitory settlement was to provide a framework for integrated economic, social, institutional, and physical development within the Greater Gaborone Region.

The shortage of land and the resulting pressure on the surrounding settlements led in 1980 to the creation of the Greater Gaborone Planning Area, which has a size of 97'000 ha and comprises the surrounding tribal towns of Mogoditshane, Tlokweng, Gabane (60'500 ha), several freehold farms (21'000 ha) and State land (15'500 ha). For the agglomeration of Greater Gaborone, the Greater Gaborone Development Plan (1994-2011) assumes in a medium variant (6.2 % population growth p.a.) a population of over 532,000 by 2014. This development is due to very high population growth rates, although these rates have become slower (1964-71: +25.4 % p.a.; 1971-81: 12.2 % p.a., 1981-91: 8.4 % p.a.) and are projected to decline still more (from 4.7 % in the period 2001-06 to 3.4 % in the period 2016-21; GoB, CSO 1997).

If for Gaborone the projected population growth becomes reality, some more 250,000 new residents will live there by year 2021, which is more than the population of today. By then,

the Gaborone agglomeration will be a half-million city. A simple estimation shows: if the average household size of 3.5 people (value of 1996; GoB 1998) would remain static, about 71,500 new houses respectively plots would be demanded in the next 19 years. This would require an average annual production of more than 3,700 houses a year. If all of them would be low- or middle-income houses for which the average plot size is 300 m², then new residential areas of 1,100 ha has to be provided and serviced. The total area of Gaborone City is 19,096 hectares. In 1993, 26 % of this were used for residential areas and 12 % for industrial, commercial, educational, civic and community purposes. Only 4 % (735 ha) of the whole area of Gaborone were vacant. In other words: the city of Gaborone is consuming its last vacant land, and further expansion of built-up areas inside the city's boundaries is limited.



Figure 13: Land use utilisation in central Gaborone, close to the main mall. The picture shows the typical single storey houses on big plots

In the late 1960ies, Gaborone was planned as a “Garden City”. Although this projection makes sense, and a city with such an image may be attracting, it might not be the right concept in a country, which is regularly afflicted by droughts. So the open spaces (green spaces and vegetation cover) of the city are mostly abused as dumping sites, driving school areas, urban agriculture or other uses. Neglected, the open areas become sites of crime.

Solid waste and recycling

There are a lot of illegal dumping sites and burrow pits within the city's limits, especially in the peripheral areas. This is both a serious environmental problem and a visual damage to the city's image. Littering devaluates areas of natural beauty with potential for passive

recreation. Since production of waste rises with an increasing prosperity—which will happen according to the national Vision 2016—the waste problem must be monitored carefully.

Separation of different types of solid waste is not common in Gaborone. Although about 1/3 of Botswana's aluminum cans are recycled, there is still a huge lack of education, awareness and governmental initiative concerning this subject. What is happening at the moment is that all sorts of waste are collected and brought to the landfill.

Sanitation

The use of pit latrines and the overcrowding in the old SHHA areas can cause health problems, and pollute the ground water. Overspilling sewage ponds endanger both the ground and superficial water, like e.g. the Gaborone dam or Notwane river. There is an urgent need to connect all plots to adequate water and sewage services. The storm water drainage of Gaborone looks mostly bad. The open channels are often filled with mud, sand or rubbish. This leads to recurrent floods in the city's area, enhancing the spreading of diseases.

Air and noise pollution / Energy

Gaborone is not yet affected by polluted air. There is no mining close to the city, and although some sites are congested during rush hour, the overall traffic volumes are still moderate. But vehicle ownership is increasing heavily, traffic-intensive decentral shopping malls mushroom around the city and the surrounding villages are becoming huge dormitories from where many people go to work by car, mini bus or on foot. This development should be monitored since the air quality is likely to be affected. Another source of air pollutants are the numerous burrow pits in the back yards where rubbish is burned.

Many citizens, mostly the poor ones, use wood for cooking. This has a double environmental impact. First on the forests around the city and secondly on the air, which is polluted by the combustion products.

In the same way as air pollution, too much noise is also often caused by high traffic volumes. Since they are subject to rise, noise pollution is going to be a topic of discussions in the future.

The above mentioned problems, constraints and challenges, the city of Gaborone is facing nowadays, need to be solved or at least alleviated. To do so, it is very important to define what state must be achieved. Therefore goals and objectives need to be defined and addressed as well as corresponding measures to achieve these goals. The following chapter tries to define such goals and objectives. They were deduced from the existing problems described in this chapter and are also based on existing goals of different plans and policies, such as the Gaborone City Development Plan, the Urban Development Plan and others.

3.2 Goals and objectives

The concept of sustainable development was introduced in Botswana only in 1990 with the National Conservation Strategy (NCS). One basic objective of the NCS is to ensure that 'future generations have access to capital stocks of natural resources, at least similar to those presently available' (GoB 1990). This is a condensed definition of what is 'sustainable development'. Although the NCS is meant mainly for protected areas like national parks, game reserves and forest reserves, its sense could also be applied on urban development. One key sentence in the NCS that could also figure in an improved urban development policy or a strategy for sustainable urban development, is: 'Achievement of sustainable development calls for comprehensive evaluation of environmental and economic implications before [sic!] major new developments are undertaken' (GoB 1990:2).

If this exigency of 1990 would have been taken into consideration in the development of Gaborone, then perhaps several unsustainable development could have been avoided. But still, 'concerns with sustainability city development are not yet prominent in local planning concerns' (Molebatsi 1996: 133). In other words: a lot of work remains to be done. If this homework is not done by now, new development damages like unordered and resource consuming settlement patterns will occur and it will be those damages that will sustain.

In sum, the main tasks resp. goals and objectives in order to cope with the challenges for urban development of Gaborone can be listed as follows:

- Development of a comprehensive strategy for sustainable urban development
- Need for provision of plots for the steady growing population and financing physical and social infrastructure
- Creation of higher densities by intensification of use through rezoning
- Re-development of mono-structured areas, mix of functions
- Applying the principle of social mix for better integration of different groups
- Re-development of open spaces, implementation of (existing) landscape master plans, greening, cleaning and maintenance
- Creation of a public transport system to avoid health problems
- Improving waste management by an integrated system of reduction / reuse / recycling and upgrading of old dumping sites

Society

Housing

One might think about a more compact settlement structure with multistorey buildings rather than remain on the concept of single storey houses on huge plots.

Urban Poverty / Migration

To slow down this migration, it is mostly the push-factors in the rural areas that must be reduced, because the pull factors of the economic centers will continue to rise.

Children / Youth

It is easy to influence young people, especially children. This fact should be regarded as an opportunity. Children and young people need more facilities where they can meet. By providing such, e.g. sport grounds or youth centers, it can be avoided that children end up hanging around in the streets, committing small scale crimes or consuming drugs out of boredom.

Education / Professional skills

One of the main tasks of education is to train the youth for the world of work to reduce the level of crime committed by young people. This also implies that there are enough employment opportunities. Botswana must also be made aware of their rights in the context of justice, but also concerning participation.

Gender issues

Women's status in Botswana's society has to rise in the future if they are to contribute to the country's economic growth. Especially social services for single headed households must be enhanced, but also issues such as rape or teenage pregnancy and the position of adolescent mothers are urgently to be addressed. Housing ownership for single-living mothers must be supported. By elevating women's status, the high fertility rate would also come down, since less unplanned pregnancies occur and less children would be born whose main purpose is to ensure a more or less livable life to their parents in their old days.

Economy

Diversification

People need to be informed what markets they could get hold of. 95% of the small scale projects are sewing and knitting (1997), leading to a big competition within the limited market (UDP 1997). The importance of entrepreneurial skills must be made understood, as well as how to apply these skills in the busy world of commerce.

Decentralization/Privatization

The integration of the private sector into government's work is of importance. Furthermore, the city's authority should be given more freedom in decision making, revenues etc.

Unemployment

The provision of employment opportunities is a basic goal. On this, the future of Gaborone's development will strongly depend.

Informal sector

The authorities should make the informal commerce unnecessary by provision of a viable structure of shopping facilities, last but not least to provide the city's appearance.

Environment

Water / Electricity

The supply of safe and affordable drinking water and electricity on every plot should be the target of a well developed city. This would also lead to a better health situation.

To reduce the consumption of safe water, people must be aware of the possibility of using rain water for several purposes. Also surface runoff can be collected, e.g. for irrigation uses.

Furthermore, media such as telephone and radio should be affordable for every household to make all citizens available for e.g. publicity and to rise communication. The rise of awareness towards environmental or health topics could be communicated more easily, even to the elderly ones.

Land use

Encouragement of plot intensification and densification where possible within the city is an imperative.

Transport / Traffic

The provision for pedestrian and cycle tracks has to be addressed by future planning, and the respect of drivers towards pedestrians and cyclists must change completely.

Open spaces

However, these open spaces would be essential for biological and hydrological balance, they could create better climatic conditions and give the city a friendly appearance.

As the city is growing fast and green areas are becoming more and more a rarity, the protection and upgrading of the remaining areas is a matter of urgency. It should be considered that Gaborone has the opportunity to become the center for financial services of the SADC with a busy character, where close recreation areas are required.

The Gaborone dam and its surrounding area is one of the last fragile ecosystems around Gaborone which must be protected from physical development and water pollution.

Solid waste and recycling

By recycling paper, glass, iron etc., Botswana could create new jobs and, of course, protect the environment.

Sanitation

Waste water can, if recycled in a correct way, be reused for ground water recharge, potable water or irrigation. Since the water situation in Botswana is not the best, research and training in water recycling must have a high priority.

Air / Noise pollution

The prevention of nuisance by possible noise or/and air pollution should be improved.

Energy

Botswana has very good conditions to promote photovoltaic plants, since there is a lot of sparcely used desert land where these plants could be allocated. Solar energy can also be

used for water heating. If the country changed its energy resources to renewable ones, it would be a big step towards sustainable development.

3.3 Opportunities

Gaborone is an economic engine and generates a lot of income in the formal and informal sectors. It is a market place that attracts investments of local and international enterprises. Due to its educational infrastructures (for example the University of Botswana), Gaborone is a center of know-how, research, information and communication.

In Gaborone, some 'good governance' policies that create opportunities for sustainable development, are already in use. They are a base for sustainable urban development, but are not sufficient. However, there is still a quest for a Gaborone City's sustainable identity as a whole and for its constitutive parts. Notwithstanding, this identity can be created only through mutual conjunction of key city stakeholders from different sectors (private, government, para-statal, NGOs, public, etc.). Their thinking should embrace social, economic and environmental issues as one count. Concerning this, the challenge is how to achieve sustainable urban development goals not compromising the benefits of today's and future Gaborone citizenry.

Self-Help Housing Program

In 1974, the Government of Botswana established the Self-Help Housing Agency (SHHA), which had the task of implementing site-and-service schemes that were meant to support low-incomers to build houses on the basis of self-help and self-reliance. Plots of 450m² were provided for free to low-income groups and plot holders were given security of tenure through certificates of right. In 1992, the self-housing program was reviewed. The plots were no more delivered at no cost, but charged a fixed sum according to the income group of the applicant. Due to the ongoing demand for new plots, the plot size was reduced to be 200-300 m² for low-incomers and 375-400 m² for people with a middle income. SHHA program houses must correspond to some criteria of minimum standard and construction norms, like the construction of toilet facilities (at least pit latrines), the payment of service levies for water from a standpipe and for garbage removal.

Today, the fully serviced plots belong to the State, which charges rents on it, but the houses are for a period of 99 years in the property of the plot titleholder. Land tenure security is one of the pillars of social sustainability (Brennan 1994). In this sense, the possibility of inheriting plots provides social justice and security. In order to prevent speculation on the plots, the plot holder is not allowed to sell his house before ten years, unless he will be charged the full market prize.

The application of the principle of full cost recovery on the SHHA program aims at social equity. Charging the medium and high-incomers plot prizes, property rates, service levies and rents allows a cross-subsidy to low-income groups. Thus, the medium and high-income residents, pay a full cost recovery of the land values, physical services and the social structure (education, health).

