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"The Art of City Building"[1] issues and practice in East Africa-Kenya

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ABSTRACT: November 2010 saw Africa entering its future as an urban society, with over 51% of the worlds' population living in cities[2]. As East Africa becomes an investment destination, it is relevant to debate how our Cities could be more sustainably developed for the benefit of their inhabitants. Taking our firms experience in Nairobi Kenya this paper explores "The Art of City Building". Unpacking an understanding of the development processes in our Cities, the design products offered to clients, and the value of integrated designs contribution to sustainability.

Most East African city's, have not seen the current level of urban growth in a long time. Developers seek quick solutions to realise their visions. City governments seek tools for managing urban growth in a context of constraint. Development management processes see these visions and citizens in conflict, the outcome shaping our cities. Each aspect of urban growth now challenging our cities is complex and interrelated. We believe the emergence of "sustainability" as a design ethic embedded in environmental legislation, and Urban Design is a positive move towards an integrative working methodology contributing to more sustainable City growth patterns.

Using an approach to integrate design and see the City as way of working to add value for City and Client. Founding this in an understanding of City growth, to reveal its unique spatial patterns and typologies, to guide placement of development and integrating it into the City growth. Acknowledging dynamics of development processes which frustrate participants. Seeking, inclusive solutions, to reduce risk and citizen conflict, towards place-making and management in the City. Lastly, in this way of working, creating design products and processes, that helps to frame and effectively communicate development concepts, and integrate strategic design into urban growth and management.

Engaging with our Cities patterns and cultures ways of doing adding to the depth contextual awareness as we work at "the Art of City Building", continuously and collectively contributing to sustainability, in our urban environments, and hopefully the enrichment of the life and ability to experience the good qualities our City's offer.

Conference Theme: Sustainable Design
Keywords: City, Design, Place, Management, Frameworks.

INTRODUCTION

...the ability to meet the needs of the present while living within the carrying capacity of supporting ecosystems and without compromising the ability of future generations to meet their own needs"...[3]

November 2010 saw Africa entering its future as an urban society, with over 51% of the worlds' population living in cities and Africa heading that way with North Africa and the Middle East at 58% and Sub-Saharan Africa at 37%[2]. It is time to debate how these places, our African Cities, should be developed with, and for the benefit of their inhabitants. We should be seeking approaches to sustainable city growth and development that are greater than addressing the Architectural project alone. Rather the pursuit of vibrant diverse life sustaining and spirit lifting City spaces, the public environment, that is shaped by Architecture in a City of a thousand designers. We will have to think more inventively and collaboratively about these spaces and our buildings relationship to them, if both are to be more positive contributions to more sustainable cities. Cities, currently seem to be our future, what do we want that future to be?

East and Central Africa are fast becoming destinations for investment in urban development, buildings and infrastructure, by a full range of actors. These actors are pressing the community of professionals, local and foreign, to work in a totally new context, of delivery speed, and scale. We are creating plans for our cities future. While entrepreneurs, without access to professionals, build informally, delivering as a collective sometimes more and faster than the planned developments often in areas not meant for development. City governments' have little capacity and are poorly resourced to deal with the scale of planning and development, formal and informal and its consequences. Pressured by internal politics, the allure of promised investment, and the fear of fast developing slums all these urban development actors decisions and creations will impact on our City's for a long time into the future.

The current contrasts in Nairobi Kenya (see Figure 1 below) a place of energy, enthusiasm and great visions for the City's or a sites development and facing urban growth challenges that make it both wonderfully and terrible. It

is this City in which my experience in East Africa has consolidated a particular way of working, informed by the broader idea of urban sustainability.

Fig.1. Clockwise; Ongata Rongai on Magadi Rd (25km S of Nairobi 16.5km^2 where 66 000-147 000 [4] people informally created a 3.5 km 4 storey lined activity spine). Thika Highway upgrade as it meets Uhuru Highway/Wayaki Rd (City infrastructure investment). Corporate icons, Coca Cola Headquarters Upper Hill, and I&M Building Nairobi CBD (private sector

In this context the emergence of sustainability gives us hope. As a continuously developing design ethic, backed by the increasing muscle of National and City Environmental Legislation, sustainability is now a prerequisite for any formal development planning effort. However, although Clients often embrace the idea with enthusiasm, when environmental compliance costs or delays a project beyond an investors' appetite, or the well intentioned professionals do not have the technical support for packaging innovative solutions, they return to business as usual. And the opportunity to achieve sustainability in large scale development is lost or dilluted.

