Sustainable Cities Module 2009

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I hereby confirm that the assignment is the product of my own work and research and has been written by me and further that all sources used therein have been acknowledged.
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Review the literature on urban sustainability. What are seen as the key drivers of urban unsustainability? What kinds of realistic interventions have contributed to more sustainable resource use in cities? Who should promote and implement these interventions?

1.1 Introduction

The subject of sustainable cities has become increasingly examined as consensus is reached that two thirds of the total world populations will be living in cities by 2030 (Swilling 2004). This means that there will be approximately the same number of people living in cities as the current world population (2009) and when one couples this with the understanding that cities are the key consumers of global resources, it is obvious that careful development strategies need to be employed so as to ensure a sustainable future.

Cities are developed over time to create a highly complex and dynamic network between different stakeholders. Interdependent infrastructure systems direct a particular pattern of resource flows and therefore designing systems that minimise the footprint of a city while positively influencing social behaviour is critical. Understanding the broad city system is an important starting point for recognising where the flaws and opportunities lay and this is necessary because it clearly outlines the complexity of what city development really involves. The challenge of creating development strategies for such a complex system often results in largely unsustainable solutions which shy away from taking the dynamic steps required for a new city design. This paper explores the many challenges that lead to unsustainable cities on the strategic and practical levels. Understanding the major challenges that lead to flawed city designs however only partly suggests what is needed for truly sustainable alternatives, and exploring this positive approach further uncovers the real potential for systems which can work towards sustainable living spaces. This is often highly dependant on the roles which different stakeholders assume in the design, oversight and operation of city developments and therefore this critical subject is covered with an overarching theme of interdependence between governments, society and businesses.

1.2 Broad City Systems

The current trend of massive urbanisation is happening mostly in developing nations as people flock to cities to find jobs, economic independence and the seemingly superior lifestyles that cities offer. Not only are more people moving to cities but the population within the city is itself expanding and therefore the geographic area of cities is growing (urban sprawl) and the ecological footprints of the city is expanding (Campbell, 2006). This urbanisation trend is meanwhile occurring in the global context of increasing exclusivity between rich and poor, the constant change of a post-fordist economy, globalisation of trade and communication as well as economic cycles which evolve in a skew relation to the trends of urbanisation (Ravetz, 2000). The economy is the major focus of most government and business agendas and therefore the perspective of social and environmental protection is often a secondary consideration (Harvey, 2009). This approach is fundamentally wrong because it regards society and environments as a means to furnishing the economy, yet long-
term sustainability argues the opposite (see the imbedded spheres model). The capitalist city needs to be redesigned with this understanding inherent in its development strategies, but the complexity of designing a system which can realistically achieve this requires a coherent strategy which gives direction to the genuine efforts which are made, and discourage stakeholders from merely applying oversimplified generic city models because of their proven outcomes (Doshi, Schulman, Gabaldon, 2007).

The most recognised tool of evaluating cities in the sustainability framework is the ecological footprint. The concept of the ecological footprint assesses cities based on their resource use and environmental impact (Rees and Wackernagel in Portney 2003). This is an effective means for comparing consumption to relative population size, land area and wealth, but the model has become most notorious for comparing the relative consumption of developed versus developing nations. The dramatic story that this study exposes is the unequal resource consumption of developed and developing nations independent of population or land size. This clear disparity highlights that the population debate is clearly not the only important aspect of our urban futures but rather that the way resources are utilised is equally (or more) important (Rabinovich, 1992). Eco-footprinting is also highly related to that of carbon footprinting, and together these tools can therefore be used as general benchmarks for what a particular development model may yield in terms of environmental impacts.

The goal is ultimately to create neutral cities while still addressing the needs of civil society and the carrying capacity of the land. Various case studies have shown how different development strategies have had vastly different ecological footprints and therefore we can assume a relation between the two - for example the ecological footprints of high density versus low density cities. These tools for evaluating cities steer away from the traditional economic-only benchmarks of success and by highlighting the environmental impacts, incorporate another vitally important dimension to the city’s story.