The National Physical Plan and the Regional Master Plan

National physical planning should provide a spatial framework for the co-ordination and implementation of development programmes and projects at the national level. In many countries current emphasis in national planning is on generalized comprehensive planning coupled with policy formulation and co-ordination. Contemporary national physical planning is a management tool to be used in the communication of policy to government agencies and in the allocation of resources. Botswana is contemplating to prepare a formal national physical plan into which all the regional, settlement and local plans have to be fitted.

The future need and relevance of a national physical plan has been debated over many years and indeed is still being debated. The complexity of this subject is however not in dispute, nor is the need to relate together as far as possible the many policies affecting human settlements in our country.

A future National Physical Development Plan for Botswana will be the plan which deals with spatial aspects of a nation's social and economic development and consists of such background studies, reports, plans, maps and other material containing information which are based on the following objectives:

- (i.) To rationalize the use of land and natural resources for various social and economic activities and in particular, preserve the best agricultural land and areas that need special attention.
- (ii.) To provide a framework for the co-ordination and implementation of sectoral programmes and development projects.
- (iii.) To establish a system of urban and rural settlements that will be in conformity with the location of resources; promote a more balanced economic growth throughout the country; and permit the provision of infrastructure and other facilities on an economic base.
- (iv.) To promote the hierarchical development of urban centres in addition to Gaborone and Francistown, thus providing more alternatives for the absorption of migrant population and avoiding the problems arising from excessive concentration in current urban areas.
- (v.) To strengthen the functional and infrastructure linkages between human settlements with respect to the movement of people, commodity flows, the delivery of services, and generally socio-economic activities.
- (vi.) To provide guidelines for the provision of services and infrastructure in relation to the distribution of natural resources, productive activities and population.
- (vii.) To develop guidelines for environmental protection, comprehensive emergency and disaster planning and management, regional, district, settlement, special and action area planning.
- (viii.) To promote sustainable and balanced regional district development.

Regional planning is a particular form of public planning action, embracing both economic

and physical planning, applied at a sub-national level spatial unit (e.g. region, province, canton, county, district, sub-district) with distinct and internally consistent patterns of physical features or of human development which gave it a meaningful unity and distinguish it from surrounding areas. The main reason why regional planning has to be done is to plan the use of land as well as to regulate such matters as air pollution, unified circulation system, water and energy distribution, sewage and waste disposal, environmental and habitat protection, which cannot be regulated by an individual community.

There are almost endless criteria on which to base the delimitation of regions for planning purposes: physical attributes such as climate, land forms, soil etc.; socio-economic characteristics, including occupational structure, economic activity, land use, language, etc. The other important element in developing regional planning frameworks and practices is to consider cities and towns as entities not separated and apart from their extensional landscapes such as sub-urban, rural, and wilderness.

Currently in Botswana's planning practice there are three types of regional planning documents. These are the following: i.) Regional Master Plan (RMP); ii.) District Settlement Strategy (DSS); and iii.) District Integrated Land Use plan (DILUP).

Regional Master Planning is a response to two types of problems - the problems of socio-economic disparities between the regions of the country and the physical environmental problems of growing urban areas, which can only be tackled effectively on a supra-urban scale. The regional disparities in economic and social development are particularly acute in western and northern Botswana, and there is a huge contrast between the Gaborone and South-eastern Region, and the rest of the country. Gaborone dominates Botswana and the life of the country is centered around it.

Planning at this level results from the National Settlement Policy, which has divided the country into four Planning Regions, each region comprising a number of administrative districts. Such plans are broad brush in nature, aimed at tackling issues having an impact on wide areas. They provide an overall framework for all district settlement and local plans setting general directions for district and settlement development, infrastructure and social services provision, economic/financial requirements and appropriate land utilisation. Their objective is, therefore, to provide a framework for the spatial distribution of resources and to facilitate the creation of incentives for increased production through investment by both private and public sector.

Urban Settlement Development Plans (USDP)

The Urban Settlement Development Plans (USDP) in Botswana have developed over time and have been shaped by numerous legal, political, and social forces. Understanding these forces is a prerequisite to understanding what the plan is and what it can and cannot accomplish.

The USDP as a static comprehensive (e.g. master, general) guide to the urban community's future is giving way to a comprehensive planning process that includes the following:

- 1) Environmental objectives for creating and maintaining an urban environment which ensures that physical development is orderly, co-ordinated and of high quality, and that environmental negative effects and development conflicts are minimized or avoided;
- 2) Social objectives for creating and maintaining an urban environment which ensures the provision of adequate and suitable social services and facilities to meet present and future needs and, to minimize or prevent the social costs associated with uncontrolled growth.
- 3) Economic objectives for creating and maintaining an urban system which promotes an efficient and prosperous urban economy with minimum cost in the provision and maintenance of infrastructure, travelling time and effort, and cost of all other urban activities.
- 4) Urban Management objectives for assisting in promoting an efficient management of urban growth by creation and maintenance of the various elements of the urban structure particularly institutional building.

USDP usually consist of three portions: (1) a description of existing conditions; (2) a statement of goals and objectives; and (3) a description of future needs-and proposals for meeting those needs. All USDPs should consist of proposal's map in a scale from 1:5,000 to 1:20,000 depending on the settlement size. The description of existing conditions establishes a context for the plan's recommendations; it provides a comprehensive record of conditions during the preparation of the plan, defines key terms, and educates community residents about the current status and needs of the community.

“Goals and objectives” represent the plan's statement of community desires. These statements give direction to the plan. They represent the community's aspirations and outline the ends that should be reached if the plan's proposals are properly implemented. Identifying how best to meet the needs of the community is at the heart of the plan. These needs are derived from projections that are exogenous to the plan, such as population growth, economic growth, land use requirements, as well as from the goals and objectives of the plan.

Approaches to meeting these needs the recommendations of the plan-are usually described in the form of policies, programmes, and projects. Policies are rules or courses of action that indicate how the goals and objectives of the plan should be realized. Programmes are a series of related, mission-oriented activities aimed at carrying out a particular policy or group of policies. Programmes often consist of a series of projects, which are specific actions or "brick-and-mortar" recommendations.

How these policies, programmes, and projects are described in a plan depends on the nature of the recommendations, and the orientation of the plan. Certain policies can be expressed in graphic form-such as the proposed land use pattern or the thoroughfare system for a town. Other policies are usually written.

For example, the Gaborone City Development Plan as a typical example of USDP should conform to the development plan of the adjacent village Tlokweng. In order to reduce the scope

of a development plan, besides a all-embracing plans, separate plans for different sectors should be prepared.

Local Plan

The local plan deals with the detail of development in urban and rural settlements, providing the basis for development control and for co-ordination of public and private development initiatives. It provides guidance to all parties involved in carrying out development. It establishes also policies and proposals in a very fine detail using zones, blocks, plots and sites as basic spatial units. This is usually done on a “proposal map” based on the Department of Surveys and Mapping base line maps in scale 1: 5,000 and/or larger (1:2,500; 1: 1,000).

In practice, the local plan demonstrates the land-use implications of what is proposed, supported by a written report describing the background to the plan, the decisions it contains and how they were arrived at. Actually it is concerned to achieve the optimal allocation of resources between all of the competing needs or uses within a part of settlement. After approval of the settlement development plan, the planning authority is free to continue the planning process through the preparation and adoption of local plans which cover smaller areas, settlements and their parts.

According to the Physical Planning Handbook for Botswana (1997, p.82-83), there are three different kinds of local plans in Botswana:

- i.) Detailed layout plans for new development areas
- ii.) Detailed layout plans for upgrading areas
- iii.) Detailed layout plans for specific areas

In summary, the division of physical development plans into different levels and sectors as presented above may provide a coordinated and easy understandable planning hierarchy. The content of these plans must suit the requirements of the stakeholders at the different levels. The institutional and policy framework should be adapted to the multilevel system and make provisions for a proper coordination of the plans and conformity to each other.

4 MEASURES AND TOOLS TO MEET OPPORTUNITIES FOR SUSTAINABLE URBAN DEVELOPMENT IN GABORORNE

4.1 Indicators for Sustainable Urban Development

4.1.1 Existing indicator sets for Botswana and Gaborone

As of today, three different indicator sets are in use:

- Botswana's National Agenda 21 (developed by the UN) contains a broad range of indicators for social, economic and institutional aspects as well as for natural resources (<http://www.un.org/esa/agenda21/natlinfo/countr/botswana/>). The data of these indicators are comparable to those of the other UN member countries.
- The „Vision 2016“, an UNDP supported strategic framework of the Government of Botswana, is meant to guide all national policies and programs, and contains a monitoring and evaluation (M&E) system. This is to enhance the implementation of the development objectives of the Vision 2016 and also of those fixed in the national development plans. This M&E system is designed as an on-line database system. Based on the formulated future challenges for Botswana, an indicator system with more than 100 indicators has been developed. Government and other stakeholders report their activities, mainly in form of data referred to the defined indicators.
- A third application of an indicator set, also developed by an organization of the UN (United Nations Center for Human Settlements; UNCHS) serves to compare Gaborone with Francistown, the second largest city of Botswana. This indicator set is a simple spreadsheet for collecting and analyzing a data set composed of 23 „key urban indicators“ and 9 „qualitative data sub-sets“ for the „Istanbul +5“ assessment procedure.

Thus, indicator sets are known tool in Botswana. This makes it easier to introduce them also into sustainability oriented spatial planning. Despite the UNCHS indicators for the comparison of Gaborone to Francistown, a comprehensive indicator set for sustainable urban development on the level of Gaborone does not exist.

4.1.2 Proposal of a comprehensive indicator set

Based on the existing indicator sets and on the goals and objectives (chapter 3.2), a set of sustainability indicators for the city of Gaborone has been proposed and discussed with local stakeholders.

Society

- Water quality
- Water consumption
- Provision of water
- Provision of electricity
- Self-Help-Housing Agency (SHHA) promoted buildings
- Unemployment
- Poor population
- Infant mortality rate
- Crime incidents
- School enrolment
- School staff
- Class size
- Health care
- HIV rate
- Modal split
- Public administration
- Teenage pregnancies

Economy

- City product
- Privatization
- Local government revenues
- Employees per sector
- Unemployment
- Shopping facilities

Environment

- Land use change
- Plot size
- Space for recreation
- Waste disposal
- Sanitation connection
- Air pollution
- Noise pollution
- Energy consumption

For each indicator target values, i.e. standards to be attained, have been proposed (see Appendix). For most of these indicators, periodically updated data bases are available. However, for some of the indicators no data exist (for example, noise pollution). For this, additional measuring, and respectively the use of GIS are indispensable.

4.2 Monitoring and controlling urban development

4.2.1 Use of indicator-based monitoring and controlling in urban planning

Since spatial development is very complex, it is important to use tools and models, which help to reduce this complexity. The urban development of Gaborone reveals that a systematic spatial observation and a definition of development goals are necessary in order to achieve sustainable urban development. The proposed Monitoring and Controlling Concept is a tool which suits the ongoing planning process and is a comprehensive framework used for strategic and operational urban planning. It is a means for collecting data and information in a systematic manner, which can then be used for objective and well-founded decision-making.

Since spatial development is a dynamic system, development planning must be a continuous process as well. The goals, measures and instruments should be adapted continuously to the changing framework. Often, the preparation of a development plan is perceived as a 'compulsory task', which must be made once, and then several years later again (revision). The approval of a plan build then the end of the planning process (Keiner et al. 2001). Because of that 'static physical planning', the implementation and the effectiveness of development plans do often not achieve the goals. Therefore, plan preparation, its implementation and plan revisions should be embedded in an ongoing process.

Monitoring

Monitoring means a continuous spatial observation, gathering information (e.g. statistics or GIS analyses) that covers a long time period and a wide thematic range. Monitoring is a systematic ongoing analysis of the environment and allows to reveal critical developments. Since monitoring always provides up-to-date information development trends can be determined at an early stage. It provides a 'picture' of the moment. The indicators measured are also used for controlling and evaluating.

A predefined monitoring system raises continuous information on spatial development. The indicators measured should be predefined and should cover a wide variety of topics. Controlling is a part of the monitoring process and incorporates the comparison between the goals of the development plan and the current state of the development. This comparison allows to determine whether the goals and objectives have been or are being achieved and where measures must be taken in order to achieve them. Thus, basic information for the plan revision can be provided. Monitoring and controlling can be combined to assess and evaluate the spatial development and to gain information for further steps.