The creation of environmental rating tools such as the Australian and South African Green Star systems which;

...sets standards and benchmarks for green building, and enables an objective assessment to be made as to how "green" a building is. [5]

Is an encouragement to the private sector to seek accreditation status for how green their buildings are and thus environmental value capture for individual buildings is acknowledged, and developers get something for their money. The new breed of professionals addressing sustainability in a holistic way, and help coordinate professionals involved in large urban development, are amongst us, although not yet recognised as such. Frameworks for acknowledging individual buildings contribution to sustainable cities exist, not yet for environments.

Cities in Africa, feeling the impact of investment and rapid growth and large scale development formal and informal, are alive with experimentation. City government is reorganising its institutional structure and in Nairobi the New Metropolitan authority is pushing forward with the revision of their growth management policies and putting in place, their own visions and strategic spatial planning policy. These Cities really, for its actors and inhabitants are melting pots, testing grounds were we all in reality are learning by doing. Nairobi Kenya is one such crucible of urban development experimentation and exploration and should recognise the real opportunity this is, to capture good ideas that practically work.

Singapore has, its Economic Development Board (EDB), markets the City as a "living Laboratory" (see Fig 2 below) status to attract investors to risk investing in their City. Using the *UN Human Habitat, State of the World Cities* 2008/9 report highlighting the absence of slums in Singapore owning to the City States' success in managed urban development and steady focused growth in public, housing and transportation systems delivery (areas all governments struggle with). Their Urban Solutions strategy focus areas are, in some form in every successful City's strategy, even in Nairobi's policy documents. What is new is Singapore's utilising the idea of development experimentation as an engine for attracting investment, as a counterpoint to its' focus on public environment and actual delivery of infrastructure supporting the publics' engagement with the City.

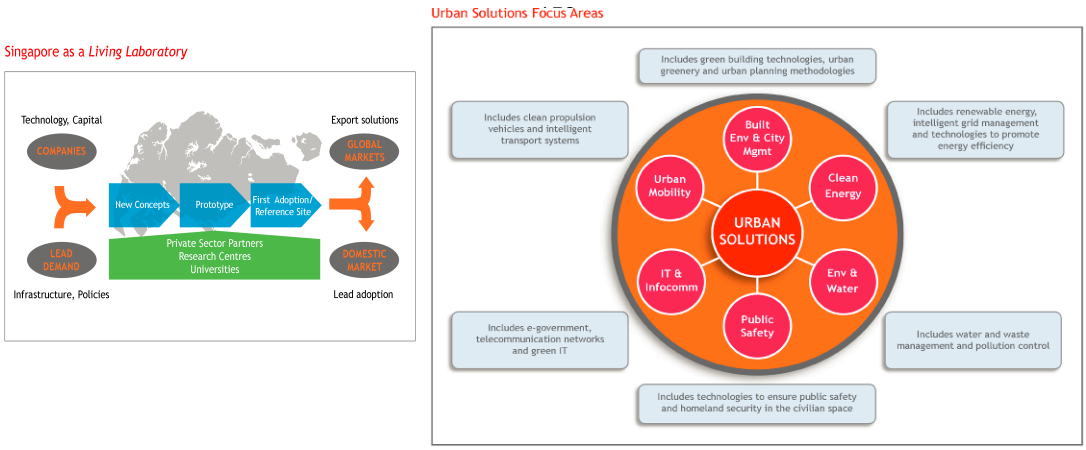

Fig 2. Two diagrams extracted from the EDB Singapore investment marketing brochure

In our experience paying attention, and learning about the City and its processes, patterns of growth and ways of doing is as rewarding and value generating, for me as it is for the Client, in making small steps towards sustainability. This together with the promise of sustainability professionals as collaborators and City Government that focuses on management and development of public infrastructure is the foundation of a consolidating approach. Understanding the opportunity in our Cities in their currently energised state, what do we have to offer? Our contribution we believe lies in focusing creative design innovation in the shaping of a City scale public environment framework. A framework that creates opportunity for our cities to breath, and give back to its citizens a place in which they can experience the benefits of city life, and private investment a formalised physical City structure that it can respond to positively.

