Durban City Report

By Catherine Sutherland, Glen Robbins, Dianne Scott and Vicky Sim

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1 Introduction

The eThekwini Municipality which administers the city of Durban[1], has a population of approximately 3.6 million people, which is one third of the population of the province of KwaZulu-Natal. The population is expected to increase to 4 million people by 2020 (eThekwini Municipality, 2012). The city has a very young population with the majority being comprised of the 15-34 year age group. It has a prominently African population (71%), followed by the Indian (19%), white (8%) and coloured communities[2] (2%)

(eThekwini Municipality, 2012a). The majority of Durban residents live in the central urban core (36% of the population) and the north region (32% of population) (see Figure 1). The city has high levels of poverty, with 41.8% of the population subject to conditions associated with poverty, and low economic diversity. The city therefore faces significant socio-economic challenges (eThekwini Municipality, 2012a). The spatial form of Durban is economically challenging as there is a clear separation of residential uses from economic activity which means that in most areas people do not live where they work[3]. The eThekwini Municipality, as with all development spaces in South Africa, has to balance the more dominant neo-liberal pro-growth agenda with the poor-poor agenda. The spatial

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1   The city is known as Durban, and the local government that administers and manages it is known as the eThekwini Municipality. The spatial area and boundaries of Durban and eThekwini Municipality are therefore the same (Roberts, pers comm. 05/07/2013).

2   The term Black in this report refers to the African, Indian and coloured communities who all suffered the injustices of the apartheid regime.

3   There are some exceptions to this spatial division of home and work, namely the South Durban Basin and the Upper Highway area.

structure of the city, which is fragmented and reflects a pattern of sprawl, is a major obstacle to achieving sustainable, efficient and equitable development.

The relatively unique spatial geography of the eThekwini Municipality has had, and continues to have, a significant impact on the planning, development and management of the city. The city contains a dense urban core and a less dense rural periphery (see Figure 2). During the apartheid era the homeland of KwaZulu was located adjacent to the Durban Metropolitan Area (DMA), creating a dense area of rural households on communal land under Traditional Authority which was located adjacent to the urban core and provided a source of labour for the city. In 2000, as part of the Municipal restructuring process (in terms of the Municipal Demarcation Act, 1998) the land area of the city was increased by 68% as the large rural hinterland on the boundary of the DMA was incorporated into the administrative boundary of the eThekwini Municipality (see Figure 4).

Figure 1: The spatial regions of the eThekwini Municipality
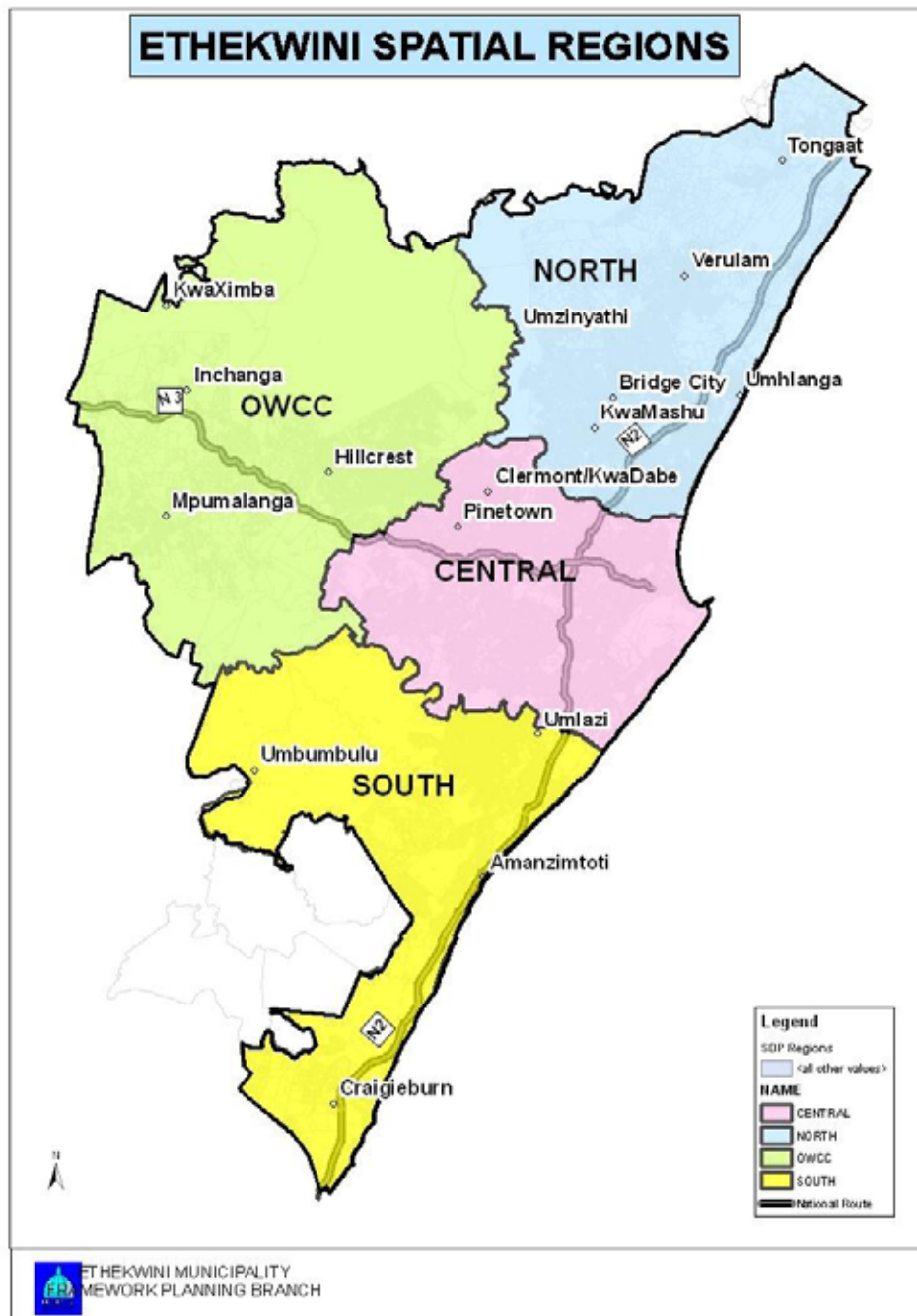
Source: eThekwini Municipality (2012a)

