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Patterns and Trends of Urbanization in Botswana: Policy Implications for Sustainability

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Abstract

Sub-Saharan African space economies are dual, with the modern sector concentrated in the primate centers and the traditional activities based in the rural areas. Within this dichotomous setting, urbanization has been regarded as being rural-urban and migration-driven. Theoretical explorations into urbanization have, consequently, failed to capture the subtle spatial intricacies within the settlement system components. The settlement system approach to urbanization requires both a spatial and hierarchical conceptualization of settlements to capture the role of mainstream and sub-stream migration processes.

This paper, on urbanization in Botswana, utilizes empirical data obtained from census, sample survey and supportive documentary information, supplemented by personal observations from on-going research. Urbanization derives its greatest impetus from statutory reclassification-cum-re-designation of rural settlements, migration, and strategic location of settlements. Urbanization has occurred in phases. First, there has been concentration in the primate city. Secondly, there has been fission leading to the fast growth of intermediate settlements. Third, is the rapid infilling of interstitial zones between the capital and adjacent intermediate centers. Fourth, the remote resource frontier settlements appear to be now growing relatively rapidly. The findings constitute the basis for drawing conclusions and policy recommendations for sustainable urbanization.

Keywords: Botswana, differential urbanization, overurbanization, sustainable urbanization

1.0 Introduction

Since the later half of the twentieth century, sub-Saharan Africa has experienced rapid urbanization. The process has created both opportunities and challenges for the subcontinent. A diverse range of strategies has been formulated to accommodate these. The most recent and comprehensive involves sustainable urbanization. Using Botswana as a case study, this paper highlights the urbanization experiences of an African nation as it attempts to manage challenges emanating from the process. The paper describes the demographic and spatial dynamics of the urbanization process, within the sub-continent and Botswana space economy contexts, on the basis of empirical data, conceptual and established theoretical frameworks. Policy implications of the evolving urbanization configuration are then adduced and analyzed within the context of sustainable urbanization.

2.0 Patterns, Conceptual Basis and Policy Implications of Urbanization

Whereas 47 percent of the world's population is urban, only 38 percent of Africa's population is classified as such, making it the least urbanized continent. It nonetheless has the highest rate of urbanization globally, at 4.4 percent per year, resulting in more and more urban areas, with bigger populations, as well as the spatial expansion of existing metropolitan areas. The urban population of Africa is projected to increase almost two and a half times, from 201- 468 million between 1990 and 2010. By 2025, 50 percent of the continent's population will be urban (UNCHS 2001). The main reason cited for rapid urbanization is rural- urban migration.

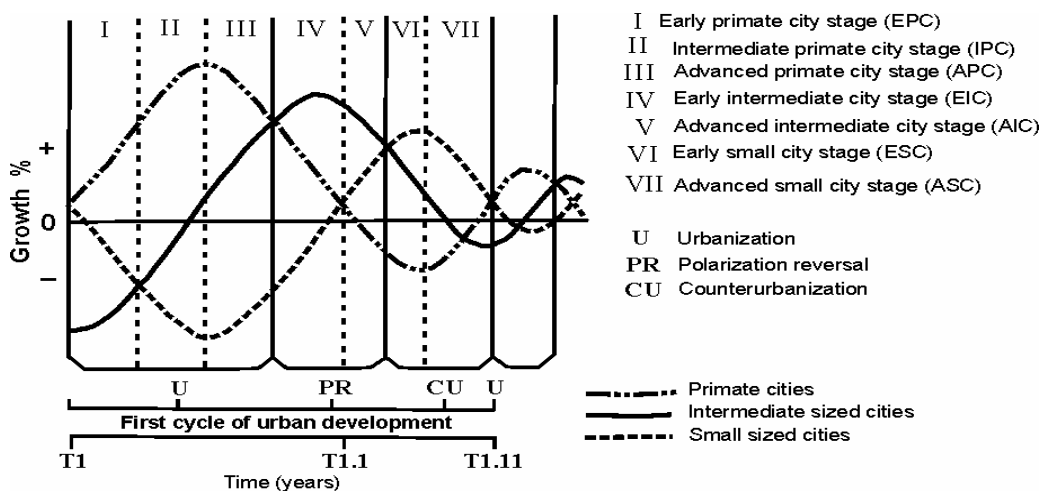
Spatially, urban-ward immigration draws from rural settlements and other lower order urban centers. This involves chain and/or step migration. Chain migration is associational, with individuals from a common origin obtaining information and support from earlier migrants before relocating to a common destination. Step migration involves individuals moving up the settlement hierarchy in search of higher order services or as a result of upward social mobility.

Studies on the spatial phenomenon of urbanization tend to focus mostly on its macro-scale dimensions, dynamics and policy implications. There are several practical and theoretical observations arising from such analyses. Most have concluded that the largest metropolitan centers have been gaining population at the expense of non-metropolitan and rural regions. They have moreover assumed that all urbanization is mainstream migration-driven. They tend to conceal sub-stream or undercurrent demographic and economic dynamics which may differ fundamentally from mainstream migration and yet have considerable developmental ramifications for sustainable national settlement policy. Finally, there has been a tendency to treat the urbanization experiences of developed and developing countries as non-comparable.

Analyses of the urbanization process within the temporal and space economy context however seem to be pragmatic for highlighting the macro, meso and micro- level spatial mobility dynamics which underpin urbanization. Illustrative examples include the Zelinsky mobility hypothesis which has drawn attention to definite and patterned regularities in the growth of personal mobility through space-time as societies evolve, from being traditional towards assuming modernity (1971:221). Behavioral models have broadened the set of possible mobility origins and destinations from simply urban-rural by incorporating place utility as a basis for spatial decision- making. In this context

Kerven has modified the survival strategy notion to a marginal mini-maximization model in explaining migration patterns in Botswana (1982). The differential urbanization abstraction, having been tested in nations at different levels of development, appears to provide an even better understanding of urbanization at the global, national and regional levels, through comparative analyses (Geyer 1996). It is descriptive explanation of how each urban system evolves over time; firstly, in terms of city size categories and secondly, in terms of spatial dimensions. By abstracting away the specific demographic, economic, spatial and sociopolitical processes influencing urbanization, it promises to explain the maturation of urban systems in developing and developed countries; Figure 1.

Figure 1 The Generalized Differential Urbanization Model



Source: Geyer 1996

Whilst urbanization has created opportunities for national development, it has also generated serious administrative, environmental and socioeconomic problems. In the recent past, the seemingly dissimilar global patterns and problems of urbanization have generated a plethora of mitigation measures tailored to suit local circumstances. It is however becoming increasingly accepted that in spite of peculiarities, dictated by local idiosyncrasies, there are sufficient commonalities underlying urbanization problems. Such a unifying solution is being pursued within the context of sustainable human settlements.