A key to unlocking some consistent public environment framework for our City's and growing this contribution is our understanding of City growth and responding to it to capitalise on its energy and securing public space for the playing out of our urban lives in a positive sustainable way.

SEEING A CITY'S GROWTH PATTERNS AND TYPOLOGY.

Approaching the design of urban areas in a City in this context, it helps to have a set of tools. Some of the tools we have found useful are the following:

The idea of the layered City: A framework for looking at the City growth dynamics.

A tool we use to recognise the particular patterns that drive the growth dynamic in a projects context is the notion of the City as a series of discrete, physical and non physical, layers. It is in their position within the stacking of these layers that core principles of the interrelationships are contained. So not unlike like GIS, spatial information systems, can be used to identify issues that require resolution, or discovery of informants that constrict or create opportunity. (see Figure 3 below).

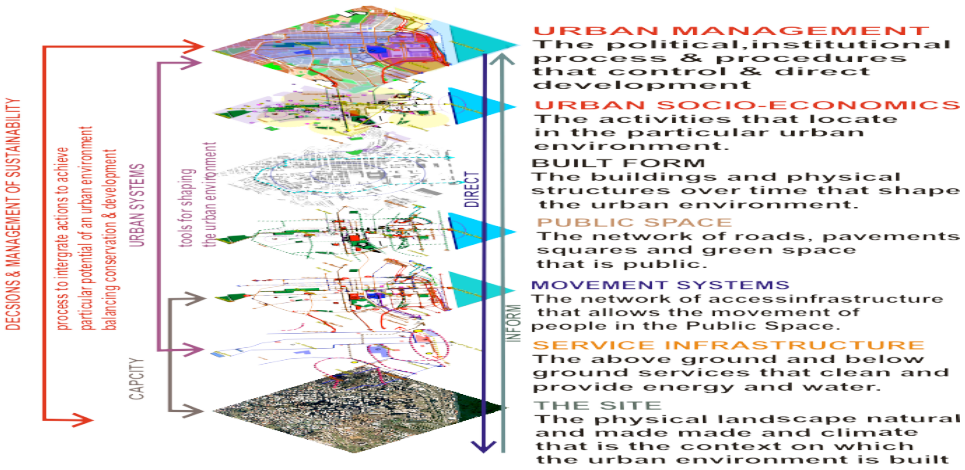

Fig.3. The Layered City Diagram

This notion has been very useful as a way of unpacking the chaotic complexity that a City is in reality. It also provides a logical checklist and information for Clients that allow an understanding of a sites carrying capacity, role and its' determining components, and which of these you are able to control and which not. This also is useful as a discovery tool in analysing a sites place within the broader City's growth context. Simply put these layers beginning at the base are:

The Site: The nature of the place
Natural systems and natural environment are the base determinants of an areas ability to host urban development or contribute to City's natural environmental health. The natural landscape and the features within them, also hold the spiritual placeness sometimes called the "genius loci" of an area. Thus from this bottom layer extracting the natural systems to protect and enhance, and the features and genius loci of the site we can extract the key elements of the area that begin to build its natural role in the City, in itself and in the context of the City. Sustainability here revolves around the respect given to natural systems as they traverse the site and to the "genius loci" on the site and its place in the City's development.

Service Infrastructure: The site access to resources in the City's
The delivery to the site, along the road network or special reserves in the City, the extraction out of the natural systems of the area of resources energy, water and, the transportation of waste away to treatment or storage areas are some of the service infrastructure elements that add to the second determination of the lands carrying capacity. These connections to the City's resources lie in the transition space some below ground some above, a sites ability to stand on its feet without drawing from distance impacts on its sustainability.

Movement systems: The nature of accessibility in the City
The pedestrian and vehicular connections to and through the site is the third layer and place any area in a context of accessibility within in the City. Accessibility determines for us most importantly the level of public or private use of an area. Thus impacting on the sustainability of any particular use of the land may be developed for.

