

ANALYSIS OF THE CAUSES OF URBAN SPRAWL AND DWELLING TRANSFORMATION IN URBAN CITIES IN BOTSWANA

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ABSTRACT

The study attempt to address issues of urban sprawl in cities in Botswana. The study analysed the causes of urban sprawl and dwelling transformation in the Tati Siding village in Botswana. The research employed a non-probability purposive sampling and qualitative descriptive case study research approach, using semi-structured interview. The study results showed that there are many causes of urban sprawl. Major among them was proximity to city, cheap plots, village as a planned area, availability of services and infrastructure, serviced land and low rentals. The researchers recommended that the government must build more low-income housing in the city and the value of land in the villages near cities must be pegged at the same level of the value of the land in the cities near them as well as the house rental.

Keywords: Urban Sprawl, Dwelling Transformation, Urban Cities, Urbanization

INTRODUCTION

Urban sprawl is the process of extensive spread of urban structures on rural areas (Solecka, Sylla & Świąder, 2017). Urbanization and growth of the world's population is an ongoing process, it is projected that by 2050, 68% of the world population will be living in urban areas (Miranda, 2019). Solecka, et al., (2017) and Miranda (2019) all concurred that the population growth of cities is caused by natural growth and migration process which is driven by pull factors that attract people to urban areas and push factors that drive people away from the rural areas. In most cases people make this movement in search of better standard of living. It is the villages surrounding the towns and cities that receive the overspill of these people. According to (European Environment Agency, 2016) report urban sprawl can affect landscapes through three main processes: transformation, degradation and fragmentation. Urban sprawl causes are also complex just like its description. Authors (Gómez-Antonio et al., 2015; Hortas-Rico & Li, 2015; Sinha, 2018; Jarah, Zhou, Rebaz, Jalil, Abdullah & Yu, 2019) cite population growth, rapid urbanization, migration, rising incomes, lower transportation costs, individual preferences, affordable housing, employment opportunities, market and public sector failures, low prices of agricultural and peripheral land, government policies (for instance policies that promote infrastructure improvements which extend highway networks, opening suburb real estate for development, as well as poor implementation of development plans), economic prosperity and democratization of society as causes of urban sprawl. At the rate at which urbanization is happening across the continents pressure is put on governments to create more jobs, more services and infrastructure and housing for the growing populations resulting in pressure on the land resource which is finite. Urbanization affects the spatial pattern and urban form calling for sound land legislation, policies and regulations. Deliberate policy (national/local development planning frameworks) responses are required to optimize urbanization and minimize challenges. Governments need to invest in infrastructure and public goods and create jobs to cater for the growing urban populations especially the youth.

The researchers undertook this study in order to investigate causes of urban sprawl on the transformation of Tati Siding village in Botswana. The village was chosen because of its location relative to the city of Francistown and it is within the greater Francistown area. From the researchers' investigation the village is experiencing rapid population growth as attested by the last four decades population census with the village recording the highest population in 2011 within the

district, with an annual growth of 0.063% and unemployment rate of 27.9% (Statistics Botswana, 2017). The village's rapid growth is linked to its close proximity to the city of Francistown the main city provides nearly all goods and services that are required by the village. Tati Siding village helps to accommodate the population spill over from the city of Francistown. When rapid population growth induces urban sprawl there is inevitable pressure on the basic services and related infrastructure, leading to major impacts like increase energy, land demand, water consumption, pollution, traffic congestion, crime, unemployment etc. These adverse impacts will have direct impact on the quality of life of people living in the village. Sprawl creates environmental, social and economic impacts for both the cities and countryside (Ludlow, 2014).