Controlling

Controlling is a common management tool in private companies to compare the goals with the current state of the company. According to this comparison measures are taken to achieve the

defined goals. The continuous process of ‘definition of goals’, ‘implementation’ and ‘controlling’ helps to enhance the efficiency and effectiveness of spatial planning as well. Whereas monitoring delivers extensive information about the current state of the environment, controlling only considers the goals defined in the development plan and associated processes.

Types of controlling

Controlling is divided into strategic and operational controlling.

Strategic controlling is focused on the goals and objectives of a development plan. It can be subdivided in

- Analyzing the validity of goals
- Analyzing the achievement of the goals

Operational controlling relates to the implementation process in general and the measures taken. There are also two different types of evaluation:

- Analyzing the execution of measures (by simple check-lists)
- Analyzing the effectiveness of measures

Working out a monitoring and controlling concept

To achieve high effectiveness and efficiency of monitoring and controlling, the following preparation steps are suggested:

- Definition of goals for the (spatial) urban development of Gaborone. The goals should conform to higher policies and basic principles of sustainability.
- As a further step, for these goals the corresponding indicators and target values should be defined. The proposed indicator set may be serve as starting point.
- For all these indicators, the required raw data, the source, the availability etc. should be determined.

By following these steps it can be assured, that the data collected is directly used in a process which has a direct or indirect impact on decision-making.

Today in Gaborone, there is already a lot of data available, which could be part of a monitoring and controlling concept. At the same time, there is a lack of data in the area of spatial observation, and the management of all the available data is still uncoordinated. The availability and quality of the data therefore do not meet the requirements of a comprehensive spatial monitoring and must be improved.

Controlling procedure

The controlling procedure should be a well defined process of data collecting, analyzing and reporting, preparation of plan revision and approval. It should be embedded in an institutional framework facilitating its effective and efficient implementation. Technical and personal requirements are supplemented by suitable policies, legislation and distribution of responsibilities. The following figure proposes a controlling procedure regarding the different elements and the responsible authorities involved.

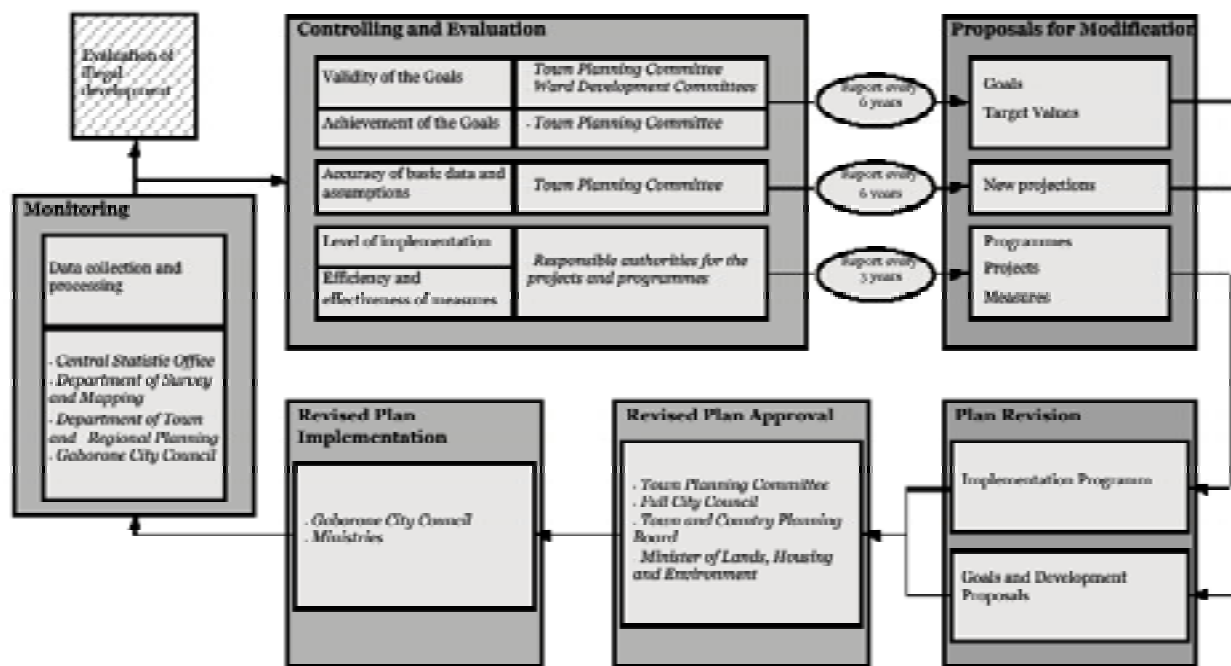


Figure 14: The procedure for the controlling process

Policy requirements

The basic principle of the decentralization of power and competence should be followed in all the policies related to spatial planning. Decentralization requires a proper coordination between the authorities, the organizations and the people. The policy framework, therefore, must also reflect that principle.

Furthermore, minor changes in policies and legislation are required before the Monitoring and Controlling Concept can be implemented. The most important points are:

- Addition to the Town and Country Planning Act, Second Schedule ‘Matters for which provision may be made in development plans’: The elements of the monitoring and controlling should be part of a development plan. A plan should contain basic principles and accompanying indicators representing the spatial development.
- Modification of Town and Country Planning Act Section 7 ‘Revision of development plan’: The section should be changed in such a manner that plans are continuously revised and adapted to the actual situation. The defined measures should be revised every three years and the goals and development proposals of a plan every six years. The revision must be based on the monitoring and controlling reports.
- Modification of Town and Country Planning Act: The competence split up between the Town Planning Committee and the Town and Country Planning Board should be stipulated by the Act
- Modification of Township Act: Modification backing the enhanced responsibilities and competence of the Town Planning Committee and Full City Council.

- Addition to the Land Survey Act: The act should be supplemented by provisions regulating the preparation and the regular update of spatial data. Basic principles of digital data management might be useful.
- National Settlement Policy: The policy should provide a framework for the local authorities to make decision on the development of their settlements. The policy should assure the coordination between the regions and communities. The projects and programs at the national level should meet the needs of local authorities and vice versa.
- Infrastructure Plans: The provision of appropriate infrastructure is a key element for a sound development. Infrastructure plans should be elaborated at different levels in order to coordinate all projects and to meet the requirements of authorities and people affected

4.2.2 Implementation of the proposed indicator set

The implementation of the Monitoring and Controlling Concept and its accompanying changes of the institutional and policy framework has a considerable impact on the planning process in Gaborone. Changes are expected to occur in the effectiveness, efficiency, transparency and acceptance of the planning process.

It is proposed to create a „Committee for Sustainable Urban Development“ (CSUD), which is attached to the physical planning unit of Gaborone’s City Council. It is supported by experts from other departments, such as economy, environment, social services and law. The CSUD provides the local and national authorities with a recurrent (for example, bi-annual) „Report on Sustainable Urban Development“ (RSUD). This report contains the results of indicator analysis and recommendations for further development.

In order to obtain data for each indicator, the CSUD delegates the tasks of data collection, analysis and communication. In this context, the Central Statistics Office (CSO) plays a key role since many relevant data is handled there.

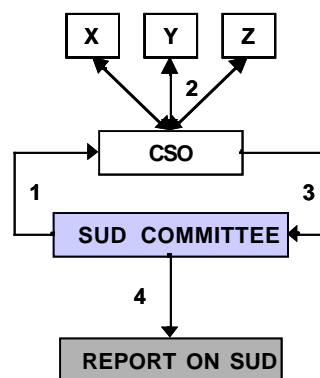


Figure 15: Data collection (steps 1-3) and report (step 4) by the Committee for Sustainable Urban Development

Equipped with the indicator referred data, CSUD analyses the effect of plans and programs and gives recommendations for further development. It also points out major lacks in policies and

legislation, thus also giving an input to the national authorities. Thus, a virile communication between the national and the local level is important. This can be achieved by the Report on Sustainable Urban Development as base of information. Thus, national authorities have a reliable source about urban development in Gaborone. The local authority also uses the RSUD to assess the contribution of projects and measures to the achievement of the defined objectives.

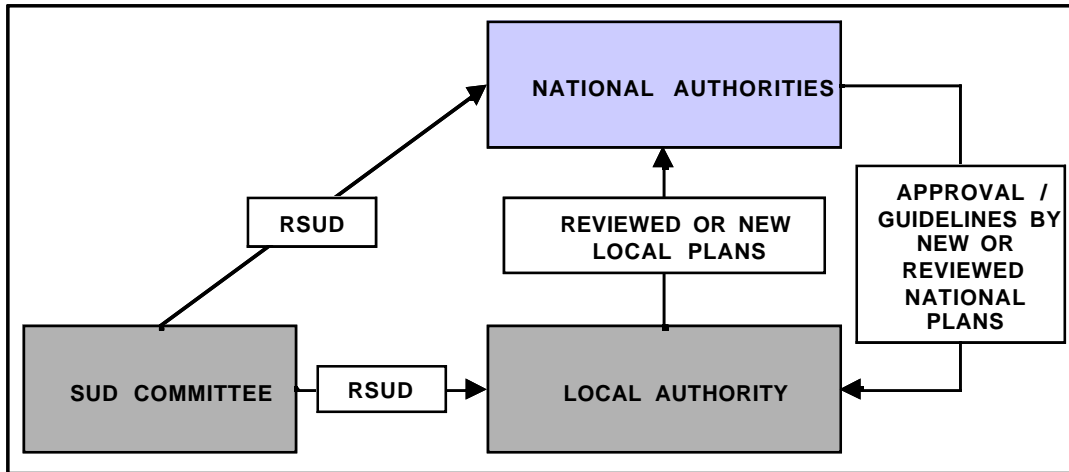


Figure 16: Iterative process of plan review or development, supported by the RSUD

The expected outcome is that national and local plans will be free of conflicts and that national and local interests will be considered on both levels.

Apart from the communication within the country, the international exchange of information is important as well. Benchmarking with other cities, both from developed and developing countries, especially with other fast growing cities in Africa, as well as the exchange of information can contribute to achieve excellence in planning. Also, best practices can be offered and learnt from.

4.2.3 The role of GIS

The proposed indicator set could facilitate a systematic analysis of the spatial development of the city. The monitoring data require a comprehensive thematic and geometric database. The data can be collected, managed and processed by various kinds of tools and instruments depending on their character. It is necessary that they are collected, managed and stored according to specific guidelines, so that data transfer, analysis and calculation is possible. GIS is a useful tool to meet all these requirements.

In order to implement the Monitoring and Controlling concept it is proposed that a Geographic Information System (GIS) and Scenario technique be elements of future physical planning processes in Gaborone. These two tools help to assess the changing environment and the dynamic development process of the city. GIS is a computer based tool, which allows to analyze past and present developments and to provide data and information for future planning issues. GIS may also be used, for example, for land use analysis, as well as for the description and planning of the spatial structure.

Until today, there is no systematic urban-development related GIS application in Gaborone City. For the time being, in Botswana GIS is mainly applied by the Department of Town and Regional Planning (DTRP), the Ministry of Agriculture, mining companies and private consultants. The GIS is a system of hardware, software, operating personnel and data used for storage, mapping and analysis of geographic data. Basic data for these GIS are provided by the Department of Surveys and Mapping (DSM) on demand only. This leads to the situation, that there is a lack of coordination concerning the acquisition of basic data and the storage of GIS data. Although the technical infrastructure and enough basic data are available, so far the application of GIS at Ministry and Local Government level is not widespread.

Continuous deliberate action in human and organizational sphere will be the main prerequisite for the radical changes in existing haphazard and random diffusion of GIS technology in different government, parastatal and private organizations. The information acquired through our research is a starting point in recognising the dynamic relationship between those two: human and organizational aspects of GIS technology implementation efforts to make a positive step forward. The existing implementation framework assumes bureaucratic heritage, which is contrary to the modern GIS system building, in which proper sensitizing of human crew and organizational base flexibility, should be the major features for successful GIS development. It will be necessary to devote more financial and managerial efforts to look at the positive side of GIS use in different organisational and human settings. However, the revised approach will definitely effect organizational performance and influence different individual and group behavior towards wider acceptance of new technology.