These three layers for us create a simply assembled capacity and role in the City for any piece of land. The creative use of the opportunity identified for land within the Citys' context can also drive growth and development. The complex nature of culture in a City and the physical management of creating privacy/publicness and providing built space to house the range of activities that make Cities what they are is held in the next two layers

Public Space: The network and nature of place in the City
Besides space for movement, the linking of place to place, public space from parks to market squares, public institutions (education to civic) from river edges to waterfronts this network of social recreational and commercial (for the operator at the lowest scale of the economy)is an aspect of City land that we feel passionately should be continuous for ecological reasons and providing relief from the intensity of the built space of City's as well as place to gather learn and engage with fellow citizens. The use of land carries with it needs of its users and overlaid on the natural aspect of the area and movement systems establish that part of the area can be developed and that that should be public as well as the nature of its publicness. Thus impacting on the sustainability of the intensity of land use of the area and how much of the area should be put to social spaces hard soft and institutional.

Built form: the threshold and shape

Architecture at all scales creates the threshold between public and private, edges to space and the visual platform for culture and artistic expression from individuals to City to National. Thus it holds and shapes the public space and is the backdrop to visitors impressions of our Cities. The internal sustainability of building design has its city inpact on how it edges, creates these thresholds and edges and hold the key to designing for safety of and area to its symbolic or civic purpose, the language of our City's you may say. Buildings also house activities and the placement and location of activities in a City and in an area adds or detracts from their sustainability and also can drive growth.

The other layers are not physical and are urban **SOCIO-ECONOMICS** and political **MANAGEMENT** both having implications on sustainability as it is in these layers that City spatial policy is contained the process of approval of development applications and understanding these combine with natural patterns assists us in targeting and motivating a sites development role in a cascading hierarchy from metro to site. These layers also are about the complexity as social and political creatures we are and are discussed later here in terms of managing risk and reducing conflict later in the paper

CREATING AN UNDERSTANDING OF GROWTH DYNAMICS IN NAIROBI

Every landscape has a carrying capacity within its context and Cities grow with the energy of movement and the negotiation of trade as the European City Design theorist Jahn Geil says and where these come together in public space or the **"places of encounter"** is where our role for Clients adds value in terms of sustainable City development**.** Using our tool simply and quickly we can identify patterns that are there for us to see.

The natural systems and landscape of Nairobi is very clear and very well expressed in its growth. Established first not unlike Cities thoughout history because it played a role in the extension and opening up of land for human settlement it was a logical way station for the supply of resources for the rail line development, and consolidated into a City. It sits on a fertile river basin that shaped the topography in a particular way because of the geology. The impact of this natural system on the creation of access and the interaction of access hierarchy on intensity of development illustrate the interaction of the layers and how easily natural growth patterns at this scale can be seen.

The Nairobi River Basin system of EW running ridges and valleys sets out a clear pattern impacting directly on urban growth pattern that has occurred naturally in the City. A clear EW linear spatial structure of (see Fig 4

below) movement, roads following the ridges, and open space, agriculture fills the valleys shown clearly here either side of the Nairobi river form its source in the KiKuyu east toward the City Centre. This system of occupation at a certain density is sustainable, the valleys if protected from development could be the urban agriculture and recreation and institutional space.

