

Building and Urban Planning in Zimbabwe with Special Reference to Harare: Putting Needs, Costs and Sustainability in Focus

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Abstract

This article examines construction and its relationship with urban planning in Zimbabwe. Urban planning has been blamed for making the building process cumbersome, thereby raising transaction costs. Such transaction costs include planning and associated bureaucratic processes, which are often underestimated by construction investors. Although planning is critical for the sustainability of buildings in Zimbabwe, it still relies heavily on outdated building standards set by the British. The social, economic, and physical environment in which construction takes place has greatly changed. Issues concerning costs, investments, building materials, planning laws, and climate change play a key role in shaping urban environments. They are thus examined in the context of sustainable construction, a field of science that addresses relevant societal needs and issues of technology. This article is a theoretical and empirical review of the present needs and costs characterizing the construction industry. It examines both micro and macro-scale building processes and issues raised by different players in the industry. Can sustainability be achieved with the current mantra of building operations, guided by the present planning diktats and procedures?

Keywords: town planning, standards, transaction costs, urban policy, economic meltdown, sustainability

1. Introduction

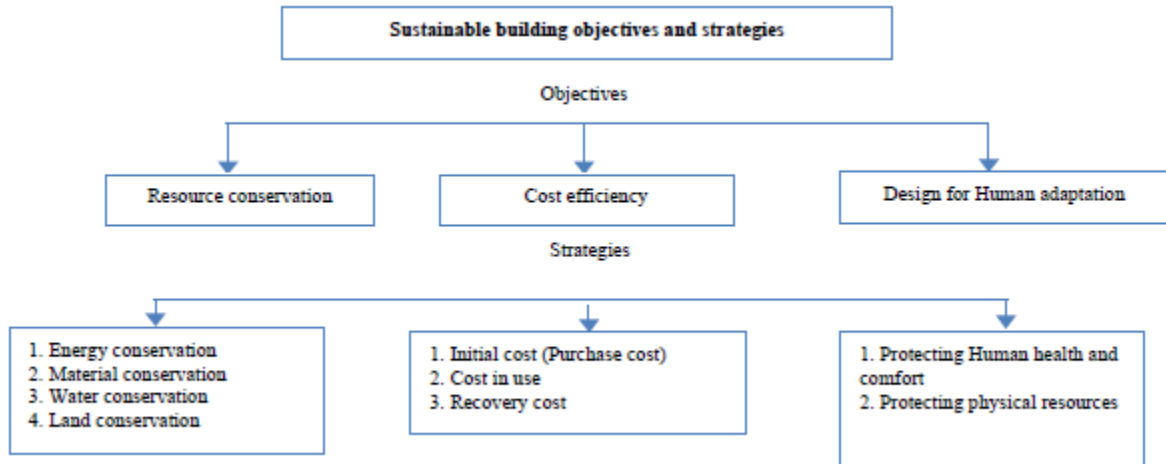
This article examines construction and its relationship with urban planning in Zimbabwe. Urban planning has encumbered the building process, elevating the costs of development in the form of transaction costs. Transaction costs have been a cause of disagreement among economists over the years (Allen, 1999; Cai, 2004; Cordella, 2004; Marinescu, 2012). Transaction costs entail activities such as “... information searching, negotiation, monitoring, and enforcing transactions” (Cai, 2004:1). They also include planning and associated bureaucratic processes (Christiansen and Signe, 2007), which are often underestimated by construction investors. Although planning is critical to ensuring the sustainability of buildings in Zimbabwe, it still relies heavily on the outdated building standards set by the British. The social, economic, and physical environment in which construction takes place has greatly changed. Issues concerning costs, investments, building materials, planning laws, and climate change play a key role in shaping urban environments. They are thus examined in the context of sustainable construction. This article is based on desktop study and empirical reviews of the present and future needs and costs within the construction industry. It examines both micro and macro-scale building processes and issues raised by different players in the industry.

Under the current mantra of building operations guided by the current planning diktats and procedures, it is uncertain whether sustainable construction is achievable. Sustainable construction is defined as “... an emerging field of science that aims at incorporating the general sustainable development concepts into conventional construction practices” (Sarkis, Meade and Presley, 2008: 2582). Sustainable construction embraces integrating success factors in the planning of such projects (Nwachukwu and Emoh, 2011). Sarkis, Meade and Presley (2008: 2582) argue that when evaluating the built environment, “...it is important to take a broad view incorporating broader stakeholders and communities, beyond immediate investors or building users [taking into account] the intergenerational aspect of sustainability [and] influencing the needs and requirements of future generations.” This emerging concept of sustainable construction addresses issues of the economy, society, and environment, and embraces building as a way to create a better future for both the users and inhabitants of the buildings. In light of this, Bakar, Razak, Abdullah and Awang (2006:2) assert, “in order to be sustainable [...] initiatives must be economically viable, socially acceptable, technically feasible and environmentally compatible.” This article examines how urban planning attempts to provide a platform for bringing these issues together. Figure 1 is a framework for implementing sustainability in building construction adapted from Akadiri, Chinyio and Olomolaiye (2012:131). It places an emphasis on the following three objectives emphasized by Akadiri, Chinyio and Olomolaiye (2012: 141):

“Implementing sustainable building construction practices has been advocated as a way forward in fostering economic advancement in the building industry while minimising impact on the environment. In order to reduce these detrimental impacts of construction on the environment and achieve sustainability in the industry, three

principles emerge, namely resource efficiency, cost efficiency and design for human adaptation. They form the framework for integrating sustainability principles into construction projects right from the conceptual stage.”