LITERATURE REVIEW

Urban Sprawl

Urban sprawl is defined differently by various authors. The word urban sprawl is used by different scientific disciplines and carries various meanings. Sprawl has been used to define a range of situations, which form patterns, describe a process or are a result of certain consequences. OECD (2018) describes urban sprawl as a development pattern characterized by low population density. Many authors describe urban sprawl using various words like low-density, scattered, discontinuous, auto-dependent urban development pattern, physical expansion of urban areas into rural and natural areas adjacent to urban centers, leapfrogging away from denser areas, transforming open undeveloped land into single-family residential homes, unplanned form of growth, planned growth, sporadic settlements amongst others (Gomez-Antonio, Hortas-Rico & Li, 2015; Rafferty, 2015; European Environment Agency, 2016; Egidi, Cividino, Vinci, Sateriano & Salvia, 2020; Aurambout, et al., 2018). In their study Egidi, et al., (2020) states that urban sprawl is a controversial process causing territorial reorganization of cities in both advanced economies and emerging countries. Urban sprawl just like urbanization involves movement of people from rural to urban causing population increase in the receiving areas. For this study the researchers adopted the definition of urban sprawl as planned or unplanned expansion of residential dwelling into agricultural and communal land.

Urbanization

Urbanization is a process that causes growth in a country's urban population which affects the economy, political and cultural importance of cities relative to rural areas (Pravitasari, 2015). Makowska-Iskierka (2015) describes urbanization as a complex process involving several steps that changes rural areas into urban permanently. In most scholarly articles urbanization is generally described as a shift in population from rural to urban settlements (Pravitasari, 2015; Sitharam & Dhindaw, 2016; Zhang, Li, Liu, Chen & Chai, 2017). Urbanization in developed countries started as countries became industrialized and in most developing countries is due to factors such as rapid natural population growth and rural-urban migration which caused urban growth (Bekele, 2005). From the above it is clear that urbanization is mainly caused by industrialization, natural increase of population and rural-urban migration. It is projected that by 2035 half of the African continent's population will be living in urban areas (UN Economic Commission for Africa, 2017).

Many of the causes of urbanization are similar to the causes of urban sprawl. Studies have revealed that urbanization is caused by a number of factors like industrial revolution, manufacturing industries, job opportunities, transportation, migration of people, political conflict, development plans, non-implementation of master plans and economic prosperity, increase in birth rates in urban areas, infrastructure development, provision of better services in cities pull rural people to move to cities, employment opportunities, government services amongst others (Pravitasari, 2015; Jarah, Zhou, Abdullah, Lu & Yu, 2019; Sitharam & Dhindaw, 2016). Urbanization occurs due to individuals' moving from rural areas to cities in search of better quality of life, better amenities and economic opportunities which are not available in rural areas. It is safe to say most of the cities and towns grow due to urbanization in which the movement of people from

rural to urban areas results in population increases at the receiving areas and decrease in population at the rural areas.

Overview of Urbanization in Botswana

Since attainment of its independence in 1966, Botswana has been undergoing urbanization proved by the level of development of its settlements to date. Botswana urban population is at 70.9% of total population with a rate of urbanization at 2.87% annual rate of change (Central Intelligence Agency, 2020). Its cities and towns have been sprawling induced by factors like migration of people from rural settlements to cities and towns in search of a better life and jobs, population increase, economic development in cities and towns. Urbanization just like urban sprawl happens on land. Botswana's population in 2019 was estimated at 2, 024, 900, the urban population of Botswana increased from 7.8 % in 1970 to 70.2 % in 2019 growing at an average annual rate of 4.65% (Knoema, 2019). In Botswana, urban areas are defined as any settlement with a population of 5 000 (and above) of which 75% of the workforce is engaged in non-agricultural activities. Botswana's urban areas comprise diverse settlements that include mining towns, commercial, administrative and industrial activities. Included in the urban category are settlements referred to as major villages, agro-towns and more recently urban villages. These settlements experience in-situ urbanization and while displaying the influence of the global economy (for example existence of multinational chain retail shops, commercial banks etc.) to which Botswana is part, urban villages also display strong cultural traits unique to Botswana (Department of Town and Regional Planning, 2009). The settlements surrounding the cities and towns in Botswana form peri-urban areas and the city population spillover occurs to these areas.