The way forward is not going to be easy and short one especially with regard to the existing functionality of GIS which does not correspond fully to the requirements of different users. Interorganisational GIS activities will continue to raise the opportunities for complications in establishing departmental partnerships, and require additional negotiations over cost, accuracy, responsibility and many other issues involved. It is clear that the future of human and GIS organisational changes in Botswana will be easier to advocate than to practice (Azad and Wiggins 1995; Budic-Nedovic and Pinto, 1999; Cavric, 2002).

In order to improve the quality of the basic data and to enhance the spread of GIS application the strategy of the DSM proposes to set up an integrated Geo-Information System. This very comprehensive system would support the planning process by delivering important information. Furthermore, the latest initiative on the National Spatial Data Infrastructure developments are also showing a positive move towards governmental GIS integration and more efficient data exchange.

High quality of GIS data is a precondition for useful data analysis. Therefore, it might be advisable to launch a GIS center which is responsible for collecting and managing all basic data used by Ministries, local authorities and private institutions. This competence center should have a leading position in terms of GIS application, education and management. A coordinated GIS management requires less man power, financial resources and provides a higher quality of basic data.

4.2.4 Limits to indicators and controlling

The usefulness of indicators depends thus on their suitability, appropriateness, and the precision of the relation to the conclusions. Using indicators without defining target values increases the risk that indicators become a mere collection of data without influencing the decision-making process. Therefore it is necessary to define specific, quantifiable, target values or “standards” that show changes and trends over time.

Indicators have their limits and usually are small quantities of information that reflect the status of different systems including urban systems as well. They cannot measure all objectives of the underlying strategies and plans and can only reflect a part of the actual state of development. It remains difficult to explain the complexity of urban development by indicators only. Due to the varying interpretations of their results, even if the selection of indicators follows comprehensible criteria, indicator based analysis remains subjective to a certain degree. One should remember that it is just the interpretation of the indicators which gives them their significance, and that any quantitative information must always be supplemented by qualitative analysis within the controlling process.

4.3 Improved mechanisms and strategies for Sustainable Urban Development

4.3.1 Implementation of revised and new mechanisms/strategies

In the previous chapters, tools to enhance sustainable urban development, like indicator-based monitoring and controlling and the use of GIS were proposed. Additionally, there are existing planning mechanisms and strategies that can be improved. Also, additional tools are proposed in this chapter.

Goal formulation

Most of the assessed mechanisms and tools - except the National Settlement policy and National Policy on Housing - do not have a clear hierarchy of goals and objectives. The link between goals and the measures, which go with them, is mostly missing, too. To improve the performance of the plans a clear hierarchy of the goals is necessary. Additionally, measures get mixed sometimes with goals which complicates the clarity of a plan or policy.

To develop a structured and clear plan or policy, the existing tools such as a „hierarchy of goals“ must be used correctly. After having accomplished a structure of the different goals, which distinguish between superior and subordinated goals, measures must be defined to achieve these goals. Disposition in phases of these measures, as accomplished in the plans must be prosecuted. Additionally, the responsible body for implementation of these measures must be fixed.

Proposal for an improved planning system

In order to guarantee sustainable development, planning efforts must be effective and efficient. A clear hierarchy of the instruments requires that all the tools have a clear function in the process and that the resources both financial and personal are used in an optimal way. In the current planning system the Greater Gaborone Structure Plan (GGSP) and the Gaborone City Development Plan (GCDP) fulfil more or less the same duties. As the only difference GGSP covers a bigger planning area. This duplication must be prevented.

Due to the absence of the South-East District Settlement Strategy up to now, the concept of planning is incomplete. The fact that the planning system is changing and new instruments are under preparation. Nevertheless, the current structure of plans can be adapted in the reviews and integrated in the new planning system. In the following table 3 tasks are shown in the first column and the plans, which should contribute to the solution of these tasks, are shown in the first row. This list only shows the most important instruments and gives a rough idea, which problems should be tackled by what instrument.

| Topics and Tasks | SEDSS | GGSP | GCDP | UDP | Extension | Standards |
|---------------------------------------------------------------------------|--------------|-------------|-------------|------------|------------------|------------------|
| Settlement | | | | | | |
| Land use planning in general (future development) | X | X | X | | X | X |
| Land use planning in general (what kind of land use?) | | X | | | | |
| Land use planning: densification/mixed land use areas/appearance of wards | | | X | | X | |
| Low income housing | | | | X | | |
| Urban poverty | | | | X | | |
| Rural urban migration | X | | | | | |
| Inspection | | | | | | X |
| Resources | | | | | | |
| Water situation in Gaborone Region | | X | | | | |
| Use of open spaces | | | X | | | |
| Agriculture | | X | | | | |
| Infrastructure | | | | | | |
| Education/health/community | | X | | | | |
| Traffic | | X | | | | |
| Natural disasters | | X | | | | |
| Water supply/sewerage/power | | X | | | | |
| Service delivery organization | | X | | | | |

Table 4: Tasks and corresponding plans

The South East District Settlement Strategy (SEDSS), and South East Region Master Plan which are in preparation and not yet implemented, should guide Gaborone's physical development planning. In addition, the goals and objectives of the Vision 2016, adjusted to the needs of Gaborone, should be included in this strategy. This Settlement Strategy should include the city of Gaborone, even if the city area does not belong to the South East District.

Coordination of Gaborone and its surrounding areas is crucial for the development of the region. The geographical extension of the plans should be adequate to the geographical extensions of the problems they are supposed to solve. Therefore, the Greater Gaborone Region is the optimal geographical extension to be planned. This enables Gaborone and the surrounding settlements to work together as equal parties in a coordinated manner. Synergies may be used and the implementation of such a plan is easier due to the integration of all settlements' interests. Plans with smaller extensions but with the same duty automatically ignore problems.

The Greater Gaborone Structure Plan (GGSP) should therefore be fostered and amended to a detailed „Coordination plan“. GGSP determines general land uses and should be legal binding for all authorities. Due to the findings of the South-East District Settlement Strategy detailed alternatives of development must be elaborated. In collaboration with the public the optimal development must be elicited. The duration of review period should be the same as the UDP—six years.

The Gaborone City Development Plan (GCDP) should be subordinated to the GGSP. Generally this top down approach should guide Gaborone's development according to the guidelines of the GGSP. Still a bottom-up approach should be fostered as well through the system of local plans (e.g. detail layouts, action area plans). GCDP therefore may also influence the development proposals of the GGSP.

GCDP's main duty should be to fix the exact land use and design principles. General issues, which are elaborated in the GGSP, can be refined where necessary. The distinction between the different land uses has to be more precise. Every plot's land use, building heights and unit capacity factors must be defined. Land use mixture shall be prescribed in the development of new areas and in the improvement of the old ones.

Extension plans such as the Central Business District Masterplan shall still be in use, since they prescribe building arrangements and detailed design regulations. Also building standards and guidelines do not lose their function in the inspection of developments.

Declaration of the whole country as a planning area

Currently, 16 regions, among others Gaborone, have been declared planning areas. In those areas, physical plans have been successfully implemented. Outside planning areas, development plans are advisory and not legally binding; therefore, 'Local Authorities and developers often opt to ignore them' (Settlement Policy 1998, 2.10.9). Only 0.7 million people, i.e. 40% of the population of Botswana, live in villages, towns or cities declared planning areas. There are many Urban Villages, which have not been declared as planning areas yet; e.g. Thamaga (18,236 inhabitants in 2001), Moshupa (16,820 inh.), Tonota (15,949 inh.), Bobonong (14,662 inh.).

To avoid uncontrolled and uncoordinated spatial development it is necessary that the whole country is declared as a planning area (as proposed in the report of the Second Presidential Commission on the Local Government Structure, p. 80). A first step in this direction was made in the National Settlement Policy, 1999, where 4 planning regions covering the whole country were designated. A regional master plan should particularly deal with the resource inventory, including their type and potential as well as policies and strategies for their utilization. However, there are no regulations related to the necessary coordination of regional master plans and development plans for designated planning areas. Additionally, the system should be set up in such a way, that the conformity of the development plan is guaranteed both horizontally and vertically.

Scenario technique

Scenario Technique is used as a means to evaluate future development alternatives considering particular aspects of urban development.

Scenarios are hypothetical sequences of events, designed to understand the causes of a possible future development. They describe what might happen under certain assumptions. Scenarios are often used by planners to illustrate complex situations, relevant relations and possible consequences for the future development. 'Alternative futures' can be used for generating additional scenarios, for establishing criteria for systematic comparison of various alternative, or for the analysis and examination of specific issues.

There are many factors influencing the future land need in the city. However, it is hardly possible to predict accurate values for these factors. Scenarios are used as means to describe plausible development alternatives in spite of many uncertain parameters. Thus, scenario technique is seen as a suitable ‘tool’ for the planning of Gaborone and is proposed to be applied in the future.

Strategic Environmental Assessment (SEA)

Defined as the systematic process for evaluating the environmental consequences of proposed policy, plan or programme initiatives. It aims primarily at ensuring that environmental consequences are fully included and appropriately addressed in the earliest appropriate stage of decision-making on par with economic, and social consideration (Wiseman, 1997). SEA further includes the preparation of written report on the findings of the evaluation and using the findings in a publicly accountable decision making (Wiseman, 1997). Table 4 shows the relationship between SEA and strategic decision-making. For each strategic decision making stage, there is a corresponding environmental input.

| Strategic Decision Making Process | Environmental Input |
|------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------|
| a) Determine purpose, vision and strategic objectives | Determine appraisal objectives and indicators and define objectives |
| b) Determine means by which objectives will be achieved. Choose between objectives | Predict and evaluate impacts of alternative actions |
| c) Fine-tune chosen alternatives. Determine how it will be implemented | Mitigate environmental impacts of chosen action; include criteria for lower level decisions |
| Formal decision | SEA report and consultation |
| Announcement of strategy | |
| Implementation strategy and monitoring | Establish environmental guidelines for implementation |

Table 5: Links between SEA and the Decision-Making Process, Source: Adapted from Glasson, J et.al, (1999)

SEA and Physical Plans:

SEA provides an appropriate opportunity in which physical planners can ensure that local plans take on board environmental issues. SEA process covers the following:

- Characterization of the environment- in which environmental stock that could be affected by the development plan is identified and assessed
- Scoping of the plan ensures that the plan covers an appropriate range of environmental concerns.
- Appraisal of the plan’s contents – asses environmental effects using matrices

The SEA process should cover the following (see Table 5):

| |
|----------------------------------------------------------------|
| SEA Process |
| a) Outline of the Proposed policy, plans and programmes |
| b) Aims/objectives and scale |
| Location / area |
| Existing initiatives / proposals |

Alternatives

c) Environmental overview of the affected area / environment

Opportunities and constraints

Overall environmental quality of the area or region

d) Identification of Environmental Consequences (broad)

Direct consequences- duration

Indirect consequences- duration

Cumulative impacts- duration

e) Identification of environmental consequences- specific

Local and type

f) Findings and Recommendations

Table 6: SEA Process, Source: University of Cape Town: Short Course in Strategic Environmental Assessment, August 2000

From the above, a model SEA for local physical development plans could involve the following:

- Setting sustainability objectives (possibly linked to Agenda 21)
- Setting plan objectives
- Setting environmental targets and/or carrying capacities
- Comparing alternative locational strategies
- Describing the baseline environment
- Identifying environmental criteria- e.g. noise, ecology, air quality
- Scoping
- Preparation of compatibility matrix
- Preparing matrices of policies v. environmental criteria
- Preparing matrices of proposals v. environmental criteria
- Preparation of written description of policy impacts
- Preparing a written description of proposal impacts

As in the case of the environmental assessment methodologies discussed in the previous sections, SEAs are essential methodologies through which physical planners can ensure that environmental concerns have been adequately incorporated in planning decisions.

Public participation

Botswana's Government has recognized the importance of the involvement of people in the planning process. The importance of including the public can not be stressed enough. Planning mistakes can be avoided and spatial conflicts can be minimized if the public is involved in all stages of the plan preparation. Emphasis should be given on the consultation process at the beginning of the planning process to make the people feel integrated. This early consultation contributes also to an effective planning, because plans don't have to be adjusted radically in the proceeded planning period and a broad common sense about the future development is already established at an early stage.

In the current plans and policies, good as well as bad examples of public participation can be found. Aware of the fact that the inclusion of the public is easier with concrete projects such as in the UDP than with general policy questions (physical plans, policies), a maximum of consultation shall be aspired.