Benchmarking the sustainability of a city requires that one evaluates all the different levels that make up the city. This involves identifying the resource flows through the city, the basis of such resource flows and the impacts thereof (Ravetz, 2000). This involves evaluating the efficiencies of resources use in the city, the infrastructure energy, water, waste and sanitation (EWWS) that directs this flow as well as the social, environmental and economic effects. Added to this already complex system, one also needs to take into account the existing infrastructure (Doshi, Schulman, Gabaldon, 2007), societal cultures and behaviour (Ravetz, 2000) and the many diverse stakeholders. The importance of highlighting this is to show the interdependence of each different tier and the complexity involved in changing any one of these. For example, the trend of urbanisation increases the demand for housing and the urgent need for additional infrastructure such as EWWS. But infrastructure requires lengthy planning and financing which are determined by the flow of resources through the city system. If any one of these systems is changed it has a ripple effect on others and this therefore highlights the complexity of the city as well as the warning against oversimplified one-size-fits-all “solutions” (Doshi, Schulman & Gabaldon, 2007).

The ever changing nature of the city ultimately means that creating a sustainable city cannot be a static goal which is concluded but rather a direction, a new approach to adapting suitable systems to change while respecting the building blocks of
sustainable development (Ravetz 2000). A sustainable city therefore takes into account these complexities while truly engaging and implementing systems which protect global ecosystems, global society and account for continual change.

2.1 Unsustainable Cities

One of the most common temptations of growing cities is to follow the western development model (Ravetz, 2000). The insatiable growth paradigm of the west is responsible for a state whereby the carrying capacity of the earth no longer sustains the lifestyles of most developed nations. The intention to continue on this tack then also tacitly sanctions the poverty it inherently brings to the poor who are forced to live below reasonable ‘single planet’ livelihoods and the damage done to eco-systems. The issue with posing this challenge to decision-makers is that it requires policies and strategies that need to confront the complexity of making changes to the dynamic networks of the city - using techniques which are largely unknown. There are two major challenges when it comes to referring new technologies to cities. First is the scepticism of introducing a new technology or system, particularly when it involves higher upfront costs (Campbell, 2006). The second challenge refers to the common misconception that technological changes are all that is required (Swilling, 2004). This is a very dangerous opinion because it too easily dismisses the responsibility of society to make changes to their own unsustainable livelihoods. What is frighteningly worse is the common approach of risk-averse governments to use obsolete technology which ignores the hidden costs of centralised, monopolised and unsustainable systems. Old technologies become a more pressing issue when upkeep is ignored and decision-makers are forced to react to crises instead of planning for dynamic and proactive systems (Doshi, Schulman, Gabaldon, 2007).

Technical challenges are however often only the visible ‘tip of the iceberg’ when it comes to creating a sustainable city, and the bulk often lies in the strategic planning, integration of strategies and resource flows.

Strategic planning plays a critical role in directing a city onto either a sustainable or unsustainable path. Integrated planning is far more likely to succeed in creating a sustainable city than if departmentalised narrow-focussed thinking is allowed in city development. This practical challenge is exacerbated by the bureaucratic nature of most governments. The starting point for a coherent plan is therefore to recognise the complexity of the city system (Swyngedouw & Kaika 2002) and then design strategies that take into account the interdependence of city infrastructure (Doshi, Schulman, Gabaldon, 2007). What so often leads to unsustainable cities stems right from the initial planning about “what do we want to sustain” (Portney 2003) and this confusion may lead to immediate disagreement between stakeholders. These types of questions create huge stumbling blocks which need to be worked through in order to create a coherent and co-operative strategy which allows decision-makers and communities to work together in a particular direction.

A major city-wide challenge is the poor integration of systems which often results in a cost to either society or environment (Doshi, Schulman & Gabaldon 2007). A common example of this is the urban sprawl of the poor to the periphery of the city which then results in a new challenge of transporting the workforce to the city centre. Integrated planning within local government may realise that subsidising housing
close to the CBD may in fact be far more viable than the perpetual spending on transport subsidies and so without a calculated and coherent plan for the city, there is little chance that a city will develop sustainably. The intention of such strategies should work against the commonly accepted formula; Impact = Population x Affluence x Technology (I = PAT) so that eco-footprints are unrelated to population size or affluence (Ravetz, 2000). This addresses the subject of resource flows through the city and the design of such a flow.