Since the early 1990s, the notion of sustainable development has emerged as a useful albeit controversial conceptual and organizational framework for assessing of the relationship between human populations and their urban and rural environments. In its original conceptualization, sustainability had an intergenerational thrust by seeking to meet the needs of the present without compromising the ability of future generations to meet theirs.

From that perspective, sustainability was criticized for being a parochial and restrictive deterrent against achieving the broad sociopolitical and socioeconomic goals of development, by reinforcing the status quo in which the haves and have-nots simply maintain their respective positions (Marcuse 1998). The current idea of sustainability is underpinned by a triad of principles involving ecological, economic and equity efficiency. The first principle involves the maintenance of genetic diversity and the maximization of the productivity of the habitat. The second relates to efficiency in the supply of basic needs and the improvement in technologies in the production and delivery of goods and

services. The last focuses on social systems and is concerned with the sustenance of institutions which facilitate equity and social justice and the promotion of public participation. Marcuse remarks that a just, human, and environmentally- sensitive world will in the long run be better for us all. He, however, cautions that achieving it will entail conflicts, controversies, issues of power-sharing, and the redistribution of wealth (Ibid.).

Principle 10 of the Rio Declaration, on environment and development, underscores two important points germane to any consideration on the sustainable development of human settlements. They entail the improvement of:

- social, economic and environmental quality; and
- living and working environment of all people, in particular the urban and rural poor (United Nations 1992:73).

A bottom-up approach to sustainable development has been articulated in the context of Primary Environmental Care (PEC), which ensures that local people are major agents of change. It aims to:

- Satisfy basic needs;
- Optimize the use and protection of the environment; and
- Empower groups and communities to enable them to secure and defend their basic rights and to manage their own affairs.

The above aims are vital in urban Botswana where basic needs could be satisfied, under the optimal use of the environment, with the active participation of residents in self-improvement efforts.

During the mid-1990s, the United Nations Center for Human Settlements (UNCHS/HABITAT), and the United Nations Environmental Program (UNEP) established a joint sustainable cities program whose main aim is to enhance the environmental planning and capabilities of urban local authorities (HABITAT, 1996:413). This was to be realized through bottom-up Environmental Planning Management (EPM). The mobilization activities of EPM were to ensure the full participation of all stakeholders in the identification and prioritization of environmental problems, formulation and implementation of environmental development strategies.

Decentralization and participation within the EPM framework tend to bring decision-making closer to communities. Consequently, urban residents adopt flexible levels of environmental infrastructure standards, promote local ownership and empowerment through the planning, selection of technology, implementation, operation and maintenance of projects. The last point is important for built-up environments in Botswana. An inflexible application of existing urban standards and development control codes could cause more harm than good in terms of destroying valuable housing stock and by disrupting existing social networks. Moreover, it is unlikely to be affordable for most households.

From the preceding discussion, extensive urbanization-related literature has emerged on poverty alleviation, provision of basic needs, efficient urban management and positive economic growth since the 1990s. These components have nonetheless been seldom integrated into any conceptual discussion about urban sustainability (Drakakis-Smith 1996). He identifies a number of prerequisites the pursuit and management of sustainability in an urban context must satisfy (2000:8).

These include:

- equity in the distribution of the benefits of economic growth;
- access to adequate basic needs;
- environmental awareness and integrity; and

- awareness of linkages and representativeness over space and time.

He has argued that sustainable urbanization must integrate issues such as housing, traffic congestion and poverty. He regards sustainable urbanization not only in terms of meeting present needs but also in terms of not jeopardizing the future. He however cautions that sustainability must imply considerable change in the present to ensure that its needs are met to the extent sufficient to produce something worth sustaining (Drakakis–Smith 1996).

Parnwell and Turner have expressed skepticism about any prospect of ever attaining urban sustainability in developing countries. Using Southeast Asia as an example, they note that the underclass has responded actively, and sometimes quite constructively to the exigencies of social, economic and environmental pressures and threats, although not necessarily in a manner conducive to long-term sustainable development (1998). They maintain that urban society implicitly accepts, and operates within the *status quo*, through survivalism and coping strategies, rather than addressing deeper contextual causes, in an effort to realize development and long term sustainability. Such coping mechanisms fundamentally sustain the otherwise undesirable and unsustainable urban societies where half-hearted commitments by the state cannot achieve the purported outcomes.

Ward, referring to Mexico, has attributed the failure of public approaches in social welfare provision for the urban poor to their failure to address the underlying causes of the problem(1986:131). He concludes that although some benefits may accrue to the poor, these are mostly partial, superficial and unsustainable.

There is thus a need for the conceptualization of urban sustainability underpinned by economic, ecological and equity efficiencies. Its realization will require the democratic participation and informed decision-making by all the urban stakeholders. Poverty alleviation, provision of basic needs, efficient urban management, public participation, equity and positive economic growth need to be incorporated into meaningful conceptual discussions and action- plans designed to achieve sustainable urbanization.

3.0 Research Methodology

The research method entailed:

- A longitudinal urbanization data profiling of Botswana, derived from the current and previous national censuses ;
- Contextualizing urbanization within the theoretical and conceptual reality of the sub-Saharan Africa space economy;
- Extraction of origin-destination mobility matrices from the national 2001 Population and Housing census data base;
- Computation of intercensal growth rates for the urban districts from the raw census data; and
- Calculation of national mean urbanization rates, and deviations of each district from the mean.

Sample survey rounds, supportive archival sources and personal observations from on-going research were also used.

The results provided the basis for a critical analysis of national urbanization patterns and trends, in the light of the Declaration of Rio 21 on sustainable human settlements, the