According to Serati (1997) planning participation and consultation structures in Botswana exist at various levels of society. Some of these structures are formal. Some consist of elected representatives while others happen to be formed on an ad hoc or voluntary basis. Some of the formal structures like Village Development Committees, Council Committees and the Council itself, Land Boards, Tribal Administration, District Administration and Parliament are already taking part in the planning process.

These structures are further supported by technical sub-committees like the Village Extension Team, the District Land Use Planning Unit, Physical Planning Committees in Councils and Works department technical sub-committees, which all provide technical advice. These committees and units in most instances are also used to mobilize the participation of the communities in development projects and at times this is done through the *kgotla* (*local village committees*) meetings. Traditional leaders (chiefs, headmen etc) play a very important role in mobilizing their communities to participate in development planning. Here they are quite successful in such commitments especially in the rural areas as the communities can relate to the projects in their own environs (Mosha and Cavric, 2001).

Several possibilities to improve public participation exist. Basically, it is distinguished between active and reactive public participation. Active public participation starts already at the very beginning of the development of a physical plan. The procedure for instance, which is used for the UDP, could be adapted to the physical plans. Ward development committees have proven their applicability to detect the people's needs in developing the Urban Development Plan. They could also function as a source of information for the development of physical plans or policies. Creating societies or associations which pursue a certain interest could also be useful since they could be contacted and invited to take part at „round tables“ together with already existing interest groups such as NGOs. Performing workshops with experts on different subjects is another possibility to actively implement public needs into a physical plan and policies. Nowadays the power of the internet may not be disregarded. Botswana's youth is very familiar with the internet. Therefore, using the internet to gather the needs, ideas, visions and opinions of the public to conceive the overall guidelines for spatial development could be tried in Botswana through internet.

Reactive public participation is already more famous and an accepted tool. After experts have accomplished a first draft of a physical plan or a policy, public may have access to the physical plan or the policy and examine those. Judgements and opinions of the public or the associations may influence the further accomplishment of the plan or policy. The internet may be used here as well as a virtual „public place“.

4.3.2 Limits to recommended improvements

During the duration of the DIMSUD project it was not possible to find answers to all questions. The main task was to ask the “right” questions and to point to where the Gaborone City Council might start activities in order to achieve more sustainable urban development.

Sometimes, the proposals in this report are radical and would require major changing in the planning legislation and the planning system. If applied, the recommended improvements would lead to a new distribution of tasks and responsibilities.

It is up to the Government of Botswana and to the Gaborone City Council to decide what is feasible in the given context.

5 CONCLUSION

5.1 How sustainable can the urban development of Gaborone be?

The studies undertaken in the case city of Gaborone until now reveal not only problems but also workable solutions.

Sustainable development is the only development alternative for Gaborone. A sound balance between social, economic and environmental factors is absolutely necessary for a successful future of the city. The urban growth of Gaborone is limited to the area within the city boundary. Since Botswana has now only 1.7 million inhabitants, it is not likely that Gaborone will develop to a million or mega-city. However, a further urban sprawl of Gaborone cannot be sustainable, because it is economically and socially not affordable. If the development of Gaborone is judged to be not sustainable, what then is a sustainable city? There are a lot of hypothesis for an answer. Haughton & Hunter (1994) propose: 'A sustainable city is one in which its people and businesses continuously endeavor to improve their natural, built and cultural environments at neighborhood and regional levels, whilst working in ways which always support the goal of global sustainable development'. Bars (1999) argues that sustainability is a complex system including ecological, economic and social elements, and we can't achieve sustainability without merging all three together and analyzing their profound effects on each other.

The future growth of the surrounding area of Gaborone may be more important than that of the city itself. Therefore, physical planning of the city should be part of the comprehensive planning for the Greater Gaborone Area. Despite the limited population growth, the development of the city continues; social and economic changes as well as new needs concerning environment conservation require periodic modification of the framework.

5.2 Remaining deficiencies in research and practice

Taking the above definitions of a sustainable city into account, a first approach for Gaborone should be that more emphasis has to be laid upon a clearer definition of what is sustainable urban development in the context of Gaborone. Then, the harmonization of existing and coming policies and development plans as well as their orientation towards sustainability is a must. For this, a comprehensive strategy for sustainable urban development for Gaborone is to be worked out. As a first step, urban indicators should be developed and integrated in a GIS-based monitoring system that is able to screen the development of Gaborone and to derivate there from concrete needs for action.

The central and local government must be aware that physical planning is an ongoing process facilitating the provision of a sound social, economic and ecological environment for future generations. The preparation of a 'Vision for a sustainable Gaborone' serves as a basis for subsequent modifications of development plans. The Monitoring and Controlling Concept helps to guide and shape the urban development and planning processes. To ensure a successful implementation of the Concept, all stakeholders must be involved in the preparation of development plans, goals and visions. All elements of physical planning must be accepted by a majority of the population and follow national and international standards related to sustainability. The implementation of spatial monitoring and controlling and the application of new analytical tools should be coordinated with other reorganization projects of planning procedures.

Rural development and decentralization has still to be more strengthened. Future Regional Master Plans, Integrated District land Use Plans and District Settlement Strategies should highlight the potentials of the rural areas, creating regional centers and attracting public and private investment for improved living conditions out of Gaborone.

Regarding the complex tasks for future planning in Gaborone and the limited human resources (limited number of planning experts in government agencies and in the private sector), a continued training and capacity building of staff of urban and regional planning inside the country has to be strengthened (Cavric & Mosha 2001).

The implementation of Analytical tools and the Monitoring and Controlling Concept does not automatically lead to a sustainable urban development, unless the social, economic and environmental dimensions are considered when defining the goals and development proposals. Furthermore, the institutional and policy framework must suit the requirements of the monitoring and controlling procedure. However, the concept and the proposed changes of the planning procedure constitute an ideal framework for sustainable development. Its content and application depends on the decision-makers. It might be helpful to launch projects to improve the spread of the idea of a sustainable Gaborone. The combination of 'sustainability-aware' people, of the controlling procedure and of a suitable institutional framework helps to guide and shape the development of Gaborone in a sustainable manner.

Finally, further research in the broader frame of the DIMSUD project is scheduled to elaborate results in the other case cities of Johannesburg and Santiago de Chile. A comparison analysis will then highlight examples for 'best practice' in urban development that will be transferred between the project partners (academia and planning practice). Furthermore, enhanced through a web-based networking, recommendations for achieving sustainable urban development in developing countries will be made available for the world-wide community, especially the many other cities that are on the 'start' to become million or mega cities.

5.3 Further recommendations

In our opinion, further work must mainly include the following subjects:

Indicator-based controlling

- The task of the Gaborone City council should be to set up the proposed Committee for Sustainable Urban Development (CSUD), which is responsible for controlling and reporting on urban development. But here, problems could occur since the central government might claim to embed the CSUD in one of its ministries. This would not follow the concept of decentralization and would make the consideration of the local needs almost impossible.
- As base for the implementation of the proposed indicator set, a sustainability strategy, e.g. a local Agenda 21 for the city of Gaborone, should be worked out. (see table 6 and text below)

The significance of Agenda 21 and Local Agenda 21 lies mainly in that they provide one important avenue through which environmental issues are infused into the physical planning process. Botswana's attempts to address the provisions of the Agenda provide a benchmark against which physical planners can utilize to ensure that local physical plans are in line with global environmental objectives. Table 6 provides a checklist that can assist physical planners in this regard.

| Provision of the Agenda | National Response | Local Plan Provisions (Planner to cross-check and ensure inclusion provisions in the plan) |
|----------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Providing Adequate Shelter for all | <ul style="list-style-type: none"> • National Policy on Housing Self-Help housing Agency • Improvement of Services in Old SHHA Areas • Introduction of SHHA in Non-Township Areas | Ensure local plan conform to provisions of SHHA standards |
| Promoting Sustainable Land use Planning and management | <ul style="list-style-type: none"> • National Settlement Policy • Revised T&CPA, 1977 • Building partnerships at International level | Ensure that plan proposals Conform with: <ul style="list-style-type: none"> • NSP • Revised T&CPA |
| Promoting integrated provisions of environmental infrastructure | <ul style="list-style-type: none"> • Technical guidelines for waste disposal • Groundwater vulnerability Map • Training of technical officers in waste technology • Waste Management Strategy | Ensure plan proposals conform with <ul style="list-style-type: none"> • guidelines for waste disposal • groundwater vulnerability map • waste management strategy • National Master Plan for Waste Water and Sanitation |
| Promoting Human Settlement Planning and management in Disaster prone areas | <ul style="list-style-type: none"> • Investigative engineering approach of soils and underlying rock structure • Investigative engineering approach of hydro- | Ensure that plan proposals do not cover development on: <ul style="list-style-type: none"> • areas affected by poor soils or underlying rock structure • areas prone to flooding with |

| | | |
|--|------------------------------------------------------------------------------------------|--|
| | geological features to determine areas liable to flooding zoning of flood prone areas | |
|--|------------------------------------------------------------------------------------------|--|

Table 7: Checklist for Inclusion of Agenda 21 Provisions in Local Plans, Source: Physical Planning Manual, Draft Final, 2003

- A further development of the proposed indicator set including the aggregation of indicators to indices and the respective detailed analysis should be taken out.
- Target values for all objectives in all strategies and plans have to be defined.
- The concept of controlling has to be refined and adapted to the administrative systems. Secondly, it should be carried out, using the appropriate data.
- Responsible stakeholders who are in charge of data provision have to be defined and a network that makes the data collection effective and manageable must be set up.
- Other cities in the Southern Africa Development Community (SADC) with similar problems could be inspired to adopt the controlling tool developed for Gaborone. Since cultural and geographical circumstances are quite similar, a supporting effect could be achieved by benchmarking these cities. A good precondition for such a project is that the communication network within the SADC already exists.

Urban sustainability ‘agenda’

An urban sustainability ‘agenda’ offers inspired definitions and principles, however, the real challenge rests in translating such an agenda into reality in the developing world, particularly in Africa. Scientific literature offers extensive treatment of the many problems of unsustainable development in big cities of the south, but practical experience of what measures have proven effective have not yet been sufficiently analyzed. The collection of good or best practices has to be enlarged and communicated more intensively. In this context, the Internet revolution offers good opportunities. Already, some Web sites are dedicated to best practices. For example, in 1997 UN-HABITAT launched the Best Practices and Local Leadership Program (BLP), presenting a best practices database (<http://www.bestpractices.org>), containing over 1600 proven solutions from more than 140 countries for the common social, economic and environmental problems of an urbanizing world.

Examples for good and best practices from developing countries that can serve as models in effectively addressing chronic social, economic and environmental problems in other African cities, such as Gaborone are listed in APPENDIX B.

Strategy for Sustainable Urban Development in Gaborone

In research (University of Botswana), more emphasis should be laid upon a clearer definition of what is sustainable urban development in the specific context of Gaborone. Then, the harmonization of existing and coming policies and development plans in practice as well as their orientation towards sustainability is a must. For this, a comprehensive strategy for sustainable urban development in Gaborone should be worked out. Clear targets and urban sustainability

indicators should be developed and integrated in a GIS-based monitoring system that is able to screen the city's development and then concrete actions should be derived from it.

Controlling concept

The implementation of planning measures calls for transparency and the efficient use of human and financial resources. Thus, appropriate controlling tools should be worked out. Controlling, as outlined in chapter 4.2, considers the objectives defined by the management and the processes designed to achieve them. The constant comparison between the objectives and the current actual state indicates if the objectives are being achieved. Controlling can also be understood as a management review tool for the analysis of existing plans. Using the controlling process, management can determine their progress, accomplishments, and deficiencies. Through continuous controlling, the working methodology of the underlying urban development plan may be changed, work methods may be simplified, and resource utilization may all be adjusted mid-stream. Such a systematic urban management approach can contribute essentially to mastering the core problems that hinder the development of Gaborone towards sustainability.