Francistown is the second largest city in Botswana, with a population of about 100,079 (Statistics Botswana, 2015) and it is the oldest town established in 1866 after discovery of gold deposits. The city is the capital of the northern area of Botswana and it is a major migration destination in the region (MLMWS, 1997). It is this city that support Tati Siding village with various services required to sustain the village. Tati Siding is one of Botswana villages continuously growing, transforming and swallowing its surrounding agricultural and communal land. Tati Siding village measures approximately 4931.5 hectares and is located approximately longitudes 210 17' 30" S and latitudes 270 28' 25" E. The village is located within the North East District, south of City of Francistown along the Francistown-Gaborone road A1. Tati Siding falls within the boundaries of the Greater Francistown planning area. In 2001 Tati Siding population was 4 376 and it qualified to be classified as a Tertiary II (population within 1 000-4 999) as per the Revised National Settlement Policy of 2004 (Department of Town and Regional Planning, 2009). The population of Tati Siding has been growing rapidly to 8 189 as per the last population census of 2011. Tati Siding was declared a planning area in 1994, as part of the Greater Francistown Planning Area, and has a development plan which has legal backing from the Town and Country Planning Act (Department of Town and Regional Planning, 2009). The declaration of the village as a planning area was a turning point in the urban transformation of Tati Siding village. As part of the land reforms for rural development in Botswana government introduced modern urban planning and land management practices. Since the village has been declared a planning area a development plan was developed called the Tati Siding development plan 2007 – 2031, the village area was organized in a grid-pattern system with demarcation of parcels of land for residential plots for allocation to citizens of Botswana and Botswana Housing Corporation was given a site for construction of residential houses. The transformations of Tati Siding village has seen the older wards having a few traditional built dwellings, house construction has undergone considerable improvement and transformation with the majority of houses constructed from durable materials (bricks and roof of corrugated iron sheets or roof tiles). Tati siding village can be termed a semi-urbanized village to emphasize that the village is not fully urbanized in terms of physical environment and urban services even though most residents are engaged in non-agricultural activities and live an urban life.

Causes of Urban Sprawl

A number of authors (Rafferty, 2020; Gomez-Antonio, Hortas-Rico & Li, 2015; Jarah, Zhou, Rebaz Jalil Abdullah & Yu, 2019) have stated many factors that contribute to urban sprawl. Rafferty (2020) argues that population increase alone does not contribute to the increases in urban sprawl, the researcher states that urban sprawl has occurred in areas experiencing population declines and areas with increasing populations have experienced little urban sprawl. The OECD (2018) report stated that urban sprawl is driven by demographic, economic, geographic, social and technological factors. Authors have stated many factors as causes of urban sprawl depending on where in the world the authors undertook their researches. Some of the important causes of urban sprawl are listed in table 1 below.

Theme	Causes of urban sprawl	Source
Economic dimension	Economic growth and globalization are the main macroeconomic drivers of urban sprawl. Population growth. Increase in income and increase in number of employed people. Technological advancement	Rafferty (2015); Sinha (2018); Karwinska, Bohm, & Kudlacz (2018); OECD (2018)
	Tax systems misaligned to social cost of low-density development	OECD (2018)
	Business activity outside the city borders are created and employment opportunity	Karwinska, et al., (2018); Pravitasari (2015)
	Housing prices Increased wealth Attractive land High costs of land and property in city, low property costs outside the city and cheap land	Rafferty (2015); Sinha (2018); Warih, Rindarono & Nurhadi (2019)
	Transportation - private and public transport availability Investment in road infrastructure	OECD (2018); Sinha (2018); Pravitasari (2015)
	Industrial revolution, Emergence of large manufacturing centers	Pravitasari, 2015
Planning laws and policies dimension	Weak planning laws, Single-use zoning/specific zoning regulations, government development policies and effectiveness of the implementation of these policies Unplanned growth	Rafferty (2015); OECD (2018); World Bank (2019)
Environment dimension	Proximity of rural area to urban area (town/city)	Warih, Rindarono & Nurhadi (2019)
	Natural barriers to contiguous urban development	OECD (2018)
	Low density areas	OECD (2018); Karwinska, Bohm & Kudlacz (2018)
Social dimension	Individual preferences or lifestyle, rural areas have become attractive dwellings	Karwinska, Bohm & Kudlacz (2018); OECD (2018)
	Demand for better housing and desire to own a house, Desire for larger homes with bigger yards	Karwinska, Bohm & Kudlacz (2018); Rafferty (2015)
	Cultural differences (including ethnic and religious)	Karwinska, Bohm & Kudlacz (2018)