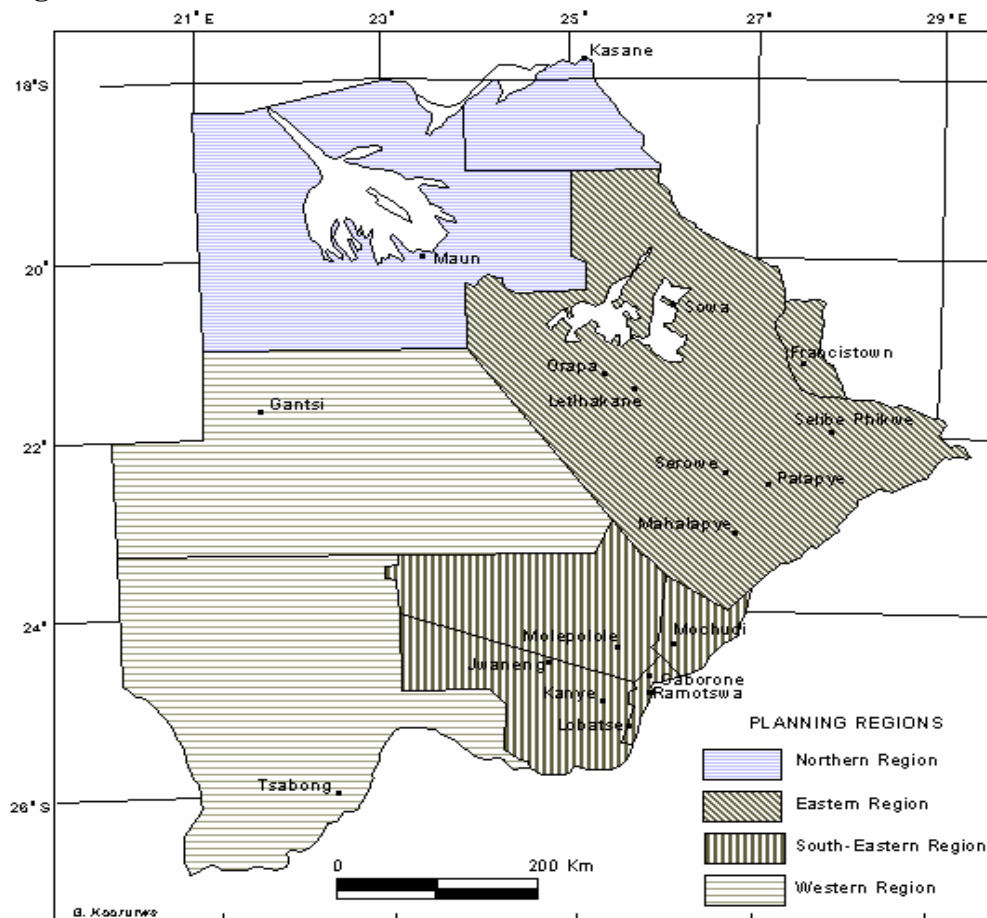
National Population Policy, the National Settlement Policy and the National Conservation Strategy.

4.0 Elements of the Botswana Space Economy

The national population is 1.7million. The latest census results however show a decline in the annual population growth rate at 2.4 percent during the 1991-2001 period, compared with 3.5 percent between 1981 and 1991 (ROB, 2001). This reflects the combined effects of family planning and the impact of the AIDS pandemic. Even under the worst scenario, population is projected to increase at about 1.2 percent per annum for the next two to three decades. This rate is still relatively high when compared with those countries that have either reached replacement levels, zero, or negative population growth. Macroeconomic indicators show that Botswana has posted an impressive growth record since independence because GNP/capita has grown from \$300 to \$3 500 between 1966-2002. Although these values may seem low by western standards, they are comparatively very high by African ones. Growth in per-capita income has been closely associated with rapid urban-industrial-commercial modernization.

The concept of development regions provides a useful framework for describing and explaining spatial organization and interaction within Botswana’s space economy. These are core regions, upward transitional areas, downward transitional zones and resource frontiers; Figure 2.

Figure 2 Botswana



Both the core and upward transitional areas are situated on the eastern hardveld of the country which is ecologically best endowed with good rainfall, soils, and well-developed physical infrastructure and socioeconomic facilities. The core regions constitute the foci of national markets, large-scale commercial enterprises, nation-serving industries, and seedbed for new industry and innovations, namely; the major cities of Gaborone and Francistown. Upward transitional areas are characterized by increasing investment in urban activities. The modern urban villages qualify for such characterization. Both the National Population Policy and the National Settlement Policy have targeted these settlements for vigorous economic development, outside the core regions, in order to achieve polarization reversal. They have intermediate level commerce, administration, socioeconomic services and labor-intensive small and micro-scale enterprises.

The downward transitional areas are characterized by low productivity, deteriorating natural resource bases, absolute poverty, highest mortality rates and least life expectancy. The remote and sparsely settled parts of the sandveld typify these conditions.

Resource frontiers include the western margins of livestock grazing associated with the introduction of borehole technology; Tuli and Pandamatenga arable farming blocs; diamond mining towns; and centers for eco-tourism. Along with the upward transition areas, they are expected to perform a critical role in polarization reversal from core regions. Whereas this has generally been the case with tourism centers, the mining towns have had mixed fortunes. The copper mine is at the brink of closure while diamond-mining continues to experience ebb and flows in response to fluctuating world demand. The livestock sector has suffered from environmental hazards in the form of periodic droughts, foot- and- mouth, anthrax, and cattle lung diseases.

Interactivity among the regional systems-elements of the space economy has been facilitated by rapid transferability due to the phenomenal growth in communications, transportation infrastructure and motorized transport, coupled with the rising rates of car ownership and public transport.

5.0 Urbanization Patterns and Processes in Botswana

In Botswana, an urban settlement is defined by a minimum population threshold of 5 000 residents, with at least 75 percent of the economically active population engaged in non-agricultural activities. Unlike most sub-Saharan African countries, over half of Botswana's population currently lives in urban settlements. Between 1964–1971 Gaborone recorded an annual population growth rate of almost 24 percent whilst its surrounding villages such as Gabane and Mogoditshane experienced losses of –0.1 percent and –0.9 percent, respectively. Table 1 depicts the national urbanization levels from 1971-2001. The urbanization trends have been closely associated with the nation's economic development, modernization but, lately, urbanization diseconomies.

Table 1 Growth of Population in Urban Settlements, 1971-2001 ('000)

	1971	1981	1991	2001
Number of Urban Places	5	8	25	34
Total Urban	54 300	166 400	600 100	909 800
Total Population	596 900	941 000	1 326 800	1 680 900
Urban as a Percentage of Total Population	9.1	17.7	45.2	54.1
Total urban village as percentage of total urban population	0.0	9.8	50.6	56.9

Source: Central Statistics Office 2001

The urbanization level nearly doubled from less than 10 percent in 1971 to 18 percent in 1981. Between 1981 and 1991, the percentage of the urban population more than doubled, from 18 percent at the base period to 45 percent, by the end of the review period. Although the broad upward urbanization trend has persisted since 1991, the 1991-2001 rate has receded. To date, just over 54 percent of the national population is urbanized. The exponential annual rate of increase of the urbanized national population increased from 11.3 percent between 1971 and 1981, peaked at 12.8 percent, during the 1981-1991 intercensal period, before reaching an all time low of 4.2 percent between 1991 and 2001. This is because there have been less and less eligible lower order settlements for urban re-designation, and the urbanization process has become increasingly migration-driven only.