Figure 2: The different settlement areas within the eThekwini Municipality
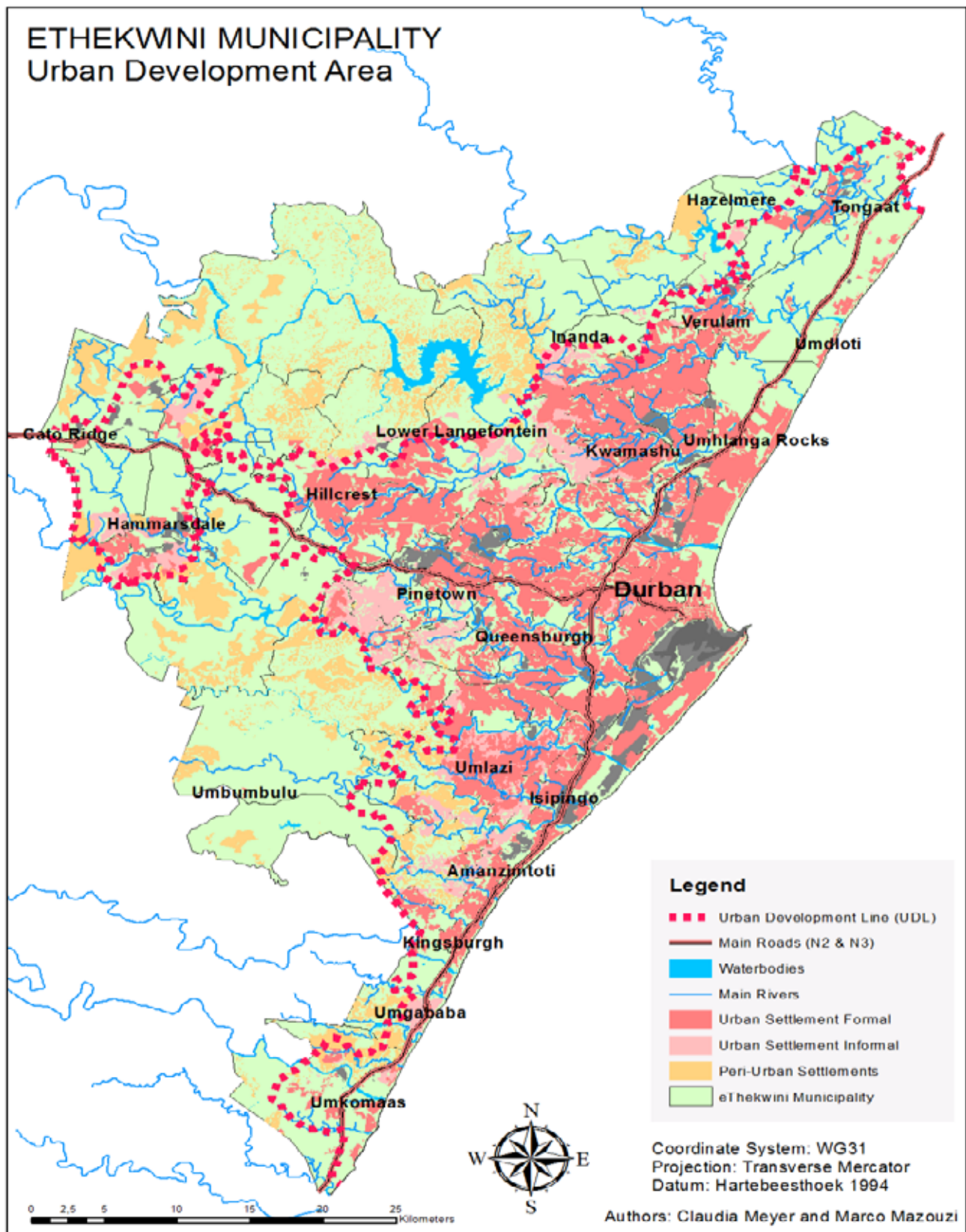
Source: Meyer (2013)