	Nuclear family	Sinha (2018)
	Migration Lack of resources in rural areas	Pravitasari (2015)

In general, these causes of urban sprawl are different for each country whether developed or developing and the causes differ even among cities, towns or rural area. In summary the causes of urban sprawl seem to be population growth, migration, individual preferences or lifestyle, individual income and government development policies. Urban sprawl if not managed can cause a lot of problems for Tati Siding residents, physical planners and the land authority in this case Tati Land Board. From the literature review it is clear that urban sprawl causes are varied in each country, city and town. There is no universal definition for urban sprawl researchers define urban sprawl depending on which discipline they are from, hence urban sprawl is a multidisciplinary phenomenon with its causes and effects affecting the economic, environmental, and social and policy dimensions.

The review of literature reveals that the causes of urban sprawl differ from country to county, area to area (city/town/settlement). The key drivers of urban sprawl is population, migration, political setting of a country or government of the day because it has influence on the policies that can promote urban sprawl. For instance Masoumi, Hosseini & Gouda (2018) study on the “Drivers of urban sprawl in two Middle-eastern countries: Iran and Egypt”: revealed that the causes of urban sprawl were as a result of urban planning weaknesses, population increase due to high birth rate and urban population increases induced by rural-urban migration, low price of farmland and lands on the fringes of cities which encourages low income people to convert farmland into residential areas, low commuting costs especially in areas were government subsidize fuel coupled with available road network, the market value of built-up land which has more value than agricultural land promoted sprawling on agricultural land, poor implementation of master plans as well as monitoring, promotion of gated communities by individuals and developers amongst others, the authors further stated that these causes work together to cause urban sprawl and urbanization meaning no single cause can be attributed to sprawl alone.

In the study by Sinha (2018) on the Causes of Urban Sprawl: A Comparative Study of Developed and Developing World Cities, which was primarily based upon secondary sources of information (*i.e.*, the studies on urban sprawl) and primary data were collected through questionnaire survey and key informants’ interview. A total of 240 households (30 households in each locality) were surveyed from eight selected localities with stratified sampling technique. The study revealed that proximity to city (Delhi), cheaper land and planned development of city led to the occurrence of another settlement area (Noida city), population growth, the city (Delhi) exorbitant house values, owning a house caused migration, location of the work place, infrastructural development (road, water, sewerage, housing etc.) were among the causes of urban sprawl. In the study by Jarah, Zhou, Rebaz Jalil Abdullah & Yu (2019) which was carried out to show how urbanization and urban sprawl have influenced the structure of the city, explore the driving forces and dynamics of rapid urbanization. The researchers employed a qualitative research approach to collect multiple sources of evidence and used face-to-face interviews analysis research strategy. Forty-five (45) participants were sampled using snowball sampling method. The key research finding of the study was that autonomy, political conflict, non-implementation of master plans and economic prosperity were the driving forces accelerating the urbanization process and urban sprawl.

Model of Urban Sprawl

Concentric Zone Model

There are many urban growth models, but for this study the Ernest Burgess concentric zone model was used to explain urban sprawl. The model was devised to understand the overall patterns of land use. Urban growth theory models explain internal demographic, spatial and economic growth of cities (Jschecht, 2013). The three phenomenon of a city’s development (growth) are

interlinked. Burgess theorized that there were five concentric zones in a city which were determined by spatial competition as Zone 1, 2, 3, 4, & 5. He further states that spatial competition decreases with distance from zone 1 with property prices being highest in zone 1 and declining towards the city's edge (Social Science, 2020; Shawabkeh, Bagaeen, Al-Fugera & Hijazi, 2019).