The urbanization process, at the macro-level can be attributed to three factors. First, as can be observed from Table 1, the number of places designated urban, has been increasing. In 1971, there were the then only two towns of Lobatse and Francistown, the then recently established capital city of Gaborone, and two new mining towns. This set of urban settlements was statutorily expanded in 1981 to include the traditional *agro-towns* of Palapye and Tlokweng. 1991 saw an additional reclassification of a very large number of traditional villages and the opening up of Sowa Mine. Since 1991, several additional villages have been declared Planning Areas and have thus acquired an urban status. The relative share of urban villages to the total urban population has increased from 9.8 percent in 1981 to 56.9 in 2001. Unlike in the developed and most developing countries, where urbanization is attributed mainly to rural-urban migration, the Botswana situation thus presents a different scenario.

45 percent of migration has been rural- to- town. Even the 40.2 percent listed as rural-rural migration was probably destined to the officially-designated *agro-towns*. Designation of such villages to district and sub-district headquarters has elevated their functional status because re-designation is accompanied by decentralization of human resources, services and the improvement of physical infrastructure, utilities and telecommunications. Such public investment has attracted private sector investment and

employment generation. The national population relocates to private and public sector investment and their associated economic and socioeconomic opportunities. Some of the major causes of rural-urban population relocation therefore include:

- Urban- biased policies in public and private sector investment;
- Wage disparities between the urban-industrial and the rural sector;
- Educational curriculum which is biased towards blue and white collar employment, found mostly in the urban sector;
- Low agricultural commodity prices which make agriculture an unattractive occupation, even in good rain seasons;
- Weak agricultural marketing systems and policies;
- Land-use conversions from subsistence to commercial tenure, leading either to the absorption or displacement of certain rural communities;
- Rapid rural population growth, leading to population pressure, which manifests itself as unemployment, over-exploitation and degradation of the environmental resource base;
- Periodic droughts and desertification which have forced the rural population to relocate to the larger centers, to access a reliable water supply, drought relief rations, and work. With the looming global climate changes, droughts could become chronic and increase environmental refugees;
- Termination of the formal international migratory labor system, by the Republic of South Africa to avail employment to its citizens.

Finally, the strategic location of certain settlements with regard to major industrial, commercial and administrative centers, has provided a strong basis for their growth. Another locational factor has been arterial access to local, regional and international markets and services. The above co-factors therefore co-jointly explain the growth variations among modern towns, regional and sub-regional centres.

6.0 Urbanization Distribution Trends by Settlement Type

Table 2 shows the distribution of population among modern towns, urban villages and rural settlements over the past twenty years.

Table 2 Population Distribution by Settlement Type 1981 - 2001

Settlement Type	1981		1991		2001	
		%		%		%
Urban (modern towns)	150 100	16.0	286 700	21.6	375 800	22.4
Urban Village (former <i>agro-towns</i>)	16 300	1.7	313 400	23.6	534 000	31.8
Rural	774 600	82.3	726 700	54.8	771 100	45.8
All Settlements	941 000	100	1 326 800	100	1 680 900	100

Source: Central Statistics Office 2001

The general trend has been a dramatic decline in the percentage of persons residing in the rural settlements, from slightly above 80 percent to 46 percent, paralleled by a mercurial increase in the urban population. Of particular significance is the increase in the urban village residents, relative to those who live in modern towns. This reflects the growth of satellite urban villages at the expense of their nearby towns and cities. The other

reason, as pointed out earlier, was partly due to their status re-designation from a rural to an urban status, which has conferred upon them the structural and functional trappings of modern towns.

Table 3 highlights the intercensal population change rates among the three settlement types. It is assumed that an exponential rather than a linear or geometric rate expresses the pace of growth more realistically.

Table 3 Intercensal Annual Growth Rates Percent by Settlement Type

Settlement Type	1981-1991	1991-2001
Urban	6.5	2.7
Urban Village	29.6	5.3
Rural	-0.6	1.0
All Settlements	3.4	2.4

Source: Central Statistics Office 2001

The 1981-1991 national annual intercensal change rate was 3.4 percent. Whereas the modern towns, and especially the urban villages, recorded much higher growth rates, rural settlements recorded a negative growth rate. This reflects a reclassification of some of their members and rural-urban migration. The annual growth rate of all the settlements was lower between 1991 and 2001, at 2.4 percent. This trend could be due to the combined effect of a successful family planning program and increased mortality due to HIV/AIDS. The three settlement categories all experienced relatively lower growth rates compared to the 1981-91 decade. Nonetheless, the urban villages, due to reclassification, migration from smaller rural centers and the over-spilling of nearby town and city residents, grew at a comparatively more robust rate than the two other category settlements.

Theoretically, the intercensal growth rates depicted in Table 3 are insightful. Between 1981-91, the rural areas experienced negative growth. This was due to concentration or *productionism*. The rural sector was losing population to the urban sector. Within the two urban sub-sectors, significant growth differentials were however evident; the urban villages were growing much faster than the modern towns and cities. This is suggestive of the former growing at the expense of the latter. Perhaps this was reflective of the combined impacts of the major village infrastructural development programme, which had been initiated by the government to decentralize public and private investment to intermediate centers, and thus intercept rural-metropolitan migration. Deconcentration, through polarization reversal was taking place towards intermediate size cities at some distance away from major metropolitan areas. Also environmental refugees from the severe periodic episodes of drought could have relocated to the nearby major villages. Factors responsible for this include agglomeration and other scale economies, expanding markets, lower input costs, lower land costs and improvements in physical infrastructure, transport and communications.

The 1991-2001 urbanization trend differs fundamentally from that of the previous decade in the following ways. First, the rural settlements experienced a positive net migration rate; secondly, the modern towns and cities and urban villages all experienced comparatively much reduced growth rates. There is also visible spatial evidence that rural resource frontier and peri-urban settlements grew significantly due to *environmentalism* and counter-urbanization.

6.0 Urbanization by Planning Regions

Table 4 depicts their growth trends over the last two decades.

Table 4 Urban Population by Planning Region 1981-2001

Planning Region	1981	%	1991	%	2001	%
Southeastern	91 000	54.7	340 300	56.1	507 800	55.2
Eastern	75 400	45.3	229 200	37.8	340 400	37.0
Northern		0.0	31 100	5.1	56 200	6.1
Western		0.0	5 500	1.0	16 000	1.7
All Planning Regions	166 400	100	606 100	100	920 400	100

Source: Central Statistics Office 2001

Generally, the Table shows relatively higher urbanization in the Southeastern and Eastern Planning Regions and a paucity of urban settlements for the Northern and Western areas over the past twenty years. The first two coincide with the habitable hardveld whereas the others are part of the arid and wet sandveld. The Northern region has abundant surface water, wildlife, good agricultural soils and forest reserves. In response to the favourable conditions and cultural preferences, nucleated settlements, socioeconomic services, commercial facilities, road and rail services have been developed on the hardveld. It is thus associated with the core and upward transitional areas. The development of these areas continues to attract further investment and development. The sandveld is dominated by transitional areas with few identifiable resource frontiers.