Linear resource flows characterise most 21st century cities which means that resource inputs on one end, usually end up as waste on the other (Ravetz 2000). As expansion accelerates, waste increases and cities soon become key waste producers. Redesigning the system, so that waste products of one industry become inputs to the next captures the essence of a circular metabolism.

Having determined what makes so many cities unsustainable only partly suggests what is required for a city to be sustainable.

2.2 Sustainable Cities

Ravetz (2000) argues that a sustainable urban development is one which takes into account the continually changing urban system as well as environmental sustainability. This makes the argument that simply acknowledging complexity and planning for integrated infrastructure is not sufficient unless it takes into account the potential for change. A dynamic systems model is therefore suggested to match the organic change of cities with suitable development strategies (Swilling & de Wit, 2008). This model also complements the need for creative and imaginative solutions to be encouraged within the city (Doshi, Schulman, Gabaldon, 2007). This challenges the traditional one-size-fits-all template and creates a platform that liberates people, encourages new thought and supports a diversity of views. Dynamic systems also encourage entrepreneurial initiatives which are key instruments to localising the economy, and empowering communities (Ravetz 2000). This offers the opportunity for decentralised city infrastructure and greater flexibility to meeting the demands of the city (Campbell 2006).

The second criterion that Ravetz (2000) highlighted in his approach to sustainable urban development is that of environmental sustainability. In order to ensure long-term environmental protection while still being able to supply societies with basic and higher needs, decoupling resource consumption from development is critical (Swilling and de Wit 2008). Decoupling can only be partially achieved through the use of technology (such as renewable energy), but addressing consumption habits and lifestyle choices is imperative for absolute decoupling to occur. This means that sustainable cities will need to use technology and society to create sustainable living spaces.

Changing consumer behaviour is possible through creative marketing strategy. Consider the power of advertising which has shaped so much of the consumer patterns that exist today. Consumer cultures have been encouraged through aggressive marketing efforts of all major industries. The goal is to encourage more consumption yet little attention is paid to the waste that this lifestyle tacitly supports. The flow of
resources through the city is unsustainable if it produces waste that ends up on a dump site where they are out of sight and out of mind to the consumer. One of the major initiatives of a sustainable city is therefore to create a circular metabolism in which waste products of one industry become the inputs for the next (Ravetz 2000). A circular metabolism means that everything gets reused, recycled or reengineered perpetually. The circular metabolism and the decoupled resource consumption therefore work towards dismissing the seemingly undisputed notion that Impact = Population x Affluence x Technology (I = PAT) (Ravetz 2000). Disproving this equation is crucial for inter and intra-generational equity by aiming to protect the environment and societies.

Some of the practical issues which cities should address can be divided into 12 broad categories (Swilling 2004). This includes a direct focus on water security including catchments and recycling, waste mitigation and recycling, decentralised eco-friendly sanitation systems, densification and mixed land use, transforming transport systems to require fewer trips on higher density systems, clean energy alternatives, food security through organic farming and urban agriculture, eco-friendly building materials, regulations on pollution and CO₂, better public health care and child centred learning and development and lastly conservation and replenishment of ecosystems and biodiversity.

Who is Responsible?

Throughout the paper there have been hints at the different roles that various stakeholders should have in creating a sustainable city. The overarching theme is that there is no single stakeholder that is responsible for creating a balanced environment, but rather it is a collective effort of national and local governments, civil society and business. Many of the truly sustainable systems will involve most if not all of these stakeholders (Doshi, Schulman & Gabaldon, 2007).

The role of government is arguably the largest when it comes to strategic planning of sustainable cities. Because cities are generally governed by municipalities and local government, they not only have the authority to make decisions regarding city planning, but also have the means to access funds and control strategies. Without the buy-in of this central authority it is near impossible to create a city that is truly sustainable. This is not to say that sustainable initiatives cannot be run without the planning and buy-in of governments, but rather that the cornerstone of bringing together stakeholders and approving large-scale city development almost always requires some level of government participation. The case study of Curitiba, one of the world flagship ‘sustainable’ cities, was most certainly dependant on a proactive, decisive government (Rabinovitch, 1992). This does not however mean that a government can create a sustainable city through policy decisions and infrastructure alone.