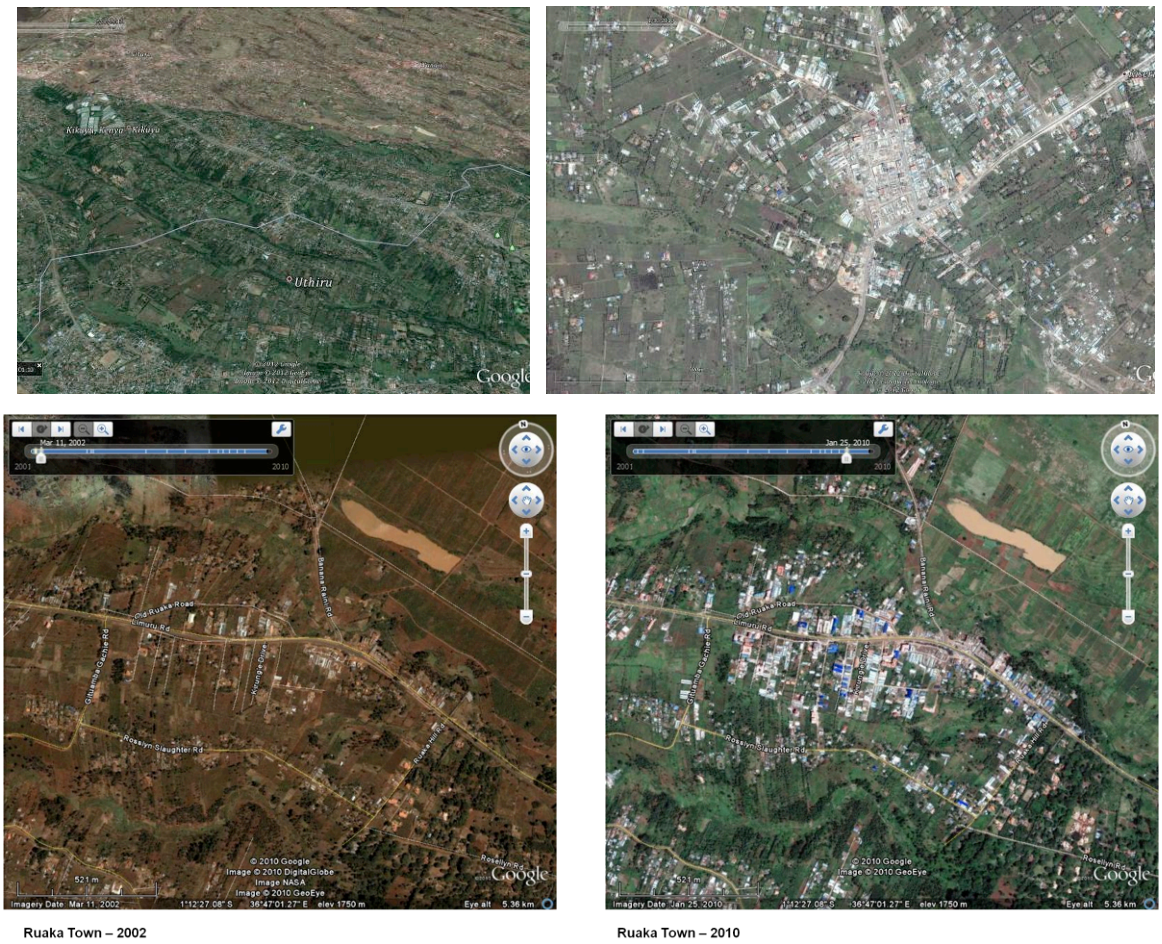

Fig 4. In Nairobi the EW ridge and valley topography creates clear pattern for growth, illustrated here between Uthiru and Kikuyu. The intersection of roads creating a node shown here on the right in the ariel of Kiserien south of Nairobi. The case of Ruaka on thye impending development of the northern bypass2002-2010

Movement systems and their interconnection, size and travel distance, create a friction of accessibility. This friction determines the natural spacing of events and place where economic activity is sustainable along these routes and intensifies at their intersections. We typically call these places of highest accessibility or nodes. Roads and infrastructure support and stretch these point activities over time into networks of activity spines and development corridors and that link these nodes to each other and to others at a distance. Roads are public environment place for any one and are the networks of accessibility to what the City offers seen above in Nairobi how they naturally distort and or facilitated by the natural landscape. The growth of Ruaka in the north east of Nairobi demonstrates the growth associated with even the notion that a large piece of infrastructure better connecting it to the city occurs. Here a typical linear pattern boomed after the first announcement of the possibility of the northern bypass connecting ito limuru Rd as the 2002-2010 ariel of the area in Fig 4 shows.

This pattern can be simply measured, given distances and sized in terms of levels of economic activity and compared to policy. Then effectively illustrated to add to an argument for establishing a role for an area and what could be put on the area in terms of development in diagrammatically. This is where we would usually start a project for a Client before we get trapped into designing what the client desires because of a need to extract profit (see fig 5 below).