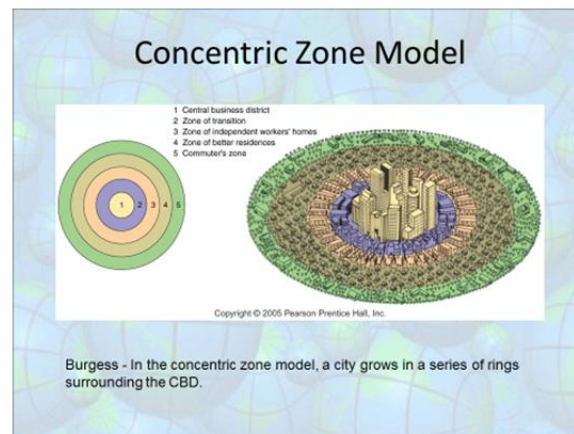


FIGURE 1
THE ERNEST W. BURGESS CONCENTRIC ZONE MODEL

The Concentric zone model is a model that explains how settlement, such as a city, will grow. This model was developed by Ernest W. Burgess between 1925 and 1929; the model depicts circles around the center of the city. In each circle a piece of land would have a specific use (See Figure 1). Burgess identified five rings of land use that would form around the Central Business District (CBD). The rings are defined as follows; zone 1 is the central business district, zone 2 is the transition, zone 3 is the independent workers' homes, zone 4 is the better residences and zone 5 is the commuters. The model correlates the socio-economic status of households with distance from CBD, where more affluent households were observed to live greater distances from the CBD the model assumes that as the city grow and develop over time, the CBD would exert pressure on the zone immediate it (transition zone) and an outward of the CBD would invade nearby residential neighborhoods causing them to expand outward. The process would continue to with each successive neighborhood moving further from CBD. The model suggests that the inner-city housing was largely occupied by immigrants and households with low socio-economic status. As the city grew and the CBD expanded lower residents moved to adjacent neighborhoods and more affluent residents moved further from the CBD. In the CBD zone because of high competition and limited space, property values for commercial and private ownership tend to be at a premium. The urban land use concentric model depicts more or less of what the city of Francistown is experiencing, but the spreading out of residences encroaching into adjacent areas like Tati Siding village because people are able to have larger plots and build single homes and also the plots are cheaper than in Francistown.

Suburbanization Theory

Suburbanization is a term used to refer to the movement of people from cities to surrounding areas (Clapson & Hutchison, 2010; Ekers, Hamel & Keil, 2012). It happens when urban populations increase, incomes rise, transportation technology improves and jobs decentralized (Ekers, Hamel & Keil, 2012; Harris, 2015). Suburbanization takes a variety of low-density physical forms which includes sprawl (Ekers et al., 2012). The outward growth of urban development may consume surrounding villages and towns into a larger urban agglomeration (Clapson & Hutchison, 2010). Harris (2015) opined that suburbanization is necessary and that it reduces housing costs, though it is a major public and private expenditure, reduces farmland and impact ecosystems negatively. Suburbanization depicts what is happening between Francistown and the Tati Siding, where Tati Siding village is in the peripheral area of Francistown and farthest

from the CBD, resulting in people residing in Tati Siding village commuting to work, however, in this case study the area is not predominately for people of high-income as even low-income group reside in the village and commute to the city using public transport. In this study the main shopping centers are in the city of Francistown. Most of the Tati Siding village residents travel daily from their residence to the CBD for most of their supplies and other needs.

RESEARCH METHODOLOGY

The researchers employed descriptive case study method for this research because the study focused on collecting on the causes of urban sprawl and strategies to curb sprawl of the residents of Tati Siding. In this study the researcher’s goal was to describe the data as it occurred and the researcher did not control or manipulate any of the variables. The research employed a qualitative descriptive case study research approach, using semi-structured interview. In this study the population consisted of residents of Tati Siding village and government officials overseeing the land management and development of Tati Siding. The research population sample for this study comprised the village leadership (chief, ward chiefs, Village Development Committee (VDC) chairpersons & land overseer), other people who have knowledge about the growth and development of Tati Siding village and North East District government planners. The researchers employed the nonprobability sampling to select individuals to be interviewed. The Tati Siding residents were purposively chosen based on people who have in-depth knowledge about the history and development of Tati Siding village. The government officials were purposively selected so that interviews were done with relevant officers based on their knowledge and expertise regarding Tati Siding issues and development. A sample of thirteen (13) was sampled: two (2) government officials and fifteen (11) Tati Siding village residents. The interview of key informants gave useful insight into the functioning system of the village, developmental issues and people’s perception with regard to the Tati Siding urban sprawl and transformation. The government officials (planners) were interviewed as they are key land management and development officials. All interviews with government officials and Tati Siding residents were conducted by the corresponding researcher, on a face-to-face basis at workplace and residences of the residents respectively. For this study transcripts of individual interviews were collected. The interviews with residents of Tati Siding was mostly conducted in Setswana, questions were asked in Setswana and answers transcribed in English because the majority understood questions better when asked in Setswana. The researchers used thematic analysis to analyze qualitative data. Caulfield (2019) states that thematic analysis is a method applied to a set of texts such as interview transcripts. The researchers used narrative method of analysis to identify and interpret patterns and themes in the qualitative data collected for this study by examining the interview transcripts and two themes were drawn out as follows; causes of urban sprawl and strategies to curb urban sprawl.