The role of civil society is unavoidable in creating a city which embraces sustainability. The collective power of society is the key driver of consumption and therefore altering the demand cycles, the material demands and the consumption habits of society can work towards sustainability (Ravetz 2000). For example if recycling was accepted at a household level this would maximise the throughput of
waste products into useable inputs. Showering versus bathing, living in a way that will smooth out energy peaks or catching public transport all minimise eco-footprints and work toward sustainable living. The role of the collective is crucial to sustainable living, and without the support from society, no technofix, no planned infrastructure and no government initiative will succeed in reaching true sustainability (Doshi, Schulman & Gabaldon, 2007). Civil society also has the power to sway the types of decisions that are made. This means that if there is widespread support for sustainable initiatives there is far more chance of truly sustainable development. This however requires a proactive willingness to invest in new infrastructure and a notable increase in costs in the short-term (Doshi, Schulman, Gabaldon, 2007).

Businesses have an important role in all major cities and are often the key reasons why urbanisation has become such a rapid trend (i.e. job creation). The direct economic focus of most businesses is a questionable subject on its own, yet with the right incentives, businesses can be seamlessly used in creating sustainable systems. Businesses generally have the expert knowledge, greater flexibility to deal with changing technologies and consumer demands, higher risk tolerance and are entrepreneurial in solving problems and for these reasons businesses have a great potential in facilitating (or even pioneering) SDI’s (Doshi, Schulman, Gabaldon, 2007). The potential to work in conjunction with government through public-private partnerships (PPP’s) offers the potential of all the advantages that businesses offer while also benefiting from the central role (and security) of the government. PPP’s are argued to be one of the most effective means of creating sustainable living spaces (Doshi, Schulman, Gabaldon, 2007). One important aspect is to ensure some regulation of these roles because over or under-competition in an industry can too easily allow abuse and corruption into the fray, thereby undermining sustainability.

Conclusion

The importance of studying city development is obvious in light of the predominantly urban future of future generations. The challenge of creating sustainable cities is however a complex task that has no single solution and therefore the attention it receives requires more than just changing what is unsustainable, but going above this to proactively seek sustainable solutions. This involves recognising the complexity and interdependency of city structures and resource flows while accounting for the roles of all stakeholders. Decision makers and stakeholders need to engage in order for strategies to be successful. There is a clear need to review infrastructure and systems that do not serve society and protect environment. Tools such as the ecological footprint are excellent instruments to gauge the impacts of various designs on the environment and the intention should clearly be to create cities that leave no footprint at all. In order to achieve these ambitious targets it is important to create circular metabolisms and integrate systems for the most efficient use of resources. Coordinating this is only possible through co-operation and collective efforts of the cities major stakeholder, namely government, business and society.
Bibliography


Zimbali… Dynamic or Disillusioned

As the world moves rapidly towards urban futures, decision makers are designing the development models which will steer our futures in either sustainable or unsustainable directions. The Zimbali Coastal Resort on the Kwa-Zulu Natal north coast is an estate which prides itself on close environmental protection and thus a more sustainable design, but blueprinting a sustainable urban future requires more than a localised focus on individual systems, and needs to account for the complex interdependency of infrastructures, stakeholders and networks in the greater milieu. This is notoriously difficult because strategies need to be coherent in their intention while still acknowledging that dynamism and change will be integral to long-term sustainability. The sustainability movement calls for city developments to take particular care to integrate infrastructure, society, business and policy in a way that will protect the environment and serve civil society - and this report aims to review the Zimbali estate upon these guidelines.

Through the lens of sustainable cities, it is important to analyse the specific design of Zimbali as well as the way in which it interacts with the greater community. This suggests a focus on both the practical level infrastructure and resource flows, and on the strategic impact on the surrounding town of Ballito. Although Ballito is not yet classified a city, the current expansion of the town and the aggressive development of the area show the same traits as city developments, and the rate of expansion suggests that it may easily merge with larger surrounding communities.