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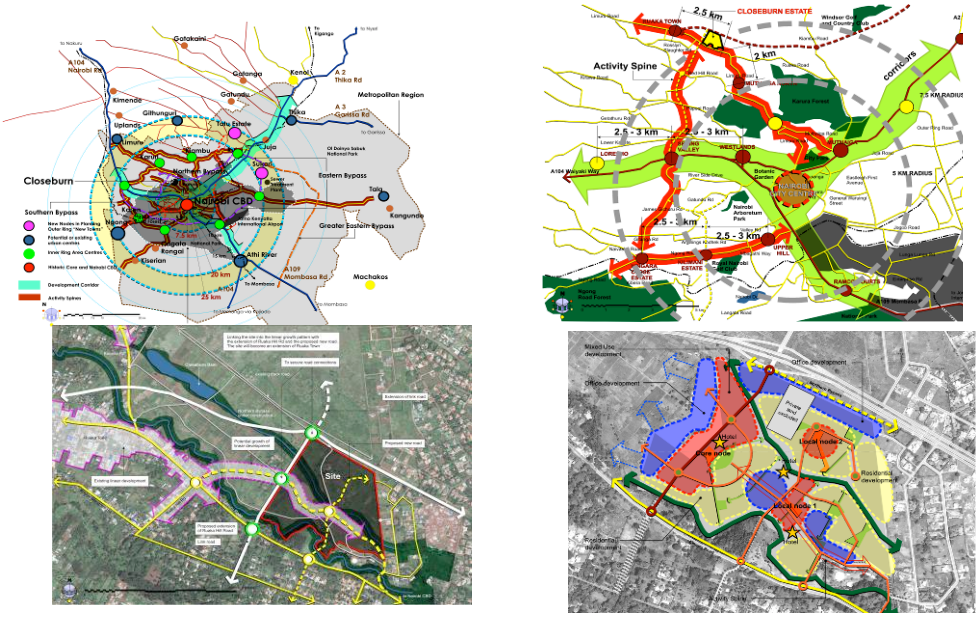

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Fig 5. Analysis illustrations of the growth pattern in Nairobi in various areas to facilitate role identification for Clients land at city and down to site scale

In doing this we effectively work with the City and its context rapidly and in our work try to reinforce City structure that is sustainable, at the city scale. It also helps us understand congesting in I different way, in Nairobi it is not only the size of roads it's also that to get north or south you have to travel east or west because of the economics of bridges so the few north south connections become congested. At the site scale integrating the site into these City systems is vital and the role of intensity and interconnectedness of the site further solidifies both the role the location of land use and the workable allowances of public and non developable space.

Seeing local type and adding value.
Not only at city/site scale and relationships but looking at what local entrepreneurs are able to achieve with the resource context the introduction of local typologies and space types or at least exposing Clients to the mechanis of your seeing and unpacking this is hugely useful. Learning from the Client and their own expeiance adds value to your understanding of the dynamics and typologies available as you assemble a locally appropriate set of tools for design and creation of sustainable development. In Nairobi the case of Ongata Rongai a linear activity spine that contains all the appropriate levels of activity mixed use and space for that to occur, not formally and thus an opportunity lost but the City (See Fig 6 below) .

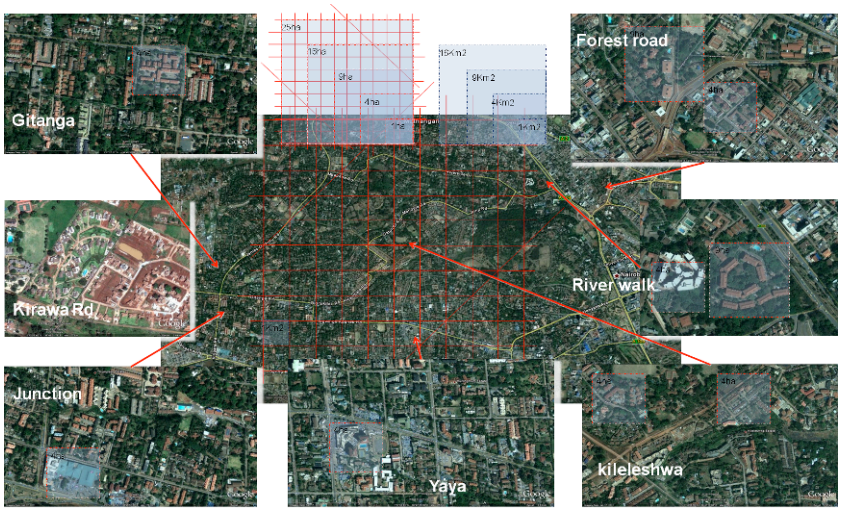

Fig 6. Analysis of size and type typologies to illustrate how other developers have delivered and what they are in relation to the Clients site scale