Over the review period, the Southeastern Planning Region, which defines the administrative, industrial, commercial, and socioeconomic heartland of Botswana, has held over 50 percent of the urban population. About 40 percent of the urban population is in the Eastern Planning Region. Major regional attraction centers there include Francistown City historically a mining town, but now the commercial and administrative hub of the geographical north of the country, and the mining towns of Orapa, Letlhakane, Selibe Phikwe, Morupule/Palapye and Sowa. Dammed and dammable surface water resources of Tati, Shashe, Motloutse and Mahalapye rivers are also found there.

Barely over 5 percent of the urban population resides in the Northern Planning Region. In the past, the settlement of this region has been hindered by *schistosomiasis*, *trypanosomiasis*, and *malaria*. The elimination of vectors associated with these diseases has encouraged the settlement of this Region. Its main centers derive their economic sustenance from administration, services and eco-tourism. The Western Planning Region, being remote and arid, is the least urbanized, with less than 2 percent of the population living in Ghanzi Township.

The population growth trends within the Planning Regions over the previous decade has been towards a decline in the two most urbanized Regions and some increase in the least urbanized ones. The apparent urban growth in the Western Planning Region from 1991-2001 was certainly due to the reclassification of Tsabong to the urban village status. The growth of the Northern Planning Region could be due to in-migration associated with, marketing, services, arable farming, and eco-tourism. The decline in the Eastern and Southeastern Planning Regions could be due to the out-migration from the cities and towns to their outlying rural communities, due to urbanization diseconomies and international migration which is selective of the most skilled citizens, who tend to be urban-based.

Theoretically, the trends seem to suggest a relative decline if not stagnation in urbanization for the Eastern and Southeast Planning Regions. Historically, they have been the most urbanized. The differential urbanization concept could explain these trends. The trends confirm the onset of the counter-urbanization phenomenon alluded to earlier on when the intercensal growth rates by settlement type were analyzed. This is because the smallest and peripheral settlements in the Northern and Western Planning Regions seem to be experiencing noticeable growth relative to the intermediate and largest centers found in the first two Planning Regions. There seems to have been a ripple effect in the growth of settlements starting from the core/upward transitional areas and spreading out to the most remote resource frontiers over time.

7.0 Urbanization and the Evolving Settlement Hierarchy

The National Settlement Policy aims to create a hierarchy of centers that facilitates an adequate and equitable provision of infrastructure and services to all settlements in a cost-effective manner. The central place principle, which underlies Botswana's National Settlement Policy is fundamental for achieving this ideal. The logic is to concentrate scarce financial and human resources, in settlements with a very high potential for development as well as in settlements that support agricultural production and agro-based industries. Table 5 depicts the national urban primacy index trends over the review period.

Table 5 National Urban Primacy Index Trends 1981-2001

Index	1981	1991	2001
2 city	1.90	2.38	2.24

Source: Central Statistics Office 2001

The index compares the population of the national capital Gaborone with the next largest urban center, Francistown City. There seems to have been comparatively more rapid increase of the capital city relative to its next rival between 1981 and 1991. This was an era of agglomeration and other scale economies accompanied by substantial commercial and construction boom in the capital. The figure for 2001 shows a decline of the capital population relative to Francistown. This could reflect a slowing down of population growth in the Greater Gaborone area due to agglomeration diseconomies, and the spatial closure associated with shortage of land and accommodation, which has forced some of the population to relocate outward to its peripheral communities. Sub-stream exurban migration has been facilitated by dispersed educational and social services in response to prevailing population redistribution trends, good roads, rising car-ownership and an efficient public transport system. Amenity has been an important factor to the growth of exclusive high- income suburbs such as Mokolodi and Phakalane.

The lower index for 2001 may also reflect comparatively higher growth that has characterized commercial, residential, industrial and administrative expansion that has occurred in Francistown City. Theoretically the indices for 1981 and 1991 could reflect the concentration phase of the primate city. The recorded decline for 2001 might be indicative of the combined forces of polarization reversal and counter-urbanization.

The growth rate of Gaborone City can also be discussed in terms of the Gaborone City System that incorporates its orbit satellite communities. The latter include some of the country's largest urban villages and smaller settlements. Table 6 clearly shows how the capital's share of the population in this spatial conglomeration grew from 42.5 percent in

1981, peaked at 48.6 percent in 1991 before declining to 42.9 percent in 2001. The 1981-91 intercensal growth reflects the concentration phase of the primate city. However, between 1991-2001, polarization reversal appears to have started setting in.

Table 6 Total Population Trends of Gaborone and its Satellites 1981-2001

Area	1981	%	1991	%	2001	%
Gaborone	59 700	42.5	133 500	48.6	186 000	42.9
Gaborone satellites	80 889	57.5	141 297	51.4	247 100	57.1
Total	140 589		274 797		433 100	

Source: Central Statistics Office 2001

During that period, the population share of the satellite communities declined from a peak of 57.5 percent in 1981 to a low of 51.4 percent in 1991 before increasing again to 57.1 percent in 2001. These respective changes reflect population relocation that has been occurring within the Gaborone City-Gaborone satellites communities and the re-designation of settlements over the past twenty years. Their 1981-91 decline is counterpart to the urbanization of the primate city whereas their subsequent increase complemented polarization reversal. The wave theory explains these trends in terms of economic cyclical circumstances, such as boom and burst periods.

Table 7 shows the geometric intercensal annual growth of Gaborone City and the Gaborone City System.

Table 7 Intercensal Annual Growth of Gaborone City System

Area	1981-1991	1991-2001
Gaborone	8.0	3.3
Gaborone satellites	-5.6	5.6
Total	6.7	4.6

Source: Central Statistics Office 2001

The System's rate of annual intercensal growth was 6.7 percent between 1981-1991. Then the annual growth rate of Gaborone was much faster whereas that of the satellite communities was slower. The picture was almost reversed between 1991-2001. Then the System had an intercensal annual growth rate of 4.6 percent. Gaborone city recorded a lower rate than this whereas the satellite communities grew at a faster rate as a result of being recipients of migrants from Gaborone and the reclassification of some of the rural settlements into urban villages.

Taken as a system, the Gaborone spatial conglomerate has attracted immigrants as shown in Table 8.

Table 8 Gaborone and Satellites Percentage of National Population 1981-2001

Year	1981	1991	2001
%	14.9	20.7	25.8

Source: Central Statistics Office 2001

At least one in every four persons in Botswana lives there. The above pattern simply reinforces what has been previously noted in national population redistribution trends from last two censuses; whereas in 1981 50 percent of the national population lived within 200 kilometers of Gaborone, by 1991 50 percent resided within 100 kilometers.

Urban demographic increase has generated concomitant spatial processes, such as interstitial infilling referred to above. As the various adjacent elements of the urban system expand, they coalesce and cause unregulated development in the form of urban sprawl and land-use conflicts.