Background

Zimbali Coastal resort is a 700 hectare residential and resort estate on the Kwazulu Natal North Coast (http://www.zimbali.co.za) and has become well known as one of the country’s most elite properties to own. The estate is scheduled to have up to 1200 residential homes, 3 hotels, a signature golf course and many private and communal living spaces for the residents (http://www.zimbali.co.za/Faq.aspx). Zimbali is owned by a joint venture partnership between Tongaat-Hulett (PTY) Ltd and the well-known global brand IFA (International Financial Advisors) Hotels and Resorts who have a specific focus in luxury accommodation and resorts word-wide (http://www.zimbali.co.za/%7Ddocs/IFACorpBrochureFeb06.pdf). The major incentive for IFA’s role in the development has been to bring their international knowledge, finance and marketing skill to promote Zimbali as a truly global destination (http://www.zimbali.co.za/Faq.aspx).

In 2007 the developers acquired a further 800ha of ‘developable land’ adjacent to the existing estate with the intention of developing the land in a similar fashion. (http://www.zimbali.co.za/Faq.aspx). This report intends to focus primarily on the first development, however many of the arguments made are synonymous to both. Both estates are greenfield developments which are set within the forests, wetlands and sugarcane plantations of the area.
The estate proudly markets itself as "living in harmony with nature" because of the careful preservation of indigenous flora and fauna which may otherwise have been eroded as the neighbouring town of Ballito expands. The estate is heralded as one of the successes of property development within the region and has won many awards for their marketing success, architectural innovation and prestigious golf course (http://www.zimbali.co.za/Default.aspx).

Zimbali is flanked by the ocean to its east and the town of Ballito to its north. Ballito has seen unprecedented growth in the last 5 years and the once small holiday town is rapidly growing into a significant economic hub. The town is earmarked for further development as the new King Shaka International Airport (scheduled to be in operation in 2010) will be just 10km away (http://www.busrep.co.za/index.php?fSectionId=563&fArticleId=3397639). The impacts of the rapid growth in the area have seen property prices skyrocket up to 20-30% per year and the aggressive development of additional malls, hotels, schools and residential estates have placed heavy pressure on the need to expand the town’s spatial boundaries and infrastructure (http://www.thepropertymag.co.za/pages/452774491/Residential-Property/09/June/Articles/ballito.asp).

Analysing the estate within the subject of sustainable cities requires one to contextualise the development in terms of its internal design but more specifically as a function of the wider integration with Ballito. Through this lens one is able to make clearer judgement on the pro’s and con’s of the development and make suggestions on how the development could be redesigned to advance the town along sustainability guidelines.

Zimbali: Disillusioned

Zimbali’s target market is clearly an exclusive one, and one which is generally already an urban one - however this does not mean that the estate does not impact on the trend of accelerating urbanisation. What these and other similar developments do is strengthen the perception that cities are oases of wealth, employment, happiness and value, but conceal the deep divide of social integration and wealth inequalities. This is a dangerous message because it places a disproportionate value on money and tacitly downplays any lifestyle which is not centred around building financial wealth while it also gives the wealthy an overly powerful voice. This often gives preference to those who have financial clout and economic intentions, while simultaneously excluding the poor from a fair and equitable opportunity to uplift themselves in the long term. Marketing the message of exclusivity means that the intention is not to share the value of such a place, but rather to offer it only to those who can afford it. This has led to public outcry over the restricted access to beaches and forests which have become inaccessible to the public (http://209.85.135.132/search?q=cache:SmJ3e5QFsgEJ:www.ilembe.gov.za/docs/KwaDukuza%2520Coastal%2520Management%2520Plan.pdf+community+%2Bfeedback+k+on+zimbali+estate&cd=23&hl=en&ct=clnk&gl=za).

This calls to question the level of social integration with the surrounding communities which affect and are affected by Zimbali. Most contrasting are the many extremely
poor squatter camps and growing townships such as Tongaat and Mangwaveni. Designing a sustainable city requires that ‘sustainable societies’ are inherent in the design (Portney, 2003) but what the gated estate does is breed a societal structure whereby divided communities are sceptical of each other and often reluctant to live and work together. These lost synergies can create unhealthy competition between groups and where there are extreme wealth inequalities, it can easily lead to crime. This poses the challenge to developers and designers to rethink the exclusive design despite the fact that it may contest the economic intentions of the project. Although this is not a problem which is exclusive to Zimbali, it is only one which will be addressed through a determined and strategic intention to do so, and this is not the case of this development which prides itself on exclusivity.