Figure 1: Framework for implementing sustainability in building construction



Besides financial and fiscal matters relating to the construction sector in Zimbabwe and the application of new technologies, the construction process is at the core of building in the country (Zami, 2011; Zami and Lee, 2009; Zami, and Lee, 2011; Zami, 2010; Ndlovu and Umenne, 2008).

2. Literature Review

Construction in Zimbabwe dates back to pre-colonial times. The same pre-colonial building style still typifies most rural building practices in the country (Chenga, 1986; Ndlovu and Umenne, 2008). For example, Zami and Lee (2011) argue that the use of earth for construction dates as far back as the 12th century, the period associated with the construction of the Great Zimbabwe. The adoption of the Zimbabwe Standard Code of Practice for Rammed Earth Structures, published in 1996, and its inclusion in the Zimbabwe Model Building Bylaws in 2004, saw the recognition of stabilised earth construction in the country (SIRDC, 2004). Building with rammed earth is relatively cheap in cost, being 60% cheaper than the traditional concrete brick and blocks construction (Zami and Lee, 2011, Zami, 2010). The Intermediate Technology Group (ITG), in collaboration with Chitungwiza municipality in 1993, implemented the method in a low-income housing pilot project. The idea was to evaluate the response of the people towards earth structure and the performance of low technology and sustainable materials used in the construction of low-cost housing. Sustainable building and construction is a function of many factors, including the macro-economic environment, and the capacity of builders to bear different industry-related costs. Additional factors include policy, in

terms of providing a stimulating space and environment for the testing and piloting of emerging technologies, and establishing the level of acceptability of the diverse stakeholders involved (DBERRCSU, 2008; Fred and Rossow, 1975).

In Zimbabwe, the construction industry has the potential to account for at least 20% of the country's annual Gross Domestic Product (Bulawayo24News, 2011; cf. World Bank Group, 2012). The sector was set to grow by 1.5 percent in 2012 and create new job opportunities (Nyakazeya, 2012). In the 1990s, construction as an industry employed about 100,000 people; in 2011, only 30,000 workers had jobs in this industry, indicating a decline of about 60% in employment capacity. Despite such a sharp decline in the sector's employment share, estimates indicate that Zimbabwe would require approximately \$15 billion for infrastructure development between 2011 and 2016, even as local pension funds are heavily invested in commercial property. Results indicate that tapping this growth from the residential market is critical for mortgage market redevelopment in the country (Zimbabwean, 2011). Zimbabwe has confronted a number of economic challenges since 1990, one involving the adoption of the Economic Structural Adjustment Programme (ESAP). This development has constrained the construction sector in the country. For example, the Construction Industry Federation of Zimbabwe (CIFOZ) has tried to engage financial institutions for the issuance of a bond worth US \$25 million in order to revive the construction sector (ZBC, 2010). The generally low performance of the construction sector relative to other sectors may reflect "the impact of sanctions leading to the scaling down of operations [...] over the years" (ZBC, 2010). The preparations for the World Cup Soccer Tournament in South Africa in 2010 saw Zimbabwe experience a "skills' flight," as South Africa proved a better destination for most engineers, land surveyors, quantity surveyors, and urban planners. At the same time, the country was in a deep macro-economic crisis.

Building sustainability hinges on proper planning. Urban planning standards, espoused in Zimbabwean statutes, have inhibited the majority of homebuilders and low-income families from building houses that meet the requirements of public authorities (Tibaijuka, 2005; Chaeruka and Munzwa, 2009; Mubvami and Musandu-Nyamayaro, 1993). These standards serve a minimalist agenda. This minimalist agenda – stressing order, control, health, security, and amenity, as stipulated in the preamble of the Regional, Town and Country Planning Act (Chapter 29:12) – has continued to characterise the planning of urban settlements in the country (Davison, 2002). Urbanisation, poverty, unemployment, and homelessness are growing daily. Generally, and in the context of increasing urban poverty in developing countries, households resort to overcrowding, resulting in the development of slums (Tevera and Chikanda, 2000; Tevera and Chimhowu, 1998). The government often intervenes with strategies such as demolitions or strict monitoring of urban development processes, also known as development control (Toriro, 2007; Tibaijuka, 2005). In Zimbabwe, housing and urban development is highly technical, with an emphasis on the strict observance of building and housing standards (GoZ, 1999; 2001; Kamete, 2009). This represents a major impediment to the delivery of urban housing. Specifically, the separation of land uses and bureaucratic procedures in planning are the cause of inefficiency in the general urban system. Additional factors include urban sprawling effects; insensitivity to low-income groups such as planning

regulations that exclude the informal sector of urban centres; and the mismatch between what the poor can afford in terms of resource mobilisation, and what the regulations prescribe (cf. Christiansen and Winding, 2007). All these may be referred to as "planning failures" (Toriro, 2007). Planning failures are the principal explanation as to why housing delivery systems exclude many of the poor (cf. Payne, 2005). They are also the major reason why urban construction remains low when demand for the buildings is high.