In the case of Gaborone, the processes constitute the basic ingredients of conurbation presently characterized by its merger with Tlokweng, Mogoditshane, and Gabane. This conurbation is likely to expand and incorporate the nearby settlements such as Kopong, Metsimotlhabe, Mmopane and Pakalane as an incipient metropolis. Growth occurs fastest along the major arterial radials converging on the main centers. Such processes will be replicated in other urban areas. In Francistown there has, for instance, been a noticeable development of dormitory villages or transformation of some small rural settlements into residential communities for urban workers. Since the processes are inevitable, provisions of the TCPA must be enforced to prevent unregulated development.

8.0 Theoretical and Policy Implications and Conclusions

8.1 Patterns and trends of urbanization

Although Botswana is likely to experience relatively little national population growth in the next few decades, urbanization will continue, with approximately 60 percent of the population expected to be urban by 2021 (Sanderson, Hellmuth, Strzepek 2001). The paper has examined patterns, trends and causes of urbanization in Botswana at the macro, meso and micro- levels. The macro-level analysis has revealed that:

- Botswana has both high rates and levels of urbanization;
- The urbanization process derives its highest impetus from the reclassification of rural settlements and rural-urban migration;
- There are variations in rates and levels of urbanization among modern towns, urban villages and rural settlements;
- There are variations in levels and rates of urbanization among the respective Planning Regions. The Eastern and Southeastern Regions have had the highest levels and rates. Explicit and implicit state policies, such as industrial decentralization initiatives, rural resource development however appear to be galvanizing parts of the migrants to the Northern and Western Planning Regions;
- The Gaborone region has remained an attractive destination for rural-urban and interurban migrants;
- There is coalescence of those settlements adjacent to the core;
- The strategic geographical location of settlements has served as a catalyst for their growth.

At the meso and micro-level, the study analyzed settlement growth dynamics on the basis of the vertical and horizontal components of the space economy, over time. Settlements at various levels of the hierarchy experience economic-cum-population growth and decline at different times, as depicted in Figure 1. Concentration started with the primate city. Subsequently, the ripple effect has spread outwards, first to the nearby intermediate centers and then to those farthest out, before reaching the smallest ones. "Growth does not appear everywhere at the same time; it becomes manifest at points or poles of growth, with variable intensity; it spreads through different channels, with variable terminal effects within the whole economy" (Perroux 1970).

Variations in settlement growth have reflected an interplay of environmental, political and economic factors. The biophysical environment seems to have set the spatial

foreclosure of where core, upward transition and downward transitional areas are located. Government decisions determined the site and situation of the capital city. Government initial investment patterns were reinforced by those of the private sector. Agglomeration and other scale economies sustained cumulative multiplier causation effects and saw capital, labour and other factors of production moving towards and concentrating in the capital. Zelinsky has referred to this phase of mobility as the early transition stage (1971). Kontuly and Geyer and call it the concentration phase (2003). The saturation limit of this phase has been reached and is clearly defined by symptoms of agglomeration diseconomies and over-urbanization. These have led to centrifugal sub-stream migration from the primate city, in search of lower input costs, cheaper land, accommodation and the environmental amenity offered by the intermediate and nearby centers. Government-led investment in physical infrastructure and social services has also attracted both the private sector and population from the lower order centers to these intermediate centers. These growth patterns have been usually accompanied by land-use changes, conflicts and unregulated development.

Demographic growth of these centers and that of the capital has generated concomitant spatial fission/sprawl and development most visible along the major arterial radial routes and then in interstitial areas. This growth-pattern of intermediate centers, near the capital city, has been replicated in those farther afield. Such growth has marked polarization reversal. Data from the latest census suggest that the smallest resource frontier settlements have experienced mercurial growth over the past decade. Such growth involves skilled personnel moving from the higher order centers, complemented by the relocation of the unskilled and semiskilled migrants from their hinterlands. This could signal the beginning of the final phase in the first cycle of urbanization in Botswana.

8.2 Emerging policy issues

Government has committed itself to the creation of sustainable urban settlements. Vision 2016 underscores:

- provision of good quality sanitation and an adequate supply of safe water;
- access to good quality shelter (Republic of Botswana 1999:26-27).

The National Settlement Policy strategy intends to:

- upgrade old neighbourhoods to bring them in line with development standards, as safe and pleasant living environments for their inhabitants;
- provide a base for industrial and commercial development through delivery of land, housing, and social infrastructure (Republic of Botswana 1998:84).

The National Population Policy aims to stimulate the development of rural areas by improving physical and socioeconomic infrastructure, creation of alternative growth points to achieve an even population distribution, and generation of employment opportunities. The National Policy on Housing aims to facilitate the provision of decent and affordable housing for all, within a safe and sanitary environment. The National Conservation Strategy Authority intends to enforce the T CPA to ensure the improved provision, design and management of human settlements, including public open space and recreational facilities and the conservation of natural resources within the Planning Areas of all settlements.

The following policy issues emanate from the study:

8.21 Opportunities associated with concentration

Urbanization has benefited Botswana's economic and social development. Urbanization economies have been realized through spatial agglomeration through an efficient and cost-effective provision of utilities, social and commercial services. Urbanization also promotes modernization and secularization which help to improve the quality of life among the urbanized population. However, the following problems have emerged.

8.22 Over-urbanization problems due to polarization

Over-urbanization problems include unemployment, shortage of land, inadequate accommodation and public social services and negative environmental externalities.

8.221 Employment problems

While urbanization presents opportunities for socioeconomic development, it generates a wide range of socioeconomic problems such as unemployment, underemployment and misemployment. The economic and socioeconomic fate of modern urban places is inextricably linked with the global market trends. There are two modern cities, namely the national capital Gaborone (186 000 [49.5%]) and Francistown (83 000 [22.1%]), the entrepot and regional capital for the northern half of the country. The economic base of the cities is dominated by the service sector. The major commercial corporations are international ones, based in South Africa. Because of their large size in terms of capital outlays modes and scale of operation, they have undercut and displaced the less efficient but labour intensive indigenous enterprises. This explains why increasing foreign investment has not generated a corresponding reduction in unemployment. Efforts are being made to diversify the economic base of the cities, including deliberate efforts to support small, micro and medium enterprises through the New Industrial Policy and decentralization of social investment such as the new University of Science and technology to Francistown.

Recent efforts at economic diversification through manufacturing industry have been in the form of automobile assembling in Gaborone, in the late 1990s. At its peak, the plant ensured that motor vehicle exports made a significant contribution to Botswana's foreign exchange earnings, hitherto dominated by diamonds and beef. However in 2000 the Motor Company of Botswana (MCB) and Hyundai Motor Distributors Botswana (HMDB) were put into liquidation.