The issue of integration is not however only about integrating the living spaces of people, but about the complete integration within the greater context of the area. This includes the way in which land is used, how infrastructure is designed and how resources are planned to flow through the system.

Through its low density design, Zimbali has augmented the general trend of urban sprawl. The issue of urban sprawl is becoming a concern as the previously outlying sugarcane plantations are now being sold off to develop residential estates (see Zimbali Lakes Estate, Simbithi Estate, Brettenwood Estate, Dunkirk, Sheffield). The trend of low density living which has been so skilfully marketed by Zimbali means that the town is growing spatially while the ecological footprint expands and the potential of displacing the poor to the periphery becomes an increasingly probable scenario. The relocation of the Durban (King Shaka) International Airport to the area is expected to raise property prices further and leave few affordable housing options for the employees expected to amass in the area (http://www.busrep.co.za/index.php?fSectionId=563&fArticleId=3397639). The impacts of such a design lead to increased pressure on transport, EWWS infrastructure and ecological footprints.

This is a familiar western design, whereby the wealthy are expected to live exclusive lifestyles which often mean big, spacious and undisturbed living spaces, and cities therefore expand to accommodate this demand. Zimbali is positioned to cater for the most affluent lifestyles, luxury living and the general high consumptive routines of its target market. The message that is portrayed that money affords you the right to live any type of lifestyle you may choose, yet the clear message exposed to us by ecological-footprinting is that the environment and its’ resources are finite. By over-consuming resources you are exploiting the carrying capacity of the land while also using more than an equitable share of global resources. In tune with the disillusioned western model, IFA’s involvement characterises the globalisation of wealthy companies which ultimately disempower local communities and build wealth for international shareholders (Norberg-Hodge 2000).

The infrastructure used by Zimbali to the most part is simply extended from the existing (and growing) municipal infrastructure (Baushe, 2009). What this proves to illustrate is that Zimbali is in no impressive way limiting the demands on standardised municipal infrastructure and is rather endorsing and encouraging a further expansion of this one-size-fits-all centralised infrastructure. The argument is that this development model requires unnecessary extra expenses (e.g.
long sewer pipes), it is often not eco-friendly and it separates the users from an ownership and responsibility for resource flows. This generates a liner flow of resources which, although not exclusive to Zimbali, is in no way truly “living in harmony with nature” either.

There is a strange paradox when evaluating Zimbali in terms of its environmental sustainability. The estate has made considerable efforts to maintain and even restore much of the indigenous flora and fauna. Design of the golf course and homes have been tailored to preserve forests and wetlands and this has allowed many eco-systems to rejuvenate (http://www.zimbali.co.za/Conservation.aspx). The respect for nature is entrenched in the visual aspects of the estate, yet the high luxury, high resource consumption (vis-à-vis water usage for the golf course etc) and standard municipal infrastructure all lead to a general pressure on the health of the broader environment. This highlights that it is not enough to assume that caring for the local eco-systems is sufficient if there is no protection on the greater environment up and down stream. This is ultimately an issue of balancing the long and short-term agendas of protecting eco-systems and preserving local integrity by restructuring the resource flow in to and out of the estate.

Evaluating Zimbali on the sustainability continuum requires a long term benchmark but is invariably judged by the systems they employ at a given point. This suggests that short term goals need to be geared in the direction of sustainable development principles while also having the flexibility to deal with change. In the case of Zimbali, the design seems to be preplanned in its endeavour to supply only exclusive, upmarket, low density living spaces despite the foreseeable need for increasing number of middle-income homes as Ballito is transformed into an economic hub where the community need will be diverse. This decision has lasting impressions on the communities, spatial planning and resource flows of the area. The limited use of low-impact technologies such as solar water heating, water catchments, grey water recycling or clean energy systems (Baushe, 2009) highlights a clearly unsustainable resource flow in the long-term. This challenge is however made worse by the obvious invitation for residents and guests to indulge in a luxury lifestyle instead of encouraging a lifestyle of thriftfulness and living within one’s means.