3. Urban Planning and Construction in Zimbabwe: Issues, Constraints and Prospects

Supply factors such as capital; skilled labour; training; policy; technology: and legal framework and demand factors such as people's preferences, the sale price of housing, and the financial capability of the average urban family; are important aspects of consideration in sustainable building. However, construction in Zimbabwe must strictly adhere to the diktats of urban planning. The construction process usually follows consolidation or the subdivision of land in keeping with the provisions of the RTCPA (Musandu, 1993). Sometimes this follows a shift in land use. Sometimes these processes are too cumbersome to allow for quick wins in development, as bureaucracy leads to uncalled-for transaction costs (Olsen, 2005; Natsios, 2010). *Newsday* (24 August 2010) carried the headline, "Town planners blast legislation," in which town planners were reported to have agreed to lobby for a review of town-planning laws and regulations. In their submission, the planners blamed the "current legal regime [for stifling] growth in urban housing, where the backlog is currently estimated at over 500,000" (*Newsday*, 2010:4). This emerged at the Zimbabwe Institute of Regional and Urban Planners (ZIRUP) Annual Conference held in Kariba, whose theme was "Planning legislation procedures and best practices." Major bottlenecks associated with national housing provisions, particularly stringent procedures and delays in the approval of plans hold back the rate of growth in housing stands. These major impediments slow down the construction of roads and water pipes before people can settle in any given area. Incremental development, as an approach to building housing, is a recent development in urban planning, embracing innovation and flexibility in land delivery and management. It should be noted that Zimbabwe produced the lowest number of stands in 2004; 200 allotments were made nationally. The highest figure of stands produced was in 1989, when 10,000 were made available (*Newsday*, 2010). Construction is very much dependent on land development processes, the main determinant of which is physical planning. However, it is in the application of planning standards that corruption sometimes creeps in (cf. *Financial Gazette*, 2012). A simple definition of corruption is "the misuse of entrusted power for private benefit" (Jiménez and García, 2012:4). Villoria, Van Ryzin and Lavena (2011:4) argue that, "when corrupt networks expand and become the norm, they erode the functioning of the state and government performance as well as the image that citizens have of the integrity of democratic institutions."

Physical and spatial planning in Zimbabwe are directed by the Department of Physical Planning (DPP), a technical arm of the government that is in charge of managing the spatial planning system and providing technical advice for the implementation of the development planning systems (IBRD/WB, 2012; Toriro, 2007). The department has oversight on the country's local authorities, who must adhere to the provisions of the Regional, Town and Country Planning Act (RTCPA) (Chapter 29:12) and related legislation. In addition, the DPP advises the Minister of Local Government on the interpretation of planning provisions and the execution of planning functions under the reserved powers of the Minister, in accordance with the RTCPA. The department is also involved in facilitating sites for the development of government, state enterprises, as well as parastatal activities and the detailed planning of housing estates on state land. It also carries out technical evaluation of plans (master plans, local plans and layout plans) originating from local planning authorities to aid the Minister in making decisions on the plans, mediating in stakeholder conflicts arising from spatial planning decisions that interfere with other people's land rights. Furthermore, the DPP provides technical assistance relating to the planning of preparation structures for the development planning system – which the Provincial Councils and Administration Act of 1984 prescribes – manages urban public transport, and carries out tachometric survey and pegging of State land. Physical planning embraces aspects of environmental planning, building codes (Cote and Grant, 2008), and balancing between land-uses to avoid incompatibility and conflict in land-use. Williams (2000:8) has pointed out that conventional planning "... is about nudging and accommodating prevailing trends, but ecosystem planning is about choosing and pursuing a desirable future."

Overall, in physical planning terms, construction is an intervention in a natural environment that brings about development, in the form of improvement and value addition to land (Alexander, 1987). Land-use planning is a critical determinant in the siting of any facility. Such provisions are specified in the master, local, structure, and subject plans of a given local authority. In Zimbabwe, Section 22 of the Regional, Town and Country Planning Act (RTCPA) provides for the meaning of development with regards to planning. Master plans can be sector-specific (i.e. water or transport) or generic (covering a combination of developmental factors). The general master plan of an area takes into account the various aspects of a settlement. Section 14 (2a) defines a master plan as an instrument through which a local authority lays down its "general proposal for a planning area with respect to coordinated and harmonious development and other uses of land." This includes measures for the regulation of land use, improvement of the physical environment, economic development of the area, and movement of traffic in that area. Specific master plans may be for water, housing, industry, commerce, or tourism development, to name but a few. It is important to ensure that there are no conflicts between the master plans and the local plans, as sometimes expected from the development of physical plan products like houses and roads, in keeping with Section 21 of the RTCPA. Sections 17 and 18 of the RTCPA provide for the preparation and management of local plans. It is an instrument to ensure coordinated and harmonious development and re-development of land use in a given area. Sometimes the development proposed is incompatible with existing and proposed uses of land. Existing local development plans assist in showing the

current and future pattern of development. Thus, the available local development plans cover aspects of residential distribution, industry, commerce, and tourism. A structure plan is a statutory plan identifying many neighbourhoods where residential, commercial, institutional, and recreational areas will be located in a previously undeveloped area. These plans also indicate the number of people expected to live in the new area and the implementation of the development over time.

Also included in the urban planning debate relating to construction are designs factors, which are aimed at promoting human health and comfort (Smith, 2012). These also have to do with the artefact and the site and location in which that building is situated. This is also a function of urban policy (Rakodi and Mutizwa-Mangiza, 1990; Roth and Sukume, Mupambireyi and Ncube, 2003). For example, Toriro (2006:4) observes, with respect to the attainment of independence in Zimbabwe, the changes that accompanied change of government and policy thrust (see Box 1). By increasing the size of urban stands, Toriro argues, the government wanted to make the cost of servicing the stands high to discourage households from investing in urban housing (Mutekede and Sigauke, 2007; 2009). What is questionable is the extent to which such a move was sustainable over time. Evidence on the ground indicates that in today's urban Zimbabwe, there are actually more lodgers than homeowners (Kamete, 2009; Mafico, 1991; Mashoko, 2012; Marongwe, 2003). This has had the adverse effects of overcrowding and the deterioration of the quality of the urban environment (Kamete, 2009).