The collapse of the Hyundai Motor Group left 4 000 employees and 80 000 car owners stranded. A consortium of South African motor manufacturers bought the MCB plant for \$US 7.2 million, in an auction which saw local investors lose out. The plant relocated to Kimberly. The sale of the plant not only represented a huge financial loss to Botswana but it also marked the collapse of a venture that was revolutionizing the country's economy.

Of late Gaborone has been involved in transforming itself into an International Financial Services Centre (IFSC). The key feature of the IFSC is the provision of financial services to clients domiciled in other countries. The IFSC is structured as a transparent, open business location with high standards of regulation and rigorous screening and project approval process. The objective is to fulfill the Government mandate to create an active international financial services center, which will make a significant contribution to achieving economic diversification and increasing the country's integration into the regional and global economy. Among the operating companies are **ANDISA CAPITAL, AON RISK MANAGEMENT (TY) LTD, BARCLAYS BANK PLC, CYBERPLEX**

HOLDINGS, CHERUBIM VENTURES, ECONET WIRELESS GLOBAL AND GLOBAL CREDIT RATINGS HOLDINGS.

Primary activities in the form of minerals and livestock, respectively constitute the economic base of the rest of the modern towns (106 800 [28.4%]). For Lobatse (29 700 [7.9%]), the Botswana Meat Commission (BMC) has always been the main employer. Botswana enjoys greatly reduced tariffs or tariff quotas from its beef exports to the European Union (EU), through the Lome and Cotonou Agreements, accounting for 68.3 % of sales in 2001. BMC markets the rest of the beef to markets with highest net returns such as Reunion and Norway. Employment losses at BMC result from periodic closures of the abattoirs to ensure full compliance with strict certification requirements of the EU. Botswana's lucrative beef export industry is struggling to recover after recent outbreaks of foot and mouth diseases (FMD) and persistent drought conditions.

The other towns owe their origins to mineral resources. Selebi-Phikwe (49.8 [13.3%]) is a copper-nickel mining town. Since its opening in 1973 copper-nickel mining has been the single most important source of employment for the town and the surrounding region. Because of the slump in world prices for copper from the mid 1970s the mine has been threatened by closure. The other big mineral project, Soda Ash, which became operational in 1991, at Sowa, has periodically suffered the same fate and become a drain on Government revenues. In 1985 the Government proposed a comprehensive Regional Development Strategy for Selebi Phikwe intended to diversify its economy by:

- establishing light manufacturing industry;
- exploring the best approach to road building and infrastructural development in the region;
- establishing a housing development programme.

The Selebi-Phikwe Regional development Promotion Unit helped draw up a Special Incentive Package (SIP) that was to apply to firms locating at the town in 1989. For firms to qualify their investment had to be promoted by internationally established companies that had been in existence for at least ten years and willing to invest at least 25% of the project's fixed and working capital. The main benefits of the package included:

- reserved plots solely for the use of foreign investors;
- 6000 square metre of factory shells by the end of 1989;
- a capital grant towards the establishment of the project up to a maximum of 65% of the total invested in the project or \$200 per citizen job, whichever is smaller;
- a step down reimbursement of unskilled labour costs over five years;
- a training grant covering 50% of any off-the job training and approved in-house training programmes undertaken in the first five years of the project;
- a sales augmentation grant equivalent to 8% of the invoiced sales in the first two years of the project, and 6%, 4% and 2% in the subsequent three years;
- a 15% rate of company income tax for the first twenty years of the life of the project, and exemption from payment of withholding tax on dividends paid after tax profits during the first ten years of the project's life.

Of the 17 companies that had located in Selebi Phikwe by 1995, only Sportsline actually obtained SIP incentives. Since 1994 the locational incentives such as concessional taxes, blocks of land became universal in Botswana. As well as the erosion of the value of these special incentives at the end of 1995 the component of the World Bank loan that was used to fund the unit was also drawn down. To-date textile companies operating in the Town such as Sportsline, Tex and Beach Club are likely to benefit from the African Growth and Opportunity Act (AGOA). AGOA is intended to prime the development of the apparel industries. The largest number of jobs have been created in the textile and apparel sector as a result of AGOA. In 2002, AGOA exports from Botswana increased almost four-fold over the previous year, driven by an increase in apparel exports.

The Trade Hub is facilitating AGOA business linkages. For example, it developed a program with the International Cotton Council to introduce US buyers of apparel to Botswana manufacturers. This included factory visits to communicate buyer expectations as well as to provide recommendations on quality and productivity improvements. It has assisted local businesses with market research, US buyer identification, and export investment services. The TRADE Hub thus provides assistance to get goods and services to market by establishing standards, creating and promoting business linkages, and facilitating trade. Its competitiveness strategy will also strive to mitigate the impact of HIV/AIDS on profitability, productivity and markets for goods and services for governments, private sector associations and business development service providers to develop methodologies to implement their economic growth strategies.

The rest of the mining towns are mostly into diamond extraction. Diamonds are liable to economic booms and recessions of markets in the United States and Western Europe. Unfortunately, no EIA studies were conducted to look into possible activities after the decommissioning of the mines. Financing the retraining and redeployment of redundant labor in small micro and medium enterprises (SMMEs) could provide part of the solution to the employment problems.

8.222 Shortage of physical infrastructure and social services

Over-urbanization means that population growth has outpaced the provision of housing, serviced urban land and supportive infrastructure. The low-income groups squat on marginal vacant land in improvised accommodation, constructed from unsafe materials, or by overcrowding in small rooms in low-income housing areas. Steep slopes, rocky terrain and flooding make these sites hazardous and unserviceable. Overcrowding exposes occupants to communicable diseases, stress, overloading of sanitation facilities, surface and groundwater contamination. Squatter upgrading has involved rationalization and regularization of plot-boundaries, construction of earth roads, storm-water drains, communal water standpipes, schools, a health clinic, a community center a police station and a commercial center. Under new upgrading, communal water standpipes in low-income plots and pit-latrines will be replaced by private water connections and central reticulated sewage systems, respectively.

The government made attempts, from 1960s –1970s to provide housing, infrastructure and services for the low-income groups through mixing residential landuses of high medium, low and sites-and –services, within designated Integrated-Neighbourhoods.

In 1970, the Botswana-Housing-Corporation was established to cater for housing needs of middle and upper-income groups only. Then between 1973-82 the Self-Help-

Housing –Authority (SHHA) was initiated to provide affordable accommodation for the urban middle-poor and rich-poor, earning US\$ 800-7 200 per annum. Cross-subsidies from the sale of high and medium- income plots were transferred to the purchase of low- cost and site- and- service plots. Plots were granted for free on state, state-converted Tribal and Freehold land. Building- material loans, water and sanitation services were highly subsidized. Since households with an income of less than US\$ 800 per year were excluded from the scheme, a substantial proportion of low- income urban households could not benefit from the SHHA program. The Destitute Scheme, a welfare scheme, administered under the Department of Social and Community Development, was aimed primarily at providing food and clothing to destitutes with no visible means of support. Although it is not meant to provide housing, it does so where the destitute individual has no recourse to any other alternative assistance.