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APPENDIX A

Proposed indicator set for sustainable urban development in Gaborone

SOCIETY

| Objective | Indicators | Description | Target value |
|-------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------|
| Protection and preservation of water sources and resources | Water quality | Quality of surface water, measured by TDS /NO3 / Escherichia coli bacteria and additional pollutants | Remain within or below the limit values of WHO |
| | Water consumption | Quantitative use of water per capita and day | Keep the per-capita consumption as low as possible |
| Provision of affordable and safe water and electricity on every plot | Provision of water | Percentage of households connected to safe water | 100% |
| | Provision of electricity | Percentage of households connected to electricity | 100% |
| Provision of decent and affordable housing for everybody within a safe and sanitary environment | Self-Help-Housing Agency (SHHA) promoted buildings BHC; Private sector/own initiatives. | Construction of houses, supported by the SHHA, divided by the total number of applications for SHHA-support | Increase the share of supported applications (also by declining the applications themselves) |
| Poverty alleviation | Unemployment | Quotient resulting from dividing the total number of unemployed by the relevant labor force, which itself is the sum of the number of employed (excl. informal sector) and the unemployed | Decrease of the unemployment rate |
| | Poor population | Share of women and men-headed households living below poverty datum line (PDL), as defined in Botswana | Decline the share of poor households |

| | | | |
|-----------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------|----------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------|
| | Infant mortality rate | Infant mortality rate (% of born children who die within the first of their life) | 0% / Decline |
| | Crime incidents | Recorded thefts per 1000 inhabitants per year | Decline |
| Insurance of primary, secondary and tertiary or vocational education of every young citizen to provide economy with skilled work force | School enrolment | Percentage of youth with enrolment in primary, secondary (junior & secondary), vocational and tertiary education (per sex) | 100% primary resp. senior secondary 100% senior secondary & vocational |
| Provision of adequate infrastructure and - as one of the most important goals - come up with a good trained teacher staff | School staff, Classrooms, equipment | Percentage of untrained teachers on primary and secondary school level | Decline the number of untrained teachers to 0% |
| | Class size | Average number of pupils per teacher | Reduce the class size to a level where individual supervision of the pupils is possible |
| Insurance for affordable health care for everybody | Health care | Percentage of births attended by skilled health personnel | Increase the number of professional attended births |
| Minimization of the impact of HIV/AIDS and other diseases on the city's social and economic welfare | HIV rate | Number of new HIV infections per year | Decline the infections as much as possible, 0% are to be reached |
| Provision, upgrade and maintenance of an efficient transportation network that ensures safety and meets the needs of pedestrians and cyclists | Modal split | Percentage of trips made by individual motorized transport; public transport; bicycle; on foot | Increase the share of environment friendly ways of transport such as public transport, cycling and walking |

| | | | |
|---------------------------------------------------------------------------------------------------------------|-----------------------|-----------------------------------------|---------|
| Provision of an efficient mass transport system | | | |
| Insurance of gender equality, especially in matters of job opportunities, housing, domestic violence and rape | Public administration | Share of women in public administration | 50% |
| | Teenage pregnancies | Percentage of pregnant teenagers | Decline |

ECONOMY

| Objective | Indicators | Description | Target value |
|----------------------------------------------------------|--------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|
| Strengthen and make viable the economic base of the city | City product | <p>The City Product is calculated using two methods:</p> <p>Method A consists in taking the national product in each industry sector and then multiplying it by differential wage rates at the city level for each industry sector. This method is used when employment by industry sector is known.</p> <p>Method B consists in using the city household income figures and by multiplying by the ratio of GNP to total households income at national level. This method assumes that the ratio of the GNP to the household income is the same at the city and the national level.¹</p> | Rise |

¹ Method A: The Gross National Product (GNP) by industry sector is contained in National Accounts.

METHOD B: If industry employment figures are not known, then the city product can be estimated approximately from average household income figures as follows:

City Product = ((GNP) x (number of households in the city) x (average household income in the city)) / (total national household income, from national accounts)

[<http://www.unhabitat.org/programmes/guo>]

| | | | |
|-------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------|--------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------|
| Integration of the private sector into government's work | Privatization | Growth of the local public sector / growth of the local formal sector, incl. parastatals (# employees) | Increase the formal sector's part of employment provision |
| To give the city's authority more freedom in decision making, revenues etc. | Local government revenues | Local government revenues per capita and year [US\$/a] | Rise the own revenues to a level where dependency on the state is as low as possible |
| Provision of employment opportunities | Employees per sector | Employees per sector (Agriculture, Industry, Services, Informal sector, % and #) | Concentration on services and industry, decrease the number of employees in informal sector |
| | Unemployment | (see above) | (see above) |
| Make the informal commerce unnecessary by provision of a vivile structure of shopping facilities, last but not least to provide the city's appearance | Shopping facilities | Share of people with a shopping facility (basic needs) within a 10 minutes walk (GIS data) | Increase |

| ENVIRONMENT | | | |
|-------------------------------------------------------------------------------------------------------------|-----------------------|-----------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------|
| Objective | Indicators | Description | Target value |
| Encouragement of plot intensification and densification where possible within the city | Land use change | Ratio of redeveloped to newly used built up areas | Keep the ratio as high as possible |
| | Plot size | Average plot size per capita | Decline |
| Provision of adequate land for active and passive recreational needs | Space for recreation | Public green space per capita | At least keep the level within the built up areas |
| Advancement of the treatment of waste and show the necessity of recycling and reuse | Waste disposal | Share of household waste recycled (% & tons) | Increase to the maximum |
| Improvement of the sanitation conditions and practices in the city (sewer systems and storm water drainage) | Sanitation connection | Percentage of households connected to adequate sanitation | 100% |
| Prevention of nuisance by possible noise or/and air pollution | Air pollution | Number of days per annum that WHO standards for SO ₂ , NO ₂ , O ₃ , CO and PB are exceeded | Remain within or below the limit values of WHO |
| | Noise pollution | Share of people seriously affected by noise | Avoid the direct impact of noise on residential areas |
| Increasing of the share of renewable energies in the city's energy mix | Energy consumption | Share of consumption of renewable energy resources | Rise the share of renewable energies to a sustainable level |

APPENDIX B

Examples for good and best practices for sustainable development from developing countries

1. Urban Economic Development

- Enhancing self-help construction of new housing for low-income families
- Renovation of buildings, construction of points of identity (places, public buildings, parks, etc.)
- Comprehensive renewal of slum areas
- Development of alternative standards for housing to reduce the costs of construction
- Definition of minimum standards for local road allowances, lot sizes and utility placement
- Implementing integrated solid waste management programs, aimed at separating at source, composting, recycling, and the construction and operation of sanitary landfill sites
- Establishing partnerships between the public and private sectors, including micro-enterprises, co-operatives, and utility companies
- Initiating and supporting poverty alleviation initiatives through small payback credits or loans for income-generating activities (micro-enterprises, arts and crafts, including traditional handicrafts)

2. Social Services

- Crime prevention initiatives, based on social control in communities
- Reducing youth unemployment through basic education, skills training and cultural activities
- Community-based preparatory and coaching centers and residential camps for children living in slums and squatter settlements to keep them in school
- Literacy training programs

3. Urban Infrastructure and Services Practices

- Maintenance, renewal, and restoration of infrastructures (e.g., water supply, sewage network, roads, public buildings, and green areas) through community-based neighborhood rehabilitation programs
- Managing demand for road space and providing quality public mass transport by more efficient use of existing transport facilities, supported by measures like area licensing schemes, highly integrated land use and transportation planning

4. Environmental Management Practices

- Clean-up and garbage collection and separating projects (including income generating recycling for micro-enterprises), carried out by youth and volunteer groups
- Closing of open dump sites, installation of sanitary landfills
- Elaboration of a comprehensive, participatory environmental master plan
- Protection of nature in urban areas

5. Housing, access to finance, land and secure tenure

- Making housing affordable and accessible to disadvantaged groups and lower income families
- Providing (on a cost-recovery basis) decent self-help housing and infrastructure on suitable land to squatter's co-operatives, using sustainable housing loan schemes and income generation activities
- Popularization of new building technologies, allowing cheaper construction, energy saving, healthier conditions, and more safety

6. Urban Governance and Women Empowerment Practices

- Establishing a broad-based steering committee for urban development, comprising all groups of society
- Promoting quarter-based development committees, involved in the consultative process and in preparing development plans
- Introduction of participatory budgeting of municipal finances (cf. Porto Alegre in Brazil)
- Capacity-building within the city administration, aimed at improving the performance of public services and at implementing sustainable development; introducing a reward system for excellence in public services
- Decentralization of administrative and financial powers
- Public-private partnerships, partnerships between administrators, residents and NGOs, as well as international agencies and foreign central governments and sister cities
- Empowerment of women by special savings and credit programs for micro-enterprises

Another attempts, strongly backed by the international donor community, were to *improve living conditions in rural areas* in order to reduce the movement of labor and brain drain to the cities. But strengthening rural development may be two-edged:

- Offering better education in rural settlements may lead to an education-driven migration to higher schools that are situated in cities. Once far from the farm, young people seldom return to the rural milieu.
- Mechanization in agriculture as well as political failures (like expropriation of white farmers in Zimbabwe) result in rural unemployment, stimulating more rural-urban migration

APPENDIX C

Aerial photos of Gaborone 1966 and 1998



1966



1998

APPENDIX D

Physical planning policy framework

In Botswana physical planning operates under many policies. The main elements of these policies are summarized in this chapter for ease of consultation when dealing with planning problems. The list is by no means exhaustive.

Vision for Botswana (Vision 2016): Towards Prosperity for All - 1997

This was published in 1997 and it runs to 2016, when Botswana will have been an independent nation for 50 years. It sets out some goals for the nation for the year 2016, identifies major challenges in achieving them, and proposes a set of strategies to meet those challenges.

Vision 2016 is multi-dimensional, encompassing the economic, as well as the social, political, cultural and spiritual aspects of the lives of Botswana. Vision 2016 outlines Botswana's future aspirations. It seeks to propel this country's socio-economic and political development into that of a competitive winning and prosperous nation. Seven strategic goals have been identified to steer Botswana towards that vision. These are:-

- Educated and informed nation – All people will be able to have good quality education that is adapted to the needs of the nation.
- Prosperous, productive and innovative nation – Botswana will be a hard working and disciplined people with a diversified economy. Agriculture, industry, mining and services will be productive and vital components of economic activity.
- Compassionate and caring nation. – Income will be distributed equitably and poverty will have been eradicated.
- Safe and secure nation.
- Open, democratic and accountable nation – There will be a system of decentralized democracy and political tolerance;
- A moral and tolerant nation – There will be high standards of personal morality and tolerant social attitudes towards people of different cultures, ethnic traditions, religions or disabilities and;
- United and proud nation – sharing common ideals, goals and symbols.

The Vision will become a reality only if all Botswana are active participants in its implementation. The government must play its role, but the communities, business people, farmers, employees, employers and other stakeholders must pool their resources for the common goal of the Vision.

The key national institutions, including Government, parastatals and nongovernmental and voluntary organizations must incorporate the principles of the Vision into the plan. They will be called to play their part. The goals of the Vision will be the starting point for all future National Development Plans and mid term reviews. They will also guide the design of future national policies and programmes. Hence all urban and rural development plans prepared by planners will be guided by this Vision.

Urban Development Policy - 1983

Urban development in Botswana is guided by the government paper on “Urban Development and Land Policy of 1983”. The main elements of this policy are:-

The policy of non subsidy

This policy seeks to ensure that the government’s approach to urban development, in terms of infrastructure standards, service provision, allocation of resources etc. is consistent with national objectives of promoting rural development and discouraging urban migration. A fundamental plank of this policy is that urban areas should not be subsidized by government. While investment is required in urban infrastructure, all provision should be made on a cost-recovery basis, while any subsidy from tax revenue should be directed toward the rural area. The government aims to achieve full cost recovery, or as close as possible, from the beneficiaries of its urban land servicing activities. In view of affordability limitations among lower income households, the pricing policy incorporates an element of cross subsidy from wealthier households and commercial and industrial developers to low income households. The pricing policy is now being implemented in urban development in the form of a three-tier pricing structure of “market”, “full cost recovery” and “affordable” prices.

Policy of social mix

Another aspect of the urban policy is that of “social integration”. The intention of this policy is that urban areas should be planned in such a way as to avoid polarization of social classes, races, and income groups. This would help to avoid the development of low income slums. Thus, in the planning of a new area, provision should be made for all income groups. The policy does not seem to be very precise as to how this should be done. It does not appear to mean complete integration of different income groups in the same street, but rather that any neighborhood should contain a mixture of plots/houses for different income groups.