Box 1: Government Policy and Urban Development Thrusts at Independence

In 1980, the new policy sought to encourage home ownership, whereas prior to independence, blacks had always been regarded as visitors to towns who would retire to their village once their working days were over. The new government changed this in order to allow blacks to become property owners in urban areas. The policy meant that housing stock under the control of both the state and councils was significantly reduced. The government also introduced a policy to control rents, thus protecting tenants from overcharging by landlords. Under this policy, rentals could only be increased within certain regulated parameters. The reaction of landlords and property developers was to shun the rental market. As a result, the private sector developed very few new flats during this time. The ultimate effect of that policy was to remove other players in the housing delivery system, thereby reducing housing output. In 1982, ambitious housing standards were introduced. These put the minimum stand size at 300 square metres. The impact of this policy was to make servicing expensive, thereby limiting the ability of local authorities to provide an adequate number of stands or houses. The lengths of the road, water and sewer pipes to each stand were major contributors to the expense.

Source: Toriro, 2006:4

Thus, in trying to redress the impacts of apartheid policy (cf. Yiftachel, 2008), which held during ninety years of colonialism (1890-1979), the new Zimbabwean government used a cocktail of instruments, ranging from technocratic-induced minimalist ideology to socialist populism. In order to increase the supply of housing and encourage densification, the government formulated Circular Number 70 of 2004, which sets down the new standards for the planning and construction of infrastructure and houses in all urban areas in Zimbabwe (see Box 2).

Box 2: Specifics on Circular Number 70 of 2004

Circular Number 70 of 2004 stipulates that minimum stand sizes for low-cost or high-density housing range from 70 to 200 square metres (previously it ranged from 150 to 300 square metres). Stand sizes ranging from 70 to 89 square metres apply to semi-detached and terraced housing only, and 90 to 200 metres apply to detached housing. The development of low-cost and middle-income housing only constitutes (accommodates) a single family with no outbuildings permitted on the stands. Low-density or high-cost housing plots range from 800 and 2000 square metres. Larger stands can have on-site sewage treatment. Moreover, all urban centres should reserve 10 percent of their land for medium and high-rise flats in residential areas close to the city/town centre, except where there are waivers granted by the Director of Physical Planning; and 5 percent for garden and four-storey flats in other medium-cost residential centres. In a bid to reduce servicing costs, particularly in the case of high- or low-density housing schemes, access roads in the high-density areas are to be appropriately gravelled with a cross gradient of about 5 percent. A gravel thickness of between 100 and 150 mm compared over the widths of the recommended (depending on site conditions and gravel quality). Where possible, dish drains are to be used instead of piped culverts, so as to reduce costs. All the higher order roads (local and district distributors) in all areas and access roads in medium and low-density areas are to be surfaced. It is a standard requirement that all stands are to be connected to a reticulated water supply network. Communal standpipes may be provided in semi-detached and terraced housing schemes as temporary measures until they can be independently connected. This is, however, subject to approval by the Department of Public Works. Walls can be constructed of burnt clay brick or block, cement bricks or blocks and stabilised soil bricks or blocks. Burnt farm bricks, as approved by the Department of Public Works, can be used for the construction of single-storey buildings. Recommended roofing materials include asbestos sheets, clay tiles, and zinc.

The Herald (2005), on the outlined standards in Circular Number 70 of 2004, argues that “this [circular provisions] shall apply to new schemes, infill stands shall maintain a general character of the neighbourhood surrounding them. The maximum stand size is to encourage densification and reduce premature urban sprawl ...” A concern with the spatial sustainability of urban development achieved by way of real estate expansion may be discerned from this citation. Thus, the circular, as an instrument crafted by town planners, sought to achieve compact urban development, as opposed to sprawled development (Peterson, 2009; Lewyn, 2007). In this respect, sustainability and attempts to reduce ecological footprint resulting from uncontrolled urban development were the basis of this instrument. Sprawling cities are costly to the city in terms of the financial sustainability of households, as they travel long distances, and are costly to the environment as they ‘spread out’ carbon emissions (Ewing, Pendall and Chen, 2002; Coyne, 2003).

In Zimbabwe, before the planning application is submitted to the local authority for approval, the Building Inspectorate Section assesses and approves it (IBDR/WB, 2012). Without planning permission, development or construction does not generally take off in Zimbabwe. This is aimed at ensuring the compatibility with the required use of land and space in question before the actual implementation of any given construction project. Box 3 indicates the section in the planning statute of enforcement and prohibition orders in planning law in Zimbabwe.

Box 3: Enforcement and Prohibition Orders in Planning Law in Zimbabwe

Section 32 of the RTCPA is about Enforcement Orders. Subsection 1 of the section spells out that: If it appears to the local planning authority that any development has been or is being carried out in contravention of this Act, it may, if it considers it expedient, having regard to the provisions of any operative master plan or local plan or an approved scheme and to any other material considerations, serve upon the owner of the land concerned and upon any other person who, in the opinion of the authority, will be affected thereby an order which –

- a. states the nature of the contravention; and
- b. specifies the action required to be taken by the person or persons specified in the order within such period as may be specified therein:

Provided that, where the owner of the land concerned is specified in the order, the order shall have effect as though it specified any successor in title to the land.

Section 34 of the same legislation is on Prohibition Orders, states that:

At the date of issuing an enforcement order or at any time thereafter before the enforcement order becomes operative, the local planning authority may, subject to section fifty, serve upon any person upon whom the enforcement order was served an order prohibiting the continuation of such operations or use as may be specified in the order, being operations which are or use which is the subject of the enforcement order. A prohibition order –

- a) shall specify the date when, notwithstanding any appeal against the enforcement order, it shall become operative; and
- b) shall cease to be operative –
 - i. upon its withdrawal by the local planning authority by notice served on all persons upon whom the prohibition order was served; or
 - ii. when the enforcement order becomes operative or is set aside.