The unique condition of Ballito’s unprecedented growth means that tracking the impacts of any single project’s impacts is difficult, but the unambiguous feeling of residents is that the culture of the town has changed from the previously quite, community-based lifestyles to that of elite and exclusive living.

**Zimbali: Dynamic – A potential to change**

The potential to redesign Zimbali could be used as a catalyst to transform the growing town into a renowned node of sustainability. The critique on the present design hint at some of the alternatives which could be employed in a more sustainable approach, but redirecting Ballito into a sustainable hub will require that new designs are intended to explicitly reshape the town. Due to the substantial size and site location of the Zimbali developments (a total of 1500ha for both estates) the opportunity to redesign the estates could add significant value in redirecting Ballito on more sustainable guidelines.
Redesigning the Estate

Zimbali has a few key attributes that typify the type of design that a sustainable city would pursue. The most obvious of these are the communal living spaces designed to allow for social integration of residents and the strong conservation focus of the estate. By adding to these designs it is possible to create a more sustainable estate, yet the ultimate blueprint would look considerably different to the current one.

The most revolutionary and dynamic decision which would entirely reshape the estate would be to densify and socially integrate the estate. In order to maintain the conservation efforts as well as the open spaces which have been created, it would be crucial to redesign the density of buildings to accommodate a far higher population. Through the denser living spaces created the economic integrity of the estate could be maintained while allowing for a completely different design to take shape.

Swilling (2004) identifies 12 major areas of focus which can be used to decouple resource use from a growing consumer base, and by working through these design issues the estate can become a positive influence on the town, while also becoming a model for further expansion. Such a strategy would include; decentralising municipal services by incorporating eco-friendly energy, water, waste and sanitation systems. Clean energy systems such as household PV systems (such as roof tiles or collector plates) would have a double role in providing clean energy and also raising awareness of energy conservation from this traditionally high consumer market. Establishing a recycling system in the estate would be fairly easy if collection from houses was made simple and effective while the design of houses could include a multi-bin system and localising goods and services may mean that fewer waste products need to be brought into the system. Sanitation systems designed with biolitix would reduce the pressure on municipal systems while also investing in eco-friendly infrastructure - and the higher density nodes (such as the hotels or apartment buildings) may be well suited to biogas digesters which could be used for cooking or heating. The water supply issue spurs thought into more than just introducing water catchments and grey water systems, but in revising the demand for water. The golf course is an enormous consumer of water which means that if the course is too remain, there needs to be a genuine effort to offset the heavy consumption by investing in other resource-saving initiatives or even such investment as desalination. A more dynamic alternative could be to transform the course into an interactive urban agriculture initiative whereby community involvement is encouraged and localised food industry is supported. Internal and outbound communal transport systems such as a bus system would limit the need for private vehicle usage within the estate as well as throughout Ballito. This in turn reduces the congestion on the roads, the need for additional road lanes and immediately saves the opportunity costs of doing so. Using the abundant natural resources such as clay or sand-bags for eco-friendly building would limit the embodied energy and true environmental footprint of the buildings, and coupling this with energy efficient designs such as large windows and skylights, natural ventilation systems instead of air conditioners, could all contribute to more sustainable living spaces. Land use is an important issue which could be significantly improved from the current design, especially considering that many of the key concepts are already part of the existing design. This would include making more communal spaces and limiting the option of building private chattels such as swimming pools or even laundries. Densifying the living spaces by building multiple apartments would allow
more space for such things as urban agriculture. The intention of doing so would be to
limit urban sprawl and create an estate that is more eco-friendly, serves civil society
more equitably and decreases the city’s footprint, similar to that of Curitiba. The
integrated living space created may include schools, health clinics and office spaces
and thereby limit the need for extended travel.