DATA RESULTS

Causes of urban sprawl	Residents (no.)	Government planners (no.)	Total
Proximity to Franciatown	10	2	12
Population growth	1	1	2
movemeng of people from Francistown to live in the village	1	1	2
Cheap plots	3	2	5
Working in Francistown	2	1	3
Village is a planning area	1	2	3
proximity to railway line and A1 road	1	-	1

proximity to A1 road transportation easy	1	-	1
Availability of basic services and infrastructure	1	2	3
Low rentals in the village	3	2	5
High rentals in the Francistown	1	1	2
Near Shashe dam	1	-	1
Near farms and potential for business	1	-	1
Village advanced in development in NED	1	-	1
Service land	1	2	3
Possibility of plot allocation for free	2	1	3
Mixture of traditional way of living and modern way	1	-	1
Shortage of accommodation in F/T town	1	-	1
Policies and guidelines	-	1	1
Total	11	2	13

The Causes of Urban Sprawl at Tati Siding Village

The researchers sought to identify the causes of urban sprawl in Tati Siding village. The study results in table 2 shows the causes of urban sprawl in Tati Siding village from 11 residents and 2 government planners. The majority (10 out of 11) of the respondents indicated that proximity to Francistown is the major cause of sprawl at Tati Siding, 3 out of 11 indicate cheap plots and low rentals in the village as cause of sprawl. These sentiments were echoed by two government planners who also indicated that proximity to Francistown, cheap plots, village as a planning area, availability of basic services and infrastructure, low rentals in the village and serviced plots are the major causes of sprawl at Tati Siding village.

Proximity to Francistown

Ten (10) residents indicated that the proximity of the village to Francistown as the major reason for the sprawl at Tati Siding. 2 out of 2 government planners interviewed also mentioned proximity of the village to Francistown as major reason for the village sprawl. One of them went to say:

‘Francistown is an employment center, people who come to work in Francistown when they have challenges of accommodation in the city they come to Tati Siding village’.

Cheap Plots

The two planners interviewed have mentioned cheap plots as major cause for sprawl at Tati Siding. This seems to be caused by the fact that Land Board may repossess ploughing fields for residential allocation and it plans, demarcates and advertise these plots for all citizen of Botswana to apply for and be allocated for free, as well as the fact that individuals can subdivide their plots and sell them to potential buyers especially the plots at older wards as they seem to be a bigger than the pre-cut. One of the planners said:

‘Land parcel price in Tati Siding is more affordable than in Francistown. Individuals can access land through purchase and prices are avoidable’.

Village is Planning Area, and Serviced Land

The two planners interviewed mentioned that village as planning area and serviced land as major causes of the sprawl at Tati Siding. One of the planners said:

'Land is serviced, especially at the new stance ward (on the northeast part most of it is serviced)'.

Availability of Basic Services and Infrastructure

The two planners interviewed mentioned that availability of basic services and infrastructure as major cause of the sprawl at Tati Siding. One of the planners said:

'There is water, sewage line, electricity and tar road, basic services like clinic, schools, and government offices are available in Tati Siding unlike other villages in the North East District'.

Low Rentals in the Village

The two planners interviewed mentioned low rentals in the village as a major cause of sprawl at Tati Siding village. One of the planners said:

'Most people who reside in Tati Siding work in Francistown they have been attracted by the low rent for accommodation in the village'.