In light of the provisions indicated in Box 2, which rigorously control development, the following cases illustrate its recent application in the country's capital city. Shava (2011) indicates that the Harare City Council is considering taking action through prohibition orders on several property owners who have illegally converted residential areas to commercial properties. The city's Environmental Management Committee acknowledged the conversion of several properties to commercial instead of residential use, in violation of municipal bylaws—a misuse attributed to the rise of informal sector activity owing to the high unemployment rate in the country (Shava, 2011). Land use violations have triggered disputes in urban land management. For example, the Harare Mayor Muchadeyi Masunda clashed with tycoon Phillip Chiyangwa over the building of a multi-million dollar two-storey private clinic in the Alexandra Park residential area (Masvingise, 2012). The mayor argued that the application for change of land use for the particular piece of land was not submitted for approval before the construction of the clinic, which warranted no planning permission. Tycoon Chiyangwa is reported to have previously clashed with the City of Harare over the development of a piece of land in Borrowdale, a high-class residential suburb of the city (Masvingise, 2012).

It is also important to note interplay between urban planning and construction in terms of the model building bylaws. The Ministry of Local Government and Housing published the Model Building Bylaws in Zimbabwe in 1977, in accordance with the Urban Councils Act chapter 214 section 183 and section 83A of the Rural Councils Act. They cover issues relating to structural design and control, foundations, masonry and walling, miscellaneous materials

constructions, water supply, lighting, drainage and sewerage, ventilation and fire protection, and public safety (cf. Musandu-Nyamayaro, 1993). In essence, these bylaws define the aspects entailed in the construction of buildings including alteration, subdivision, conversion, reconstruction or an addition to a building (Box 4).

Box 4: Model Building Bylaws – Reference to Chapters on Building and Planning

Chapter 2, with reference to plans and drawings, stipulates that no building or sewerage work shall be undertaken without approval of the local authority. It further clarifies on colours to be used on the plans, and requires building and sewerage work to follow approved plans. The Model Building Bylaws also stipulate that single doors must not be more than 1.1 metres in width, and that no door or window shall open to obstruct any passageway or rump. Chapter 10 section 2 sets down the dimensions of habitable rooms to be adhered to. It further states that every habitable room shall have a clear height of not less than 2.1 metres; that in all habitable rooms except kitchens the minimum floor area shall be 7 square metres measured exclusive of immovable objects such as columns, built-in cupboards, and such minimum floor area shall have a minimum width dimension of 2.1 metres. These health standards generally follow simple principles of ergonomics and anthropometry. Section 50 of Chapter 2 recommends the testing of any new building material by the LA before it is used in residential or commercial construction. In addition to this, Chapter 6 section 13 subsection (c) stipulates that for all rectangular pattern slates, the minimum roof slope or pitch shall not be less than 17 degrees. This standard has proven to be suitable for tropical grasslands in particular. The argument that the Model Building Bylaws (1977) are rigid is somewhat nullified by section 58 of Chapter 2, which gives room for possible departures or deviations from the provisions of the Model Building Bylaws, where necessary.

Critics of the existing model building bylaws state that they are very rigid, outdated, and inhibitive to the smooth implementation of infrastructure development works in local authority areas. Critics also state that the standards of the model building bylaws are very high, rigid and not amenable to physical and climatic conditions, and not responsive to the needs and requirements of the end users (Toriro, 2007). As a result, they fail to adequately accommodate for the urban poor.

4. Environmental Impact Assessment (EIA)

According to Jay, Jones, Slinn and Wood (2007:287), an environmental impact assessment is "... the evaluation of the effects likely to arise from a major project (or other action) significantly affecting the environment. It is a systematic process for considering possible impacts prior to a decision being made on whether or not a proposal should be given approval to proceed." GoZ (2005:27) defines an EIA as "... both a process and a tool for project planning and decision-making [...] [whose] purpose is to ensure that during development planning, possible impacts on biophysical, economic and social cultural elements of the environment are taken into account [...] [so as] [...] to identify likely impacts, estimate their security, indicate which impacts may be significant and what opportunities there might be to avoid or minimise negative impacts and enhance potential benefits" (GoZ (2005:27). Sections 97 to 108 of the Environmental Management Act provide for EIAs in Zimbabwe (GoZ, 2004). There is a need to align the development subject of EIA with the National Environmental Plan and Local Economic Actions Plans (LEAPs). Guiding

Principle 52 of the National Economic Policy document underscores the centrality of EIA, and construction projects are one major sector that it caters for.

Part Three of Statutory Instrument 7 of 2007 on Environmental Management Regulations specifies how EIAs are conducted in Zimbabwe. Despite such provisions in the statutes and statutory instruments about environmental management, issues of environmental sustainability seem to be receiving contradictory results. For example, Bell (2012) reports on the development of a new shopping mall planned on a wetlands area in Borrowdale (cf. MSTD, 2012). For Bell and other critics, the construction on the building site is going to have a negative environmental impact. Nevertheless, the project has already been commissioned by Vice President Joice Mujuru, and has therefore received the ‘political blessing’ to go ahead. Thus, in spite of public resistance to the plans and the absence of an independent EIS, the project will go ahead. Among the groups opposed to the development is the Conservation Society of Monavale (COSMO), for whom wetlands are ‘sponges’ that are critical to the water supply of the city of Harare. These water sponges absorb water during rainy seasons and release water during dry seasons. An estimated 6.5 million people in the catchment depends on the water stored by these wetlands, and there is no other source from which water can be supplied. COSMO notes how the water flowing into Lake Chivero, the main water supply of Greater Harare, has diminished by 50% relative to the 1990s (Bell, 2012). The majority of the urban residents now rely on water from wastelands. It is unfortunate that, despite these concerns, Harare City Council has already approved the construction of said mall. Indeed, politics interferes with the technical arguments of development indicated in EIA reports (cf. Venter, 2008). In this case, the Harare City Council is too naive to tell that, “... there is little it can do over a project that has been approved by Cabinet; councillors had no power to stall the development of national projects [and that] the Council is just a substructure of Central Government [that] cannot go against national policies” (Bell, 2012:5). In the same vein, the Environment Minister Francis Nhema dismissed allegations against the construction of the West Properties project in Borrowdale (Zimbabwe Independent, 2012). For Nhema, the project is lawful since it satisfies Environmental Management Agency (EMA) standards. As long as there are environmental groups around, the issue of environmental sustainability will remain central to the construction debate. However, technical considerations like the EIA are sometimes ‘arm-twisted’ to suit the interests of the politicians.