The design changes to the estate will have further reaching consequences than just the
impact within the estate and this is the strategic benefit of making the change to
Zimbali. The interdependency and linkage of city networks will mean that the
changes made in the estate will affect the greater networks in Ballito and if strategies
are well co-ordinated and coherent in their intention, the potential of such a creative
and dynamic design may perpetuate a change in the surrounding community. In the
same way that Curitiba was strategically modelled around the public transport system
(Rabinovitch, 1992), so could Ballito redesign its development path around a
sustainable model as described. The abundant resources available in the area could
serve to protect the economic prosperity, the broader ecosystems as well as the
societies in the region and this fulfils the condition of sustainable urban development
according to Ravetz (2000). This type of integrated system would require a change in
decision-making intention and stakeholder direction.

Who is Responsible for existing and future development?

The existing stakeholders, i.e. the developers, the businesses, the municipalities and
the societies all play a role in the existing development model which is proliferating in
the region, and an alternative model will require that they each have a role too. The
most central body which has authority over the development framework in the region
is the Kwa Dukuza Municipality. Kwa Dukuza municipality cites “Holiday letting and
exclusive elite residential, eco- and golf estate - property development” as being “one
of the high prized unique selling propositions of the area.” (http://www.kwadukuza.gov.za/docs/IDP%202023%202006%202006.pdf). This show of
support for the exclusive estates means that change is unlikely to happen unless the
orientation of development is changed. The fact that the municipality has identified
this market as a niche for economic investment means that their strategy will be to
support low density residencies for economic reasons. If the focus of residential
development were to change to an economic and social and environmental focus then
the government endorsement for an alternative design would show more promise. It is
therefore integral that changing the direction and policy of local government is
tantamount to limiting low density estates and rather becoming stringent on the
sustainability criteria mentioned (i.e. 12 point model).

The success of such a design is only plausible if societies and businesses are attracted
to the model and are supportive of its agenda. This means that the initial target market
for Zimbali may not be the first to invest in this design, but the broader market should
be able to sustain the development because of the higher population density. The
likelihood is that the added value created in the living space may well see
reinvestment from the elite market in the long term as perceptions on value are
changed. The buy-in from communities needs to stem from awareness for sustainable
development and the need for a new paradigm on which to live. This awareness is
taking root in ‘green movements’ which raise consciousness about living within
carrying capacity of the land and are shifting the mindsets of traditional western ideologies (big, exclusive, opulent) to valuing co-operative, thrifty and equitable livelihoods. The collective power of people is the most powerful, but also the most complicated to mobilise, but if steered in the right direction this stakeholder holds the key to sustainable futures. The potential to realise this type of development model is conceivable in a town which has been grounded in community interaction and harmonious living.

Businesses, developers and contractors have an undeniable role in designing the systems of the city, and these key stakeholders are central to Zimbali and Ballito’s future. The opportunity for Zimbali and Ballito to transform their development model is achievable because the region is still under development. The flexibility, expertise and entrepreneurial constitution of businesses mean that they have the structures required to restructure the systems and networks of the city. Business also has a higher risk tolerance and a closer understanding of appropriate systems and therefore it would be hopeless to consider a proposal which excludes them from a central role. Public-private partnerships (PPP) have been identified as credible options whereby investors and developers have security on their investments and municipalities benefit from well structured systems and societies.

Conclusion

The subject of creating sustainable cities is of prime importance the world over, and due to the rapid urbanisation and growth in developing nations it is these regions which need specific attention. Ballito is a prime example of a town which is currently following the western development model but has the potential to engage a different city model. The popularity of gated communities such as Zimbali have been ardently pursued in the quest for economic development in the region, but the sustainability of such models often fall short on their intentions of eco-friendly design. Although there is justified commendation for the efforts made in protecting the ecosystems in which one resides, there is a real danger in marketing the message that estates such as Zimbali “live in harmony with nature”. The important message to take out of this development is to be aware that lifestyle, infrastructure and systems design play a vital role in directing the resource flows through a system. This has effects on environments, societies and economies up and down stream and this arguably more important than protecting the aesthetic of localised eco-systems.

There is a realistic and functional alternative to this old traditional design model but it requires a shift in thinking from all the major stakeholders of the city, including governments, societies and businesses. Through well planned and dynamic development models, the potential to redesign Zimbali and Ballito so that it serves the environment, societies and economy is great and therefore the subject of sustainable cities and alternative design needs to be more widely understood.
Bibliography