Context studies of how development is actually occurring in these cities, how entrepreneurs and developers get things done and what are the identifiable elements and how can they be made at scale. The building blocks to success and the targeting of the appropriate form and public space types for development in the area it is built.

This is Africa not Europe or North America. The question becomes what are these models of form and space. The value of any development is only enhanced by its positive impact on its context. To see any development site as only up to the boundary of its site is short sited. Developers who ignore context, ignore issues of city services/infrastructure provision fail to realise the full potential value of the land that is being developed. What are the public/city planning gain that developments need to consider, and how do cities build policy around these, these are questions that we need to be concerned about, and looking at the environment and putting it in front of clients is important..

HIDDEN DYNAMICS IN THE DEVELOPMENT PROCESS

It is identifying, acknowledging and managing these that the risk of failure in large developments can be reduced, and value gained. It is in the interests of all participants in the development process that procedure to acquire development rights, access to upfront development preparation and implementation of infrastructure finance is available, and professional teams with the correct skills can be assembled. It is important that educational institutions training professionals local are skilling them to take on this challenge. Typically from our experience these fall into three basic areas, being;

Institutional structures and processes

Authorities who have control over the development applications that will put in place the rights that you are seeking for your client. All over Africa and Kenya is not different the professionals working in these institutions face challenges that I would not take on in terms of internal political and bureaucracy. And then thay have to do their work and deal with the demands of manageing a City's development. So there are issues of professional respect and in worst cases entitlement to seeking reward for favour. Knowing this an element of understanding and the seeking of common ground outside of the development application i.e. being human is a good strategy and building a relationship over the couse of the project so all know where and what the trades offs and issues are. Understanding that you are participating in the building of a City.

Development delivery vehicles

Structures that put in place for financing, implementing and managing large scale developments during and after construction. These neeed to be part of the development of the design as they are the instruments that will get you the qulity of product on the ground that you are designing on paper so if they are not part of the process the wheels could com off you work before it becomes a reallty. So agin integration of the implementation structures.

The built environment professionals

Teams of professionals brought together to conceive, plan, design and supervise construction of large scale developments, need to be on the same page make the Engineers QS, your friend. Help them find skills they need n terms of your experience with sustainability. Have to work against team members in a process dose no one any good.

Although our work experience has shown the complexity of making cities more sustainable, just from the point of view of what the concequences are and that we are accountable to the City for our efforts in the built environment, the key thing we are trying to identify in sharing this experience is being open to seeing patterns people and always remember every single team member knows something you do not never discount them or their value. Trade-offs and a number of potential ways of getting there. The important point is to approach the problems in an inclusive and integrated way, to work in partnership across boundaries and disciplines, and tackle the issues of social,economic and environmental sustainability in an imaginative way

PROCESS AND PRODUCT

In Kenya we have developed a particular process and product system to delivery on what is called Master Planning work although we prefer to think of it as spatial framework and Urban Design mixed to produce development planning tools for our clients. The process is the development of a package of plans through the assembly of a multidisciplinary team that takes each step from concept to full set of plans through a series of Client, professional team and stakeholders workshops or charretes and these then form the basis of the package. We have developed in Revit a platform that creates these plans to which we ad presentations which are our reports.. This allows us to provide a way of integrating our planning ork into the City structure in an integrated way hopefully benefitting our client and the City. This integration is deep as it includes taking with us a multidisciplinary team and their constructive input in the integrated design process. Below is a series of sheets that make up the product.