5. Performance of the Building Industry in Zimbabwe after 2009

The building industry in Zimbabwe, as is the case elsewhere, is complex. It involves a diversity of actors, investment decisions, material pricing, and technological considerations in infrastructure and superstructures. With respect to construction finance, equipment and labour, Bulawayo24 NEWS (2011) reports on the acknowledgement by the Construction Industry Federation of Zimbabwe

(CIFOZ) that several projects were put on hold in the period of economic crisis only to be resuscitated after the adoption of the multiple currency system in 2009 (cf. RVOP, 2011). The capacity utilisation of the construction sector increased to 33% in 2011 from 22% in 2010. The government had financed the majority of construction projects. It injected huge sums of funds into various sites across the country. Despite public investment, the industry still faced acute funding shortages owing to stringent borrowing conditions at short-term durations (on short-term loans) by local banks. Overall, the construction sector was still faced with the challenge of re-attracting skilled labour (primarily engineers who left the country for greener pastures in the decade 1998 to 2008). Box 5 crystallises Nyakazeya's (2012) observations on capacity utilisation within the construction sector. In addition, he notes that high cost of building is burdening the sector. At its peak, the construction sector employed more than 350,000 people. The figure dropped to just over 30,000 in 2009 (Nyakazeya, 2012).

Box 5: Capacity Utilisation and Cost Factors in the Construction Sector

The brick and motor industry is currently operating below 40 percent. Contributing factors to the low-capacity utilisation include liquidity challenges and lack of public-private sector contracts. As of December 31, 2011, capacity utilisation was at 33 percent. This is an improvement from 22 percent as of December 2010. Some official statistics in the 2012 budget indicate that the sector would grow by 1.5 percent by December 31, 2012.

The property industry still has a hyperinflation hangover. Most contractors' quotations are still very high compared to what the region is charging, and this is inevitably slowing down projects. The cost of building in Zimbabwe is still very high. To mention a few examples, in Zimbabwe, 1,000 common bricks cost between US\$60-US\$90 while the same quantity in the region costs less. Semi-common bricks are selling for US\$40-US\$90 while semi-common bricks in the region cost between US\$30-US\$70. Face bricks cost between US\$100-US\$190 locally while the regional average was between US\$80-US\$160. In Botswana and South Africa, plumbing materials, doorframes and window frame cost about 20 percent less than what they are worth in Zimbabwe.

Source: Nyakazeya's (2012:4)

After years of hyperinflation, capacity utilisation in the sector shows potential for improvement as does employment, which is likely to be boosted by increased funding for civil and building construction projects across the country in the road, public housing, and mining sectors, such as projects by the Zimbabwe Platinum Mines and Unki Mine in Shurugwi. However, the domination and control of these projects by foreign companies is a cause for concern, since local construction companies have lost out to foreign companies. This is part of the politics of the construction development debate. The Chinese are now dominating Zimbabwe's construction industry in an environment where there are still very few projects on offer (Zimbabwean, 2011). By way of example, a top construction firm, Murray and Roberts (Zimbabwe), has pointed to 'stiff competition' from China and sometimes, 'South Africa.' The Chinese have registered their presence in the telecommunications industry, and they capitalise on cheaper and more skilled labour. They also have a record of accomplishment in the construction sector of Zimbabwe, having built the 60,000-seat National Sports Stadium in Harare, the Chitungwiza General Hospital, and the Chinhoyi General Hospital (Zimbabwean, 2011).

During the 2008 global recession, the Chinese embarked on a massive infrastructure development programme. This invariably assisted European economies in turning around their economies through the massive importation of building materials. Countries that benefitted were mainly from Europe and the United States and they managed to revive their manufacturing industries that had closed down. Since the construction industry is largely capital-intensive, those actors who tend to do well are those that are heavily capitalised. In times of economic stress, including the global financial crisis, the Chinese economy managed to remain afloat (Breslin, 2011; Yu, 2010).

In regards to material pricing and technological considerations in superstructures, Box 6 provides examples of how new technologies in the construction materials have been piloted in the country. These include the use of polystyrene panels in construction of a house, of Hydraform blocks, which do not use mortar, and of locally dug sand used. Despite these initiatives, much of the construction using polystyrene panels and hydraform blocks remain at an experimental level, and has not been applied at a mass scale. Most local authorities remain sceptical about fully embracing these new technologies, citing the Model Building Bylaws as the reason for not using them. In spite of the need to service the national housing backlog, addressing the housing demand by embracing new technologies has not received the much-required political will to do so.