Discussion of Results

From the responses gathered in table 2 five major causes were identified by both 11 residents and 2 planners at Tati Siding as causes of urban sprawl. Residents and planners concurred that the village proximity to Francistown is a major cause of sprawl. The respondents felt that people are drawn to settle (rent or build houses) in Tati Siding because of its proximity to Francistown, therefore they are able to commute to Francistown for work and reside in Tati Siding. The finding is supported by Masoumi, et al., (2018) who suggested that one cause of sprawl was due to the location of cities in the vicinity of large municipal areas. This was also supported by Gomez-Antonio, Hortas-Rico & Li (2015); OECD (2018) who stated that urban sprawl was caused by people preference to dwell in low density areas on the urban fringe due their proximity to traditional urban centers. This finding was echoed by EEA (2016) report which stated that remote areas become more attractive to people if it is within commutable distance to work. Kalabamu & Bolaane (2014) also echoed the same sentiment by stating that people rented accommodation in Tlokweneng because of its proximity to Gaborone and commuted to school or work. This was also supported by David (2016) who stated that higher rent is caused by rising demand that meets inelastic supply and that the demand comes from adjacent areas that are undergoing transformation.

The study findings also revealed that cheap plots in the village is another cause of sprawl. This view was echoed by the planners who stated that plots in Tati Siding were cheaper than in Francistown, so people can avoid to buy plots in Tati Siding. This finding is supported by (Kiakou, 2017) who indicated that there is a correlation between land sale price and distance from a major central area, that when land is close to the major central area tends to be higher in price than land that is far way from a major central area. Kiakou (2017) stated that the impact of urban sprawl on land market is such that when land is abundant at the initial stage the price to purchase a land will be low at the urban fringe. Jarrah, et al., (2019) were of the same view that demand more dwellings and lower land rates on urban fringes caused urban sprawl. This was also echoed by Tione & Holden (2020) who posits that land sale prices close to urban areas were about three times high compared to land prices further away from urban areas. This was also echoed by Cho (2005) who stated that land prices have a contributory factor to sprawling. This was also mentioned by (Bento, Franco & Kaffine, 2005; Siedentop & Fina, 2010; Cavailhes & Thomas, 2011) who stated that land farther away from the city center was less expensive than land closer to the city center. This result is in line with the study findings by European Environment Agency (2016) report which stated that

urban sprawl is viewed as positive effect economically as it is accompanied by construction of buildings in areas where land is inexpensive.

The study findings also revealed that the cause of urban sprawl is due to the village being a planning area and having serviced land. This view was echoed mainly by the planners. They mentioned that since the village was declared a planning area and land was serviced before allocation to the public a lot of people have come to buy plots and build in Tati Siding, thus their view is that the development plan and readily serviced land were contributing to the sprawling of the village. This was supported by European Environment Agency (2016) report which stated that demand for land adjacent the cities contribute to urban sprawl and planning systems contribute to driving or moderating urban sprawl (European Environment Agency, 2016; Cho, 2005) also stated that planning systems failure contribute to urban sprawl. This means that when and use planning systems are not effective it encourages sprawl and if implemented properly planning systems can be used to reduce sprawl. This result is in line with the study findings by UN-Habitat (2007, 2019) report which stated that local government can use land use planning to reduce sprawl by regulating the spread of human settlements and infrastructure. This finding was also echoed by Rafferty (2020) who argued that zoning laws promote urban sprawl because they tend to promote single-use zoning which restricts development in an area to a particular land-use type. The study findings also revealed that availability of basic services and infrastructure in the village contributed to the village sprawl. This sentiment was echoed mainly by the planners. This finding is supported by (Kiakou, 2017; Beltrão, 2013) who indicated that provision of infrastructure within the vicinity of the real estate contribute to urban sprawl. This finding is also supported by Pennsylvania Land Trust Association (2012) report which indicated that it is costly to provide infrastructure under sprawled areas. Adriana, Brown, Dávila & Hofmann (2015) argued that to sustain lives and livelihoods in rural and urban areas infrastructure and services are required, this include basic infrastructure like safe drinking water, adequate sanitation, drainage, sewerage, local roads, electricity etc. and services like education, health care, solid waste collection etc. the finding is also supported by Jarah, et al., (2019) who stated that better services found in the sprawling city attracted people to the city.