Figure 3: A schematic representation of the different zones within the city
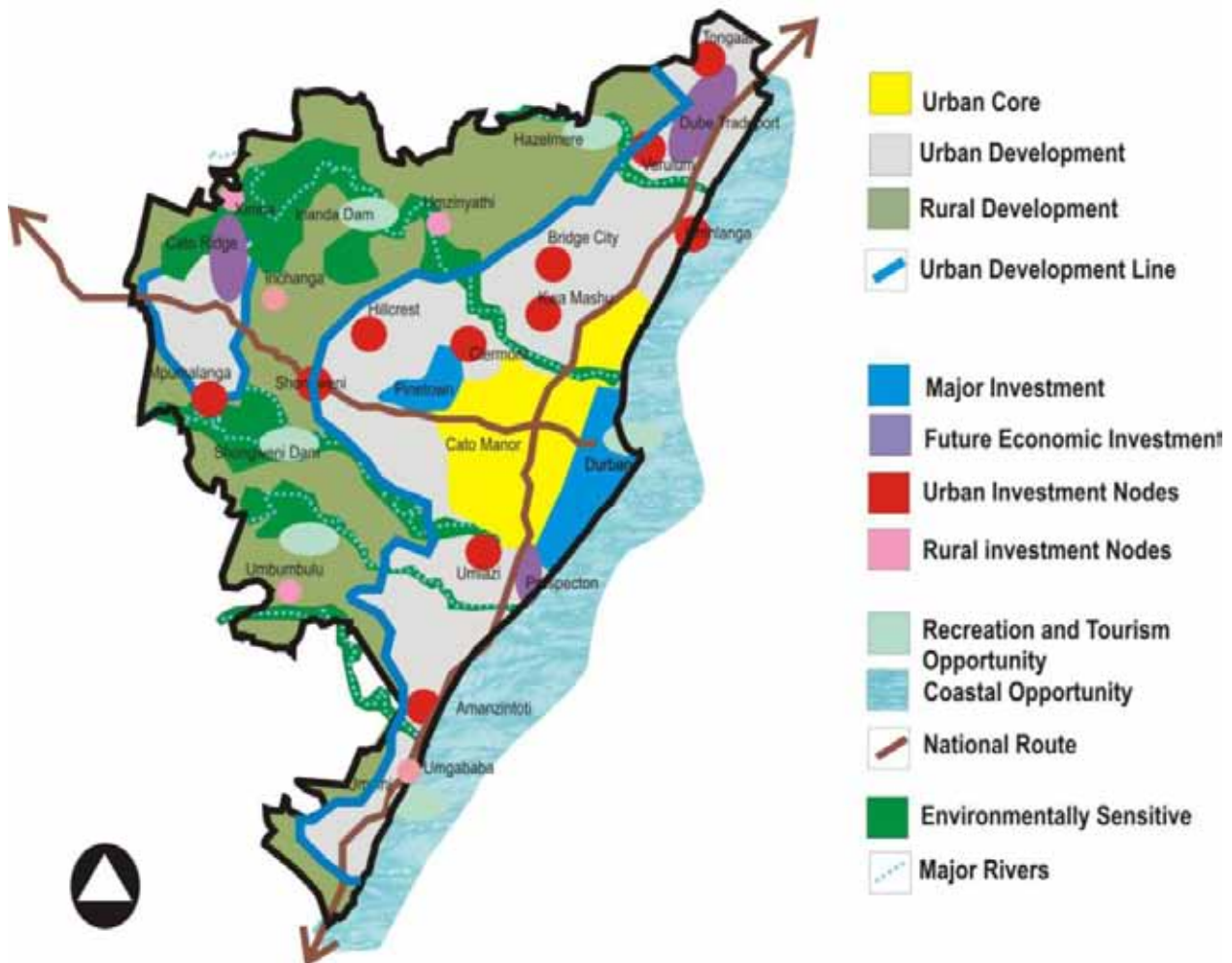
Source: eThekwini Municipality (2012)