Land servicing

In urban areas, land for development is available in two forms: fully serviced land (under the Accelerated Land Servicing Programme that was started in 1987) for all land uses or un-serviced land that is normally allocated to parastatals and private companies for their own development.

On the other hand, in rural areas land is mostly allocated un-serviced or in the case of the major villages land has been serviced under the Rural Infrastructure Programme.

Planners must, at all times, adhere to the principles embodied in the above policy in planning both urban and rural areas.

National Policy for Rural Development – Government paper no: 3 of 2002.

This policy replaced the long outdated 1973 Policy on Rural Development (Government paper No. 2 of 1973).

Goals and Objectives

The revised Rural Development Policy sets out a transitional path between the past and the future. It balances a vision of how rural Botswana should look in 2016 with a pragmatic recognition of the steps involved in getting there. Its primary goal is to enhance the quality of life of all people who live in Botswana's rural areas. It seeks to achieve this through the implementation of policies and strategies that will optimize people's social and economic well being and strengthen their ability to live in dignity and food security. In line with this primary goal, the objectives of the revised Rural Development Policy are:-

- (i) to reduce poverty
- (ii) to provide opportunities for income generation and involvement in economic activities;
- (iii) to create employment; and,
- (iv) To enhance popular participation in the development planning and implementation processes as a basis for broad-based, balanced and sustainable development.

Specifically, the objectives are to:-

- (i) Reduce rural poverty.
- (ii) Promote sustainable livelihoods.
- (iii) Retain subsistence livelihood opportunities for those without adequate alternatives and through the establishment of a viable rural commercial sector.
- (iv) Stimulate rural development and income generation through identification and exploitation of profitable alternatives to livestock and arable agriculture, such as rural industries, services and crafts; attraction of skilled youth; promotion of private sector initiatives.
- (v) Maintain and improve rural capital in the form of skilled labour, economic infrastructure and exploitation of natural resources.
- (vi) Increase agriculture productivity
- (vii) Improve the rural development extension services
- (viii) Reduce, where socially possible, the livelihood dependency of people on government, whilst maintaining appropriate social protection.
- (ix) Promote a participatory rural development process, through the involvement of local communities, non-governmental organizations and the private sector.
- (x) Develop an integrated approach towards the reduction of the HIV/AIDS epidemic.

Planners should bear in mind that rural development has been a priority in all National Development Plans and will remain so in the future and hence in preparing plans they have to come up with policies that further rural development to reduce the fast rate of urbanization in this country. The rural development policy adopted in this country recognizes the linkages that exist between rural and urban areas in fostering a strong national economy. The development of the rural areas is ultimately intended to modernize them into urban areas. Some villages have been declared "planning areas" and physical development plans prepared for orderly development in them. This requires policy orientation for future rural development initiatives.

National Housing Policy - 1999

Approved by the National Assembly on 17th December 1999.

The *thrust* of the Government Paper on National Policy on Housing is fourfold:-

- (i) To change the emphasis of government from home provision to facilitation in the various settlements in partnership with other stakeholders;

- (ii) To channel more government resources to low and middle lower income housing in both urban and rural areas;
- (iii) To promote housing as an instrument for economic empowerment and poverty alleviation and
- (iv) To foster a partnership with the Private Sector and all major employers in home development and facilitating home ownership.

Key elements.

The Policy addresses key elements of the housing sector including institutional capacity building, land finance, subsidies, rentals, housing standards, building materials and housing legislation as well as the SHHA and the District Housing programme, BHC and private sector participation. These together define the affordability, suitability and sustainability of basic shelter programmes in Botswana.

This policy should guide planners in shelter planning and layout designs for various developments.

In planning housing areas, the elements of this policy will form the backbone of all proposals and design layouts.

National Settlement Policy - 1998

This was approved by Parliament on 3rd August 1998 and guides all physical planners in settlement planning and development of facilities like schools, health centres, commercial and industrial development etc.

Goals and Objectives

The **overall goal** of the policy is to provide a comprehensive set of guidelines for national physical planning and to provide a framework for guiding the distribution of investment in a way that reflects the settlements' population size, economic potential, level of infrastructure and settlements' role as service centres.

The **objectives** of the policy are to:-

- (a) Provide guidelines and long term strategy for the development of human settlements.

This objective will be the basis for the provision of:-

- (i) functional definitions of settlements;
- (ii) corresponding guidelines for settlement development; and
- (iii) Criteria for the categorization of the settlements into the three tier settlement hierarchy and provision of infrastructure and services in each settlement hierarchy.

- (b) Rationalize and promote the optimal use of land and the preservation of the best arable land.

This objective will be the basis for:-

- (i) appropriate zoning and the preparation of District Land Use Plans for all districts and encouragement of adherence to such plans;

- (ii) Identification of all fertile arable land in order to protect it from indiscriminate encroachment by other uses;
- (iii) The management and appropriate zoning of land for optimal and sustainable use.
- (c) Promote the conservation of natural resources for the benefit of the present and future generations.

This objective will be the basis for the identification of:-

- (i) areas that need to be preserved
- (ii) fragile and environmentally sensitive areas and hence zoned as such;
- (iii) compatible land use zones
- (iv) Measures that can ameliorate existing and potential harmful development effects on the environment.
- (d) Provide guidelines for the development of transportation and utility networks in order to strengthen the functional linkages between settlements.

The objective will be the basis for:-

- (i) identification and recommendation for road links between settlements with a population of 500 people
- (ii) proposing provision for electricity reticulation to settlements where economically viable; and
- (iii) Planning for, and proposing telecommunication linkages in order to achieve economic and effective telecommunication services.
- (e) Reduce the rate of migration to towns.

This objective will be the basis for:-

- (i) planning for the provision of similar level of infrastructure and services to villages on the same hierarchical level with towns;
- (ii) provision for incentives for the location of job creating activities in rural areas and villages and
- (iii) Improving access to loans and financial resources to rural areas and villages.

Implementation of the Strategy

The NSP shall be implemented through the National Physical Development Plan and the National Development Plan at the national level and the District Settlement Strategies at the district level. The Regional Master Plans shall facilitate the implementation of the policy at the regional level. In order to have an effective implementation of the policy, Ministries, Departments, Local Authorities and Parastatals shall implement policy recommendations that are pertinent to their organizations during the course of the plans.

Industrial Development Policy – This was approved on 3rd. December 1997.

The purpose of the policy is to identify new factors to which the industrial development in Botswana must respond, and then set out the main policy directions which will be required to adapt to these new circumstances.

The Industrial Development Policy is based on the following principles:-

- (i) Encouragement of highly productive and efficient export industries based, to the extent possible, on local natural resources and integrated with foreign markets and technology;
- (ii) Promotion and expansion of effect supporting services and component manufacturers, many of which will be small and medium size businesses; and
- (iii) Assistance will continue to be provided to small scale rural entrepreneurs and, where appropriate, local community and non-governmental organizations will be utilized to develop business activities and opportunities in rural villages.

The main policy thrusts/Goals are the following:-

- (i) To develop an efficient and competitive export-oriented industrial and service sector through various measures to be undertaken by government.
- (ii) Human resource development and training – Formulate programmes and policies that will ensure that the education system of Botswana is oriented to produce graduates with the professional and skill capacities needed by the economy.
- (iii) Improve the environment for science and technology in Botswana;
- (iv) Employment creation and SMME development in both urban and rural areas
- (v) Privatization – To improve the scope for the development of entrepreneurial ship in Botswana and to improve the efficiency of Government.

Planners will thus be guided by the provisions of this policy when planning for industrial development in both urban and rural areas. One critical issue is that sustainable development must become the goal of industrial policies and programmes. Further, planners, when dealing with land development applications should familiarize themselves with the policy on rural industrial development which is supported primarily by the Integrated Field Services stations; Local Preference Scheme; and the Reservation Policy which reserves certain commercial businesses exclusively for Botswana.

Wildlife Conservation Policy – July 1986

The Place of wildlife in land use planning

Botswana's wildlife resources must be seen in terms of its potential contribution to the economic wellbeing of the nation as well as in terms of its heritage and aesthetic value. Land use planning must accord the wildlife resource a position that is commensurate with its considerable potential economic significance. Without this recognition, the imperatives of other programmes, such as the expansion of the livestock industry under the Tribal Grazing Lands Policy, mineral development and the encouragement of arable farming, might inadvertently threaten the long-term survival of wildlife as a major resource.

This policy statement therefore emphasizes the role that wildlife utilization and the proper management of Botswana's wildlife habitats play in the management of the country's land and range resources in the context of the country's national conservation strategy.

Specific Objectives of the Policy

- To realize the full potential of the wildlife resource which, in periods unaffected by drought, is running far below its sustainable yield capacity?
- To develop a commercial wildlife industry in order to create economic opportunities, jobs and incomes for the rural population and to enable more rural dwellers to enter the modern wage economy.
- To increase the supply of game meat as a consequence of the further development of wildlife commercial utilization.

The following three general guidelines will be applied in the pursuit of the overall aims of the policy:-

- *Rural development* – the policy will provide the basis for the development of both an industry that is specifically rural and a source of nutrition.
- *Citizen participation* – It is an integral part of the policy that citizens will get maximum benefits from the sustained utilization of the wildlife resource. An education programme will assist and encourage citizens to take a more active role in wildlife conservation.
- *Government control of development* – Government control will be assured by adapting existing legislation or by introducing new legislation to permit, and monitor development of the industry.

National Master Plan for Arable Agriculture and Dairy Development (NAMPAAD) – Government Paper No.1, 2002.

Guiding Principles

These are:-

- (i) Food security remains cornerstone of the current agricultural policy and NAMPAAD.
- (ii) Arable agriculture remains a major source of employment and income for the rural population. About 50% of the total population still resides in rural areas and about half of this population largely depends on arable farming for its income.
- (iii) To counter the current trend in which agriculture is being abandoned, by perpetuating land tillage as a noble and commercial pursuit.
- (iv) The adoption of suitable policies and strategies can facilitate exploitation of the potential in agriculture.

Objectives

The policy objectives for the agricultural sector are:-

- Improvement in food security at both household and national levels,
- Diversification of the agricultural production base'
- Increased agricultural output and productivity,
- Increased employment opportunities for the fast growing labour force,
- Provision of a secure and productive environment for agricultural producers and
- Conservation of scarce agricultural and land resources for future generations.

This master plan rests on the **Agricultural Development Policy of 1991**

The objectives of the policy are:-

- Improvement in food security at the household and national levels; emphasis will be laid on household food security;
- Diversification of the agricultural production base into horticulture, pulses, dairy, poultry piggery, forestry, beekeeping and veldt products;
- Increased agricultural output and productivity.
- Increased employment opportunities for the fast growing labour force
- Provision of secure and productive environment for agricultural producers
- Conservation of scarce agricultural and land resources for future generations.

National Population Policy - 1997

The Goal

In recognition of the need to set explicit guidelines to take account of and influence population trends and characteristics, **the goal of the policy is to improve quality of life and standard of living of all people in Botswana;** with the cardinal elements of reduced population growth rate, low fertility, low morbidity and mortality, and a balanced population distribution.

Objectives.

In order to realize the set goal, the objectives of the national population policy are to:-

- To reduce the total fertility rate;
- Strengthen national capacity to conduct research; collect, analyze, disseminate and utilize demographic and socio-economic data for planning;
- Reduce the incidence of teenage and unplanned pregnancies;
- Reduce the incidence of maternal mortality including high-risk pregnancies and births;
- Reduce infant/child and adult mortality and their differentials by sex and location;
- Reduce the spread of STDs, HIV/AIDS and their impact on the individual and society;
- Increase access to higher levels of education and to raise completion rates for females;
- Increase knowledge, enhance understanding and modify behavior related to population issues and concerns;
- Reduce rural-urban migration and promote a more balanced spatial distribution of the population;
- Promote the provision of adequate and affordable quality housing and related services;
- Ensure household food security and enhance the nutritional status of the population, particularly that of the vulnerable groups;
- Discourage all forms of discrimination against persons with disabilities;
- Improve access for persons with disabilities to facilities as well as services, and promote prevention of disabilities;
- Establish a social security system, promote family based care, and engender self-reliance among elderly persons;
- Promote the need and value for vocational and appropriate skills training and to enhance opportunities for youth participation in development;

- Promote youth, male and female shared responsibilities and participation in their reproductive and productive life and; increase access to family planning and reproductive health services;
- Discourage all forms of child exploitation, abuse and neglect and provide adequate care for the development and welfare of children;
- Ensure gender equality and equity in all the social cultural, political, economic and legal spheres and
- Harmonize population needs with natural resource utilization; identify and develop alternative sources of energy and water, as well as their conservation; control pollution and increase access to safe drinking water; and integrate population issues into development planning at all levels

Successful implementation of physical development plans requires information on the future level and growth rate of population. Detailed information on the future population size by age, sex, urban and rural residence is vital for implementation of programmes and activities within each sector of the economy. So, planners have to make projections to predict the future of population sizes. Methods to do this are detailed in the Chapter on Planning Methods and Tools.