C o n t e x t a n d R o l e
Client's Brief
Metro 2030 Vision
City Planned Infrastructure
Urban Pattern of City Growth
Metro Spatial Development Framework Policy
metropolitan
Regional
Neighbourhood
L o c a l P r e c e d e n t s / T y p o l o g i e s S t u d i e s
Lenana Forest View Apartments
The Estates
Eve Gardens
80 Dwellings per Hectare
5 Dwellings per Hectare
5 Dwellings per Hectare
RETAIL / westgate mall
LAND USE: Retail (Shopping Mall)
GC: 60%
PR: 1.8
HEIGHT: 3 storeys
STAND SIZE: 19550sqm / 1.9Ha / 4.8acres
BUILDING FOOTPRINT: 11950sqm (estimate)
BULK AREA: 35850sqm (estimate)
LAYOUT PLAN
S i t e A n a l y s i s a n d C o n c e p t D i a g r a m
S i t e A n a l y s i s
C o n c e p t D i a g r a m
C o n c e p t D e v e l o p m e n t o f t h e M a s t e r p l a n
I n t e g r a t i o n o f S p e c i a l i s t s S t u d i e s

Integration of Specialists Studies

City Planner ⟷ Land Surveyor ⟷ **Engineering Services**
- Geotechnical report
- Traffic Impact Assessement
- Roads / Stormwater
- Sewerage
- Potable Water
- Electricity

⟷ Quantity Surveyor ⟷ Market Research

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Overall Masterplan and Vision of the Development

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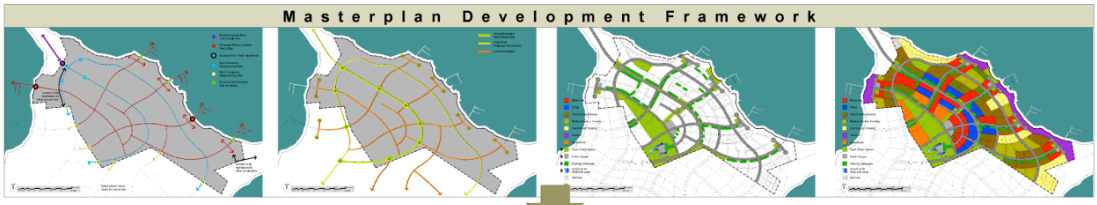
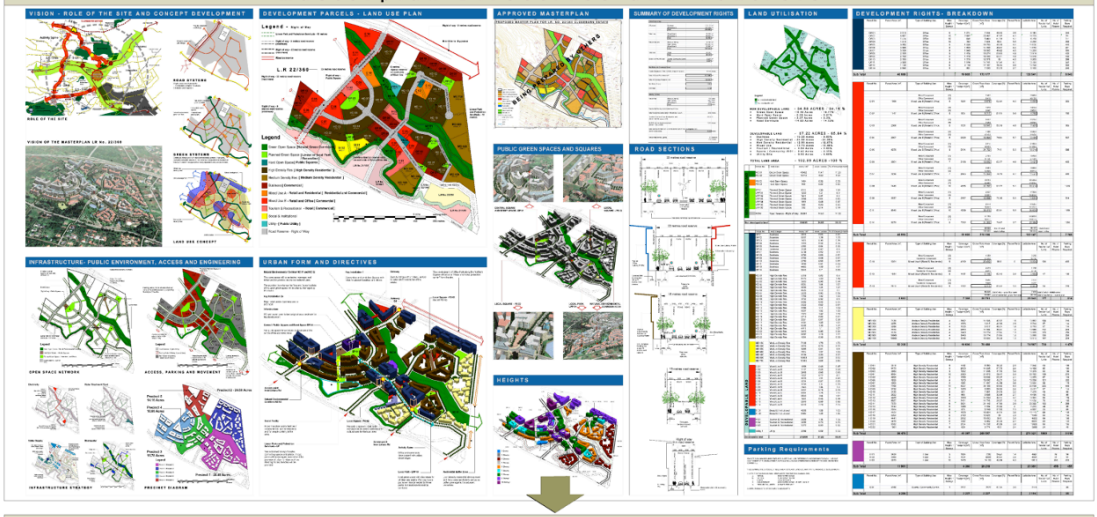
Masterplan Development Framework

Masterplan Development Framework



Masterplan Directives and Controls



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Statutory Process - Planning and Environmental Engineering

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