Box 6: Technology for Sustainability and Cost Reduction

On 10 October 2012, the Minister of Housing and Social Amenities, Giles Mutsekwa unveiled a new housing model built with polystyrene panels (commonly known as kaylite). Such houses are considered cheaper and worth building in addressing the national backlog pegged at over a million (1,250,000 housing units). The polystyrene panels were manufactured by Schnell Construction System, an Italian company,⁺

Astra Building Centre also recently constructed a demonstration house in the Emganweni suburb, Bulawayo. Bulawayo City Council donated a site for the construction of the house. The house was handed over to a needy family from the city. Using Hydraform technology allows savings on construction by cutting down on cement usage. No mortar is used with the interlocking blocks. Transportation costs are cut down given that blocks are produced on-site using locally dug soil. ⁺⁺

Sources: Masvingise (2012)⁺; Saayman (2011)⁺⁺

6. Sustainability

One Chief Executive Officer in a survey by Lacy, Cooper, Hayward and Neuberger (2010:11) remarked, “Currently, the burning issue is how to better incorporate sustainability into daily practice.” Adams (2006:10) aptly observes that, “the problem with sustainability and sustainable development is not that the aspirational values they represent are wrong, but that they are over-worked and tired. As currently formulated they are too loose to drive effective change on the scale required.” For Prugh and Assadourian (2003:11), sustainability is a shifting concept but “... can be approached in many different, and equally legitimate, ways. It may be

convenient to think about sustainability in terms of four dimensions—human survival, biodiversity, equity, and life quality.” From the three citations, it is clear that the concept of sustainability has not been very substantive in terms of bringing about tangible benefits to populations in need. However, the suggestion by Prugh and Assadourian is useful in capturing important aspects discussed in this article. We adapt the suggested four dimensions of human survival, biodiversity, equity, and life quality to address issues of sustainable building and the role of urban planning in Zimbabwe. These are also related to resource efficiency, cost efficiency and design for human adaptation as earlier indicated in the conceptual framework of the article. Nevertheless, as already highlighted, bureaucracy and corrupt tendencies tend to raise the costs of building (Easterly, 2002). In addition to the normal financial costs associated with any type of urban construction, there are transaction costs that most builders often underestimate and which work against the goals of resource efficiency and cost efficiency. In the following section, we discuss sustainability as indicated by the factors of human survival, biodiversity, equity, and life quality.

6.1 Human Survival

In this article, human survival covers the aspect of design for adaptation. This adaptation can be at the following levels: the design of the building itself is in keeping with model building bylaws and the design of settlement patterns, so that the grand plan of the built environment has features that adapt well to climate and related factors, with the overall goal being human comfort.

6.2 Biodiversity

Sustainability can be achieved by greening the environment, such as through the practice of community gardening (Sithole, Nkala and Dube, 2012). In this way, the built environment is no longer just a ‘concrete jungle.’ Mostly, such an initiative is within the wide range of contemporary planning practices aimed at improving the global health of the communities (Smith, 2012). This same philosophy is part of the human survival dimension of sustainability espoused earlier on. However, when urban farming as a practice hinders housing projects, it becomes an issue of concern (Zimbabwean, 2012b). Urban farming is often practiced on land awaiting urban or housing development. Thus, urban farming is accommodated in certain spaces as a temporary development that must give way to the building. Nevertheless, there are instances when such builders have incurred more cost to servicing their land because urban farming had induced those costs. An example is that of the University of Zimbabwe’s Association of University of Teachers (AUT) Project in Hatcliffe, Harare. In this project, after the land surveys and pegging had been done, the project was delayed, and thus urban farmers removed the pegs, giving the AUT no option but to do the costly process again.

6.3 Equity

Equity is about fairness. In this article, some building contractors have pointed out the lack of equity in the awarding of contracts. Moreover, it has been

noted that, instead of playing a policing role, government has also been a major contractor. This represents a conflict of interest in that policing development becomes compromised, as the one supposed to 'referee' the process is also a player. Equity is about giving locals a significant role to play in the industries and sectors. For Zimbabwe, such a motif has been spelt out in indigenization and youth empowerment programmes, which promote the lagging sectors and segments of the population within society. Ideally, this should cover all sectors.

6.4 Life Quality

The building sector is a major contributor to the welfare and social development of any society, given that it creates employment and related benefits. This leads to better life for local communities. As such benefits cascade down to the lowest-ranking people in communities, especially the unemployed, they translate to tangible benefits for families and households.

7. Sustainable Building in Zimbabwe: Can it be achieved?

The extent to which sustainable construction in any region or place can be achieved depends on the interplay of costs, planning, strength of materials, the place and its context (history and geography), and the influence of politics. The real estate market has largely moved the property market to a buyers' market, given financial constraints in the sector, resulting in distortions in the market (Nyakazeya, 2012). There are a limited number of financial institutions offering mortgage finance. The absence of mortgage financing and long-term loans has negatively affected the industry. Ideally, the sector requires access to plant and equipment, since existing stocks owned by construction companies are antiquated and cannot perform tasks efficiently. The new plant and equipment available on the market are extremely expensive, as indigenous (local) companies, as they are called, lack in the financial capacity to procure them. Globalisation has offered competition in the local market: foreign companies with their highly skilled labour, state-of-the-art technology and equipment have grabbed both local and regional business away from local companies (cf. Lam and Liu, 2006; Weinstein and Bedi, 2010). Since Government is the greatest client in the construction industry, it ought to protect local players.