Tourism Policy -

The objectives of the policy are:-

- (i) To increase foreign exchange earnings and government revenues;
- (ii) To generate employment, mainly in rural areas;
- (iii) To raise incomes in rural areas in order to reduce urban drift;
- (iv) Generally to promote rural development and to stimulate the provision of other services in remote areas of the country;
- (v) to improve the quality of national life by providing educational and recreational opportunities and
- (vi) To project a favorable image to the outside world.

In addition to these objectives, the tourism policy will be designed to ensure that tourist activity is carried out on an ecologically sustainable basis. It will also be designed to provide local communities with direct and indirect benefits from tourism activities. It is only by doing so that the policy will encourage these communities to appreciate the value of wildlife and its conservation and the growing opportunities in rural areas for participation in wild-life based industries including tourism.

National Policy on Natural Resources Conservation and Development. – Approved 17th December 1990.

The primary goals in formulating the strategy are to pursue policies and measures which:-

- (a) Increase the effectiveness with which natural resources are used and managed, so that beneficial interactions are optimized and harmful environmental side-effects are minimized;
- (b) Integrate the work of the many sectoral Ministries and interest groups throughout Botswana, thereby improving the development of natural resources through conservation and vice versa.

It is imperative that in all development plans, the issue of sustainable use of resources should be taken into account at all times.

Economic growth and long term planning.

Physical planners should be mindful of the country's economic planning strategy when preparing physical development plans. We all know that Botswana is committed to a policy of long term planning for sustainable development. The planning perspective extends beyond the time horizon of the 6 year NDPs to consider issues of a long term nature which are crucial to improve the quality of life for present and future generations. Long term planning perspectives must be based on the following four pillars:-

- Human resources development;
- Sustainable use of natural resources;
- Sustainable economic growth and diversification – creation of productive and sustainable employment, as well as poverty reduction and the promotion of the private sector, is critical to the development strategy; and
- Timely policies, management and decision making combined with democracy and political stability.

Botswana's development planning seeks to:-

- Respond adequately to observed needs of the great majority of Botswana at the national, district and community levels and ensure that they are aware of the goals of the strategy.
- Base prospective development on what is realistically possible given resource, time and capacity constraints, as well as allow adequate opportunity for consultations with various stakeholders.
- Ensure that development is consistent with longer term objectives.
- Ensure coordinated implementation of various policies;
- Create favourable conditions for the expansion, diversification and dispersion of productive activities in the private sector, which support the Plan theme;
- Identify windows of opportunity nationally, regionally and internationally in order to take advantage of investment and trade opportunities.
- Be adaptable to unexpected and sudden developments, such as natural calamities.
- Provide the opportunity for continuous government self evaluation and work out the need for revised policy changes.

These strategies should be borne in mind by physical planners when preparing their plans.

Energy Policy

The national policy on energy is aimed at providing a least cost mix of supply, which reflects total life cycle costs and externalities, such as environmental damage.

The objectives are:-

(a) *Economic efficiency*

- Energy services will be supplied at least cost to the economy
- The energy supply industry should be financially sustainable
- Within the context of efficiency, energy users should have access to appropriate energy services.

(b) *Social services.*

- Increasing access by households and community services to adequate and affordable energy services.

(c) *Environment, quality, sustainability and security.*

- Energy extraction, production, transport and use should not damage the environment or people's health and safety.
- In the long term, sustainable energy usage must be implemented
- Supplies must be reliable to ensure economic development and business confidence.

Thus, planners must take into consideration energy sources and uses in both urban and rural areas taking into consideration sustainability and effect on the environment. At household level we should ensure

adequate energy levels, adequate fuel supply and avoid the reliance on fuel wood (alternative energy like solar power)

Mineral sector policy

Botswana's mineral policy objectives are to maximize the national economic benefit from the development of mineral resources. This involves efforts to:-

- Encourage prospecting and new mine development
- Negotiate mineral agreements that maximize the net national economic benefits resulting from mineral operations
- Create opportunities for generating linkages with the rest of the economy and increasing local value added
- Create employment and training opportunities for Botswana
- Provide infrastructure for mining projects.
- Safeguarding the environment

These guiding objectives should guide planners in planning the development of mining areas and taking care of the environment. Full EIAs have to be undertaken when dealing with new mines.

National Water Master Plan.

The National Water Master Plan runs in twelve volumes and planners are advised to read these to familiarize themselves with the issues related to infrastructure development in both urban and rural areas. The plan made important recommendations on resources development strategies, environmental issues, efficiency in water use and institutional aspects.

In essence the NWMP provides a basis for water sector planning (Urban and rural water supplies) development, management and legislation. The plan identified urban centres as having the largest demands on water followed by the major villages. Projections on demand have to be made in the preparation of plans to ensure adequate supplies. Planners should also concern themselves with water conservation measures and waste water management techniques.

NWMP Volumes:

- (i) Summary
- (ii) Agricultural Studies
- (iii) Economics, demography and water demands
- (iv) Environmental aspects
- (v) Hydrogeology
- (vi) Hydrology
- (vii) Institutional and training aspects
- (viii) Rural water supply
- (ix) Sanitation
- (x) Water development strategies
- (xi) Water legislation
- (xii) Water resources modeling

Revised National Policy on Education – Paper No.2 1994.

The policy spells out the strategy for educational development whose long term perspective is up to twenty five years through the following main issues:-

- Access and equity
- Effective preparation of students for life, citizenship and the world of work;
- Improvement and maintenance of quality of the education system;

- Enhancement of the performance and status of the teaching profession;
- Effective management of the education system; and
- Cost effectiveness and cost sharing in the financing of education.

Short term objectives:-

- Re-introduction of the three-year JC
- Reduction of class size from 45-40 at primary level;
- Introduction of grant/loan scheme
- Financial support to NGOs providing special education.

Medium term objectives.

- Increase access to vocational education and training;
- Upgrading of primary school teachers to diploma level;
- 50% transition from junior to senior secondary;
- reduction of class size from 40-35 at primary level and
- Introduction of English as a medium of instruction at standard 2

Long term objectives.

- Enactment of Compulsory Education Legislation;
- Reduction of class size from 35 to 30 at primary level;
- Accelerated automatic progression of gifted children and
- Review of primary cycle; reduce it to 6 years when performance has adequately improved.

In planning education facilities, planners should be conversant with the above policy objectives to ensure adequate provision of facilities using appropriate population thresholds.

National Health Policy – 1995.

The NHP defines the roles and responsibilities of the various providers of primary health care services thus strengthening the decentralization process.

Its main objectives are as follows:-

- The health care system of Botswana shall be based on the principles of Primary Health Care
- The government, when planning its activities, put health promotion and care, and disease prevention, among its priorities.
- Health services shall be structured and operated in such a way that they shall be linked with each other as well as with social services, and, together with available resources, shall be managed in such a way as to derive maximum social benefits there from, with minimum of waste;
- The development of the private sector shall be supported.

In planning of health facilities, planners should familiarize themselves and adhere to the Criteria for the referral system and criteria for health facilities as developed by the MoH and MLH. The criteria spells out the level of services provided, location and population thresholds. (For details, see: GoB: NDP8 pp.384).

Women in Development Policy – 1996.

Government's adoption of this policy emanated from the recognition that the contemporary situation of women in Botswana requires that their full involvement in the economic development of the country be facilitated without undue hindrance.

Main principles of the policy:-

- In accordance with the constitution, all policies of government must recognize that women and men are guaranteed equality before the law;
- All policies of government must recognize women and men as equally important human resources for economic, social and political development.

- Economic and social development policies must ensure that there is equality in access to resources, information, opportunity and decision-making positions for women and men and special measures must be developed to ensure that current disadvantages in access to resources experienced by women are redressed.
- All policies must be conscious of women's multiple roles in production and community management and these must be taken into account.
- All policies of government must recognize the need to develop the potential of women and put to optimal use their skills and capabilities including their important role as transmitters of culture and primary educators in order to create a wholesome and enriched family and community life.

From the above it is very clear that planners have to seek to achieve a full integration of gender issues into the development process.

Policy Paper and Action Plan on Decentralization – October 1993.

The Ministry of Local Government, Lands and Housing adopted the above policy paper. The paper argues that Local Authorities have a proven record of success in delivering services to their population. Their implementation performance compares favourably to that of central government in many respects. The paper further argues that, except in the area of finance, the statutory powers already possessed by local authorities are appropriate and do not require modifications. Specific objectives for local authorities are:-

- Strengthening the role of local authorities in promoting economic development;
- Improving the linkages between urban and rural development
- Delegating greater responsibility for development planning, finance and implementation to the local authorities, while increasing their capacity to manage these responsibilities.
- Improving responsibility, accountability and capacity of Local Authorities in the areas of development planning, financial controls and effective and efficient implementation;
- Further decentralizing the budget.
- Involving communities in development planning through community based organizations and strengthening local authority personnel.

As we know both urban and rural development planning require the close coordination of many activities. To be effective, the planning machinery must involve strong integrating links between various central, local and non-government bodies, while at the same time allowing for maximum community participation.

Waste Management Policy

The policy resulted into the promulgation of the Waste Management Act No.15, 1998

Both the policy and the Act have the following objectives:-

- To make provision for the planning, facilitation and implementation of advanced systems for regulating the management of controlled waste in order to prevent harm to human, animal and plant life;
- To minimize pollution of the environment;
- To conserve natural resources; To cause the provisions of the Basel Convention to apply in regulating the trans-boundary movement of hazardous wastes and their disposal.

Under the Act the Department of Sanitation and Waste Management was established. The Act also mandated local authorities to license all landfills, the majority of which need to be rehabilitated or closed and redesigned. All districts will have to comply with the legal requirements of this Act. Hence all planners should be guided by this policy and Act in dealing with issues of waste management both in urban and rural areas.

Policy on Small, Medium and Micro Enterprises(SMME)

The policy was approved by Parliament in December, 1998 as Government Paper No.1 of 1999.

The overall objective of the Policy is to foster the development of a dynamic self-sustaining SMME sector through appropriate funding, training and other institutional support programs. Specific policy objectives are as follows:-

- Promotion of citizen entrepreneurship
- Another objective is promoting economic diversification by facilitating a conducive climate for the private sector to create sustainable employment opportunities.
- The development of a competitive SMME community
- The creation of sustainable employment opportunities
- The promotion of the development of vertical integration and horizontal linkages between SMMEs and primary industries in agriculture, mining and tourism
- Improved efficiency in the delivery of services to business; and
- The promotion of business linkages between small and large scale enterprises.

Under this policy, the government established two financial schemes – the Micro Credit Scheme and the Credit Guarantee Scheme. These schemes are intended to provide loans to citizen owned businesses of any type as long as they show evidence to generate cash flows to service the loans.

In planning industrial or commercial development, planners must be guided by the provisions of the policy to ensure that citizens benefit from this policy and sustainable development is the end result.

A Check-List:

Government Policies Relevant to Physical Planning

1. Vision for Botswana (Vision 2016): Towards Prosperity for all
2. Urban Development Policy
3. National Policy for Rural Development
4. National Housing Policy
5. National Settlement Policy
6. Industrial Development Policy
7. Wildlife Conservation Policy
8. National Master Plan for Arable Agriculture and Dairy Development
9. National Population Policy
10. Tourism Policy
11. National Policy on Natural Resources Conservation and Development
12. Economic Growth and Long Term Planning
13. Energy Policy
14. Mineral Sector Policy
15. National Water Master Plan
16. Revised National Policy on Education
17. National Health Policy
18. Women in Development Policy
19. Decentralization Policy
20. Waste Management Policy
21. Policy on Small, Medium and Micro Enterprises