Up to the 1990s SHHA- plot- holders were encouraged to improve the quality of their houses by being given Certificates of Rights and financial assistance in the form of building loans. Plot-holders have however not improved the quality of their housing, preferring instead more remunerative investment in additional rental rooms. The resultant *densification* works contrary to development control codes and standards and threatens sustainability.

8.223 Land shortage

The 1990s marked a change in Government policy from provider to facilitator of housing, probably due to overwhelming demand for urban land and competition for limited resources from other social sectors such as health and education. Under the state-private-sector-partnership, the Government provided primary infrastructure and allocated up to 10ha. of land to private developers who subdivided it and supplied secondary and tertiary services. To make the plots affordable to low-income households, the Government bought serviced plots from developers and reallocated them to beneficiaries at affordable prices. Alternatively, subsidies were paid upfront to developers who would then sell the plots at US\$6.5/m², compared to private sector land costs of US\$25/m². These comparatively low prices have enticed certain individuals to make multiple applications for speculative purposes.

High demand has caused an escalation in the cost of urban development, creating unaffordable prices for serviced land and houses. The Accelerated Land Servicing Program (ALSP) and new urban development standards were meant to maximize residential and marketable land while providing adequate space to meet the physical, social and aesthetic needs of urbanites and to rapidly place additional serviced land into the market, in major urban areas. ALSP plot-applicants had to borrow loans from financial institutions to purchase land, without any form of subsidy. Under ALSP, land remains beyond the financial reach of low-income groups because plot- prices, estimated at US\$ 2458 –2757 (Datta, Jones 2001), and high building- material costs are not related to affordability assessments. Increased default re-payment rates have led to plot repossessions, further exacerbating the prevailing housing shortage. Removal of government subsidies for urban services means land and loan materials are no longer affordable to the low-income applicants.

Formal land delivery systems have been superceded by demand and most land for urban development is being supplied and developed outside state regulatory frameworks. Kalabamu has advised that a better understanding of how formal and informal systems operate, interact and are evolving is required (2004:2). He recommends devising land

administration and delivery systems capable of providing urban land to meet the needs of low- income households.

The failure of state and private sector institutions to meet effective land demand has compelled needy individuals to resort to informal land-markets which are active in peri-urban communal areas such as Mogoditshane, outside Gaborone where prospective buyers find it easier, cheaper and quicker to get residential plots. In such transitional areas, traditional chiefly- authority has lost its control over land tenure to Land Boards, assisted by headman. Technically, field-owners should consult with the Land Board before converting their arable land to urban use. However, because of administrative loopholes and inadequate compensation for their land, from the Board, field-owners have unilaterally sold their land to urban buyers without consultation. Alarmed by such unregulated development, Government has charged a penalty fee to those who have acquired land “illegally”, to have their rights regularized. Failure to do so has resulted in evictions and demolitions. The demolition of illegal structures by the state however impoverishes people, destroys national wealth, and creates antagonism between residents, Land Boards and the state (Kalabamu 2004:10).

8.224 Negative environmental externalities

The ecosystem has become seriously impaired through the dumping of solid and liquid waste into river courses and the extraction of sand for the booming construction industry. Littering of construction rubble has become a serious urban problem that threatens environmental aesthetics and encroaches on valuable open spaces and potential construction sites. Unrehabilitated borrow pits pose physical hazards. Household, industrial and medical waste poses serious environmental threats. Although the Waste Management Act has been promulgated, there are technical, financial and human resource constraints on enforcement (Gwebu 2003). Compacted and impervious urban surfaces, coupled with poor storm drainage, induce flooding and reservoir siltation even when slight showers fall, creating threats from water- borne diseases. Deforestation for fuelwood energy sources, by poor households, threatens the biodiversity of peri-urban areas. Enforcement of the TCPA, development of affordable environmentally-friendly energy alternatives, and public awareness sensitization are required.

8.23 Polarization- reversal- related threats

Threats associated with polarization reversal center around urban sprawl, land-use conflicts, indiscriminate application of urban developments standards and cost recovery measures in urban villages.

For the immediate future, it will be important to prioritize and resolve conflicts between urban and non-urban landuses. Locally, urbanization is rapidly encroaching upon scarce and valuable subsistence and commercial farmland in the Eastern and Southeastern Planning Regions of the country. Nationally, conflicts between the development wildlife resources and agriculture need to be resolved. The long-standing ministerial conflict between the Ministry-of –Local-Government and the Ministry- of- Agriculture with regard to providing water, roads and other services in the production zones should be resolved in favor of agricultural development to support small but growing settlements.

Reclassification of rural villages is a major urbanization dynamic. Building codes and urban development standards should be relaxed to ensure the affordability of housing and social services to urban village residents. This requires the promotion of their genuine economic empowerment to ensure affordability of services, through functional education, skills- training in the establishment and management of micro and medium scale economic

enterprises. The government needs the cooperation of residents, non-governmental organizations, private and donor agencies to achieve this. This is in line with the aims of PEC and EPM alluded to earlier on. Elitism, bureaucracy, administrative centralism and top-down approaches, which marginalize the intended beneficiaries, need to be replaced by devolution and capacity- building to ensure that urban civil society take center stage in the prioritization of the urban management agenda (Toteng 2001). Botswana's traditional culture of consultative participatory decision- making, through the *kgotla*, needs to be nurtured and upheld to ensure this.

8.3 Regional imbalances

Rapid urbanization in the Southeastern Planning Region is unsustainable because of its eccentric location, relative to fresh water and local energy resources. The development of the resource frontier regions needs to be strongly supported in order to divert population from the congested Regions. Relocating the capital city to the Eastern Region would ensure easy access to water resources, shift it closer to the geographical center of gravity of the population clusters and create prospects for revitalizing alternative employment opportunities at intermediate centres. This is in line with the creation and strengthening of alternative growth centers and facilitating an equitable distribution of employment opportunities.

8.4 Integrating the lowest order settlements into the national space economy

Because of Botswana's vulnerability to drought; irrigation, remunerative non-farming activities such as cottage industries, fishing, and services such as community-based eco-tourism, should be and supported, to sustain rural livelihoods. The National Management Plan for Arable Agriculture and Dairy Development could, through their direct activities or downstream industries, sustain rural livelihoods. This will require adequate supportive extension personnel, capital and financial credit for the low-income households, physical and communication infrastructure to ensure access to markets.

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