The study findings also revealed that another cause of urban sprawl is low rental in the village. This sentiment was echoed mainly by the planners. They mentioned that rent in Tati Siding was lower than in Francistown therefore people preferred to rent accommodation in Tati Siding village. This was supported by (European Environment Agency, 2016; Peppercorn & Taffin, 2013) that stated that affordable single homes and home ownership contribute to urban sprawl. This particular finding of the research is also substantiated by Bento, Franco & Kaffine (2005), who mentioned that houses built farther out from a center of city is low in price and more affordable. Kiakou (2017) further stated that households value depends on the distance from one or more centres. In economic market theory, an increase in supply, ceteris paribus, will have an effect of decreasing the price. Peppercorn & Taffin (2013) argued that in central cities land and housing prices are higher.

CONCLUSION AND RECOMMENDATIONS

The study results showed that there are many causes of urban sprawl. The conclusion drawn was that there are many causes of urban sprawl at Tati Siding. All the respondents have indicated proximity to city as the major/main cause of urban sprawl at Tati Siding village. Therefore, the study objective one was achieved and confirmed. The researchers recommended that the local government should ensure that all villages adjacent to the city are provided with similar basic services and infrastructure so that people do not show preference to one particular village. Government should also develop and implement incentives to prevent migration of people to adjacent villages which contribute to sprawl. This can be done by building more low cost accommodation to accommodate the low-income group of people in cities, thereby reducing movement to villages adjacent to the cities for cheap accommodation. It is also recommended that the value of land in villages adjacent to cities should be pegged at the same level with the value of land in the city, especially if the land has been serviced and provided with required infrastructure.

Property valuation in villages adjacent to cities could be done in such a way that the house and land prices are matched to the town or city the village is adjacent to and this may reduce influx of people to those villages for the reason of cheap rents and lower land value. This if implemented through national policies may reduce sprawl and its negative effects especially the costs incurred by government to provide infrastructure and services to the sprawling village. Local government can also introduce levies to compensate for the increase in property values after planning, development or infrastructure and service development. Also government can shift the cost of infrastructure development provision to developers; here government can incentivise developers to cover the cost of providing such amenities as roads, water, sanitation, public transport etc. in the sprawling areas. The strategy would allow housing prices in sprawling areas to better reflect the social cost of urban sprawl. The local government should also ensure that all villages, especially those adjacent to cities, are planned, plots demarcated and serviced land before allocation. This will reduce people crowding and or preferring one particular village among the rest. Finally, property valuation in villages adjacent to cities could be done in such a way that the house prices are matched with that of the town or city the village is adjacent to and this may reduce influx of people to those villages for the reason of cheap rentals and lower land value. This strategy if implemented through national policies may reduce sprawl and its negative effects of costs incurred by government to provide infrastructure and services to the sprawling village. Local government should enforce the law, for instance hostels type building to strictly adhere to the requirement stipulated by the physical planning authority. This is where the cheap rentals come in, individuals build this type of accommodation to maximize economic return, therefore if not controlled will contribute to sprawl and change the planned layout and spatial patterns of the villages. It is also vital for Land authorities to educate community by carrying out continuous community education and awareness campaigns to make them understand urban sprawl and its undesirable impacts. Public education will also make the community understand why land authorities should pose plot allocation in the villages to allow services, infrastructure and other developments to catch up with the rapid growth of the village. It is important for communities to be given education about the negative impacts of urban sprawl so that they are more likely to take action to prevent irresponsible development. Land authorities should look into the reduction of plots that are big to standardize the size within a locality to curtail individuals from subdividing plots and by so doing impact on the pattern of and layout of the village, as well as putting strain on the provided infrastructure and service capacity. This study recommends that further similar studies must be carried out in other villages in close proximity of cities to compare and contrast the strategies used in each case to control urban sprawl.

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Received: 06-Apr-2022, Manuscript No. jleri-21-9405; **Editor assigned:** 09-Apr-2022; PreQC No. jleri-21-9405(PQ); **Reviewed:** 24-Apr-2022, QC No. jleri-21-9405; **Revised:** 30-Apr-2022, Manuscript No. jleri-21-9405(R); **Published:** 06-May-2022