Nyakazeya (2012:4) argues that the building sector in Zimbabwe has "...immense potential, if everything is set in the right place, with the right pricing, right equipment, right products and right market." Nevertheless, the building industry has been stagnant and not much activity has been taking place. A summary of the constraints by Nyakazeya (2012) regarding the full performance of the sector includes, but is not limited to:

- load shedding due to efforts to rationalise the energy sector, particularly electricity,
- acute funding shortages, as local banks continue to impose stringent borrowing conditions at short-term durations,

- failure to re-attract skilled labour (mainly engineers and quantity surveyors, who left the country for greener pastures over the past decade),
- prohibitive costs – relative to the region – of building materials, and relative to other sectors adjusting in line with regional pricing after dollarization, and
- attitudes and perceptions by the Zimbabweans given their limited understanding of the construction industry’s contribution to employment and wealth creation.

These factors militate against efforts to achieve sustainable construction. As such, these factors are in conflict with the objectives of resource conservation, cost efficiency and design for human adaptation in sustainable construction (Akadiri, Chinyio and Olomolaiye, 2012). The following paragraphs focus on the constraints and prospects of sustainable construction in Harare and the implications it has on urban planning.

7.1 Sustainable Construction in Harare: Constraints and Prospects

On 28 October 2010, the author of this article had a dialogue with the City Architect of Harare over issues relating to town planning and construction in the city. Box 7 provides some snippets from the dialogue of which the challenges of financial and human resources support are highlighted.

Box 7: On Sustainable Building in Harare: Perspective of the City Architect

“We had to stop certain constructions in the areas west of Chinhoyi Street. The types of constructions were too small to allow for viable parking. This area is zoned for flats and offices. Single storeys are not allowed but flats. But it is equally difficult to compel anybody to build more storeys. The government must chip in. As such, for two years now, we have been seriously examining the town planning legislation and byelaws, checking on the way we have to go with high-rise building in general. The team looking into this matter is quite diverse and includes members of the private sector as well as those from rural local authorities. Just grouping these people is a mammoth task. For example during the 2008/9 period, due to economic challenges most local authorities could not afford funding (to fund) their representatives to the meetings.

In town, a house must have a lifespan of 50 years (this is conventional wisdom) but some have lived for more than 100 years. Timber construction can be done but in an atmosphere where it can be unbundled and replaced. In Greece, where I studied, they have a tradition of constructions that last. Building is a specialized field. There are no shortcuts to processes, for instance brick making and cement production and its use. However, here, I am sorry to say, we have much shoddiness. This explains the cracks that we see in certain houses. When a house cracks, it is difficult to mend. We have had cases were people plaster before inspectors come. In that case we just use ‘the external eye’ to judge if that is going to last. Our inspectorate section has not been spared by the economic challenges that met our country in the past decade or

so. The section has a shortage of vehicles. The problem is now 20 years old and so what we do are just haphazard checks. As I am speaking to you today, we only have one vehicle for the whole city, to do the checks. So it is very difficult to police the construction taking place in the city. This is also explained by the general lack of finance to fund all these critical aspects.”

One of the questions focused on whether the city has any intention to expand vertically. Major constraints included limited financing for vertical construction. In the view of the City Architect, most of the building and property owners in the city find it difficult to build upwards since they cannot afford it. There has been a development, in the city, involving the Chinese and Nigerian retail investors operating in the Central Business District (CBD). These investors are “occupying small spaces.” As a results, they are renovating existing spaces or constructing small cubicles rather than embarking on massive constructions. Parking is a major aspect to consider when verticalising; in the CBD, it is already a major constraint. The Architect stresses that the main issue in planning and construction is the conservation of land. This entails techniques likely to maximise on open spaces by way of smart growth and infill development, revising the building bylaws and including and embracing new technologies. The strength of bricks, according to the City Architect, is a major issue of concern for sustainable construction.

8. Conclusion

This article has been an attempt to examine the process of construction through the planning lens and working towards the goal of achieving sustainability in its broadest sense. It has discussed the aspects of costs, investment, technology, climate change, building materials, and planning laws in Zimbabwe. The building process is cumbersome owing to institutional constraints of legislation and bylaws. Institutions are there to ensure certainty. The process of building construction generally takes a very long time, so that the cost of waiting and ‘oiling’ the bureaucracy are generally intolerable. The government, especially after 2009, has been at the forefront of getting building contracts and giving some to the Chinese community of building constructors, lowering the level of confidence among local building firms. Such a tendency works against sustainable construction. However, planning is not all bad, given that it is there to ensure the sustainability of the environment and ultimate artefacts of buildings. Failure to adhere to the so-called high standards of planning results in the construction of buildings of questionable quality. The case of Harare has indicated how some shortcuts in the building sector reduce confidence in the technocrats involved, which include architects, engineers, and planners. The use of cheap materials and shortcut methods is risky and hazardous to the building users and to the environment in general. Instead of viewing planning in Zimbabwe as heavily anchored in the so-called outdated standards set by the British critics, there is a need to appreciate that though the environment (social, economic, environmental) has greatly changed, such standards are pillars to ensuring sustainability.

Sustainably-built environments are created by striking a balance between societal needs, technological adaptation or the general application of appropriate of technology; while also aiming to reduce social, economic and environmental risks and hazards in future. Both micro and macro-scale building processes in the construction industry are very important aspects to consider, and the field of play is a continuum from the site of construction to the global environment in which aspects like climate change are brewed and conceptualised. Achieving sustainability takes into account technical matters, political will, economic performance, and a conducive environment in which corruption and favouritism do not overshadow rationality, especially in the awarding of tenders. At the city level, investment into the building inspectorate departments is critical if the management of the construction process is to be wholly monitored to ensure the sustainability of structures. Zimbabwe, like most developing countries, is not without building codes and byelaws. Rather, the enforcement of these instruments is lacking, making it critical to ensure that a conducive environment is created in which the rules of the game are adhered to.

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