This raises significant challenges for the city, many of which relate to what it means to be „urban", in a city that contains urban, peri-urban and rural ways of life (Sutherland et al, 2013). Planning and development in the city is currently informed and shaped by the Urban Development Line (UDL), which marks the outer edge of waterborne sewerage provision, and which demarcates the urban development zone from the rural development zone (see Figure 2 and Figure 3). The rural periphery of the Municipality is also an ecological buffer for the city and it is also the space where most of the greenfields development is located, which makes it a highly contested space which is critical to the future development of the city.

Figure 2 reflects the spatial geography of the city, including the different types of settlement within the city and Figure 3 presents a schematic representation of these zones.

Citizens of Durban retain strong linkages to the rural areas of South Africa (most notably rural KwaZulu-Natal and the Eastern Cape), with many residents identifying „home" as their original home in the rural areas. This link creates a pattern of circular migration where people move between the rural areas and the city (Posel and Marx, 2013). This type of population movement is still evident in post-apartheid South Africa and has impacts on the nature of urban life, as many urban residents consider their urban „homes" as a temporary space in which they live while they work, investing the greatest amount in their rural homes where their parents and often their children live (Posel and Marx, 2013). A new pattern of urban development is rapidly emerging in the Municipality as wealthy and middle class residents move out of existing townships[4], such as Umlazi and KwaMashu, and build large houses in the rural periphery where land is cheap and available, services are

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4   The townships were large dormitory settlements that were created to house African, Indian and coloured people in urban areas under the Group Areas Act (1950) during the apartheid era.

often free, and residents can live a rural lifestyle while benefiting from urban opportunities (Mbatha and Sutherland, 2013). These two patterns of movement change the nature of commitment to „the urban", and have impacted on how poor, middle class and wealthy residents engage with urban life.

The city is shaped by the strong political alignment between national, provincial and local government all of which are ANC dominated. This creates a stable political frame for the city, unlike the City of Cape Town which is a DA5[5] led city in a DA led province, creating the only space in the country that is not dominated by the ANC. In eThekwini Municipality, as in other ANC dominant local, provincial and national government, the party is increasingly conflated with the state, which defines the nature of politics in the city and the form of decision making. The impact of this conflation is evident in the research that has been conducted for the Chance2Sustain project.

This research reveals that currently, the governance regime shows that Durban can be defined as a „technical city" due to the strong and influential ITC-GIS system and officials in the Municipality who have ensured that technical knowledge production, operation and management of the city has been developed and maintained. Decision making in the city, which is undertaken by politicians, is shaped by strong technical and spatial knowledge which is produced by officials. This has enabled the city to follow a relatively

progressive path in service delivery, and to address its pro-poor goals. The development of this knowledge base in the post-apartheid city, and the strong technical focus of certain sectors of the city, most notably Engineering Services, appears to have been an important step in addressing poverty in the city. However, public participation has been relatively weak in most sectors in the Municipality and the politics of decision making on the ground at community level, has often been „rendered technical" so as to ensure a certain level of delivery, whether it be pro-growth megaprojects or service and housing provision. eThekwini Water and Sanitation, as this research reveals, has a strong commitment to public participation related to water which is controlled by the Municipality and informed by the technical, evidence based policy making approach adopted by this Unit. At the same time there is strong concern that many development decisions in the city have also been rendered „political". The strong influence of party politics on decision making is having a significant impact on development from the strategic level right down to development on the ground. All development decisions are political, however, in the case of eThekwini Municipality, the politicisation of decision making is directly linked to party politics and this is challenging the „technical" management of the Municipality, as political decisions are not always based on well informed scientific knowledge. ITC-GIS plays an important role in drawing decision making back from the political towards technical, defendable decisions. However, this research, confirms evidence from other research, that at all levels in the Municipality, from the strategic to the community level, there are concerns about the politicisation of decision making.

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5   The Democratic Alliance (DA) is the official opposition party in South Africa.

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Context of Urban Governance in Durban

2.1. Levels of Government and Territorial Jurisdictions Involved in the City Region

South Africa has a three-tier system of government, i.e. national, provincial and local spheres of government, which are defined in the SA Constitution as „distinctive, interdependent, and interrelated" (SA Constitution, 1996, s. 40(1)). Table 1 below illustrates the division of powers and functions between the three spheres of government. In general terms, national government is responsible for

high level security functions, economic regulation and social development; provincial government for regional economic planning, housing, environmental management, rural livelihoods and human development; and local government for basic service provision (which links closely with housing) and for creating an enabling environment for local business (South African Cities Network, 2006).

The relationship between these three spheres of government is based on a system of co-operative governance defined in the Constitution. Co-operative governance requires that each sphere respects the powers

Table 1: The powers and functions of the three spheres of government

Sphere	Security	Social Services	Built environment	Business support
National	Security services (SA Police Service and National Defence Force). National Disaster Management.	Payment of social security grants (SASSA). National health services such as laboratories and mortuaries. Agricultural services and veterinary services. Tertiary education and early childhood education. Land restitution and deeds registration. National parks and conservation.	Strategic infrastructure (including large dams, ports, public transport projects, presidential lead projects, etc.). National roads. Railways (freight, long distance and commuter rail services). Electrificiation.	International trade. Revenue administration. Public expenditure planning. Public finance management and fiscal policy management. Funding and oversight of science councils. Telecommunication infrastructure. International marketing.
Provincial	Road traffic law enforcement.	Sports and culture. Social development. School education. Public health services. Provincial parks and development. School education. Public health services. Provincial parks and conservation.	Housing provision. Provincial roads, subsidised bus services. PT operating license regulation and vehicle and driver licensing.	Economic development planning. Regional marketing. Environmental regulation.
Local	Metro policing. Safety by-law enforcement.	Municipal health clinics. Environmental health by-law enforcement. Libraries.	Electricity distribution, reticulation, billing and administration. Municipal roads. Municipal bus services. Public transport interchanges and ranks. Water services. Sanitation. Waste management. Land use planning and management. Municipal housing administration.	Municipal property rating. Urban renewal. Local economic development.

Source: South African Cities Network (2006)

and functions of other spheres, cooperates with each other and coordinatese actions and legislation (SA Constitution, 1996, s. 41). Such co-operative relationships are critical to successful delivery of the country's social and economic development objectives. However, in reality poor intergovernmental co-ordination and co-operation hampers development. For example, although predominantly a local government responsibility, the built environment cuts across all three spheres. This can result in duplication and confusion about responsibilities (South African Cities Network, 2006; National Planning Commission, 2011). As argued by the National Planning Commission (2011: 244), "the current planning system has reified municipal and provincial boundaries making it almost impossible to undertake cross-border planning, or to secure collaboration between one province and another, or between municipalities". This is especially problematic in a development context as aspects such as the environment, transport and the economy extend beyond administrative municipal boundaries.

A critical challenge of the spheres of government, as defined in the Constitution, is that their respective powers and functions apply across the whole country regardless of vast differences in economic and social conditions in different localities. This is particularly problematic at a local level in more rural localities where municipalities lack the resources to adequately carry out their functions. Likewise at a metropolitan level, well-resourced municipalities are better placed to take on some provincial and even national functions which would enable them to deal with their more complex urban environments in a more holistic way (South African Cities Network, 2006). There is evidence that strong municipalities, such as eThekwini (Durban) and the City of Cape Town, have taken a lead role in certain sectors and competencies as a result of having greater capacity in these areas in comparison to the national level. Provinces do not have the capacity to adequately coordinate and manage key economic sectors that fall within their mandate, such as agriculture, tourism and environmental management, which has impacted on the growth of such sectors (National Planning Commision, 2011).

The SA Cities Network (2006) argues strongly for the devolution of specific powers related to the built environment to help local government meet its developmental agenda. This would involve expanding the role of local government to incorporate housing and transport functions not yet devolved. The Constitution already provides the legal mechanism to assign additional responsiblities to municipalities if such responsibilities were to be conducted more effectively at municipal level and if municipal capacity exists (SA Constitution, 1996, s. 156(4)). The devolution of such responsibilities and funding

allocations "will strengthen South African cities, giving them greater autonomy to deliver services efficiently and mobilise their own resources – within an enabling and supportive policy, legislative and fiscal framework" (South African Cities Network, 2006: 5-25).

The municipal landscape has changed dramatically in post-apartheid South Africa. The Constitution introduced a system of „wall-to-wall" municipalities, ensuring that the whole country (urban and rural, including the ex-homelands areas) falls under local municipal control. The Municipal Demarcation Act (No. 27 of 1998) served to redraw the boundaries of the local state in South Africa, creating administrative units combining previously well off areas with poorer township, informal and rural areas. Resources could in this way be pooled and then used for redistribution purposes.

Through the Municipal Demarcation Act, the country was spatially reorganised into three types of municipalities – metropolitan, district and local municipalities. Metropolitan municipalities have exclusive municipal executive and legislative authority in their respective areas. There are eight metropolitan municipalities, including Johannesburg, eThekwini Municipality (Durban) and the City of Cape Town. District municipalities and local municipalities share executive and legislative authority within each local area, with one district consisting of more than one local muncipality. The purpose of a district municipality is to ensure coordinated strategic planning and service provision within the local municipalities under its jurisdiction (South African Cities Network, 2011).

In the province of KwaZulu-Natal, the eThekwini Municipality, which covers the greater Durban area, is currently the only metropolitan municipality. There are 10 district municipalities and 45 local municipalities in the province.

The introduction of metropolitan scale government in the major cities in South Africa has had a significant developmental impact by creating opportunities for redistributive action by the local state across space from the base of a single city tax regime. This was aimed at ensuring that local state revenue that might be generated from commercial or higher income areas could be re-allocated to neighbourhoods without any significant local tax base. It also forced a much greater degree of coordination between fragmented local government units that had been operating in the past. A further motivation was to secure a greater degree of integration with peri-urban and surrounding rural areas by drawing them into city administration. Figure 4 shows how the boundary of the eThekwini Municipality (also called the Durban Metropolitan Area) was expanded in 2000 to incorporate a large rural

periphery, expanding the municipal land area by 68%, and increasing the population by 9.1 %.

Apart from the Municipal Demarcation Act, the most important pieces of legislation to influence the spatial layout, systems and structure of local municipalities are the Municipal Systems Act (No. 117 of 1998) and the Municipal Structures Act (No. 32 of 2000). The Municipal Structures Act served to put in place a governance system for the new municipalities and a process for the election of political representatives who would represent urban citizens at the ward level, through elected councillors and ward committees.

The Municipal Systems Act provided the framework for municipalities to perform their social and economic developmental role as outlined in the Constitution. In fact „developmental local government" was the central idea behind the creation of large metropolitan municipalities in the 1998 White Paper on Local Government (South African Cities Network, 2011). In the White Paper this important principle of „developmental local government" was defined as „local government committed to working with citizens and groups within the community to find sustainable ways to meet their social, economic and material needs and improved the quality of their lives" (Department of Local and Provincial Government, np). The White Paper provided three main reasons for the creation of metropolitan governance:

- to promote a more equitable distribution of resources across the major cities (the principle of one city, one tax base);

- to promote spatial integration through strategic planning and co-ordinated investment in physical and social infrastructure across functional economic areas;

- to develop coherent policies to improve the economic performance of metropolitan cities in view of their national economic importance and the dangers of divisive competition between separate municipal administrations (South African Cities Network, 2011).

2.2. Strategic Plans/Processes at the Macro-Regional/ Metropolitan, Provincial and District Level

The main strategic planning instrument for „developmental local government" is the Integrated Development Plan (IDP) as required by the Municipal Systems Act (Act No. 32 of 2000, s. 25). The IDP is a single,

cross-sectoral plan intended to integrate and co-ordinate all developmental activities and associated budgets within the Municipality. The IDP includes a Spatial Development Framework which must reflect the desired spatial form of the municipality, address spatial reconstruction of the city, provide strategic guidance with respect to the location and nature of development, provide land use management guidelines and contain a strategic assessment of the environmental impact of the framework (Municipal Planning and Performance Regulations, 2001). The IDP should be compatible with national and provincial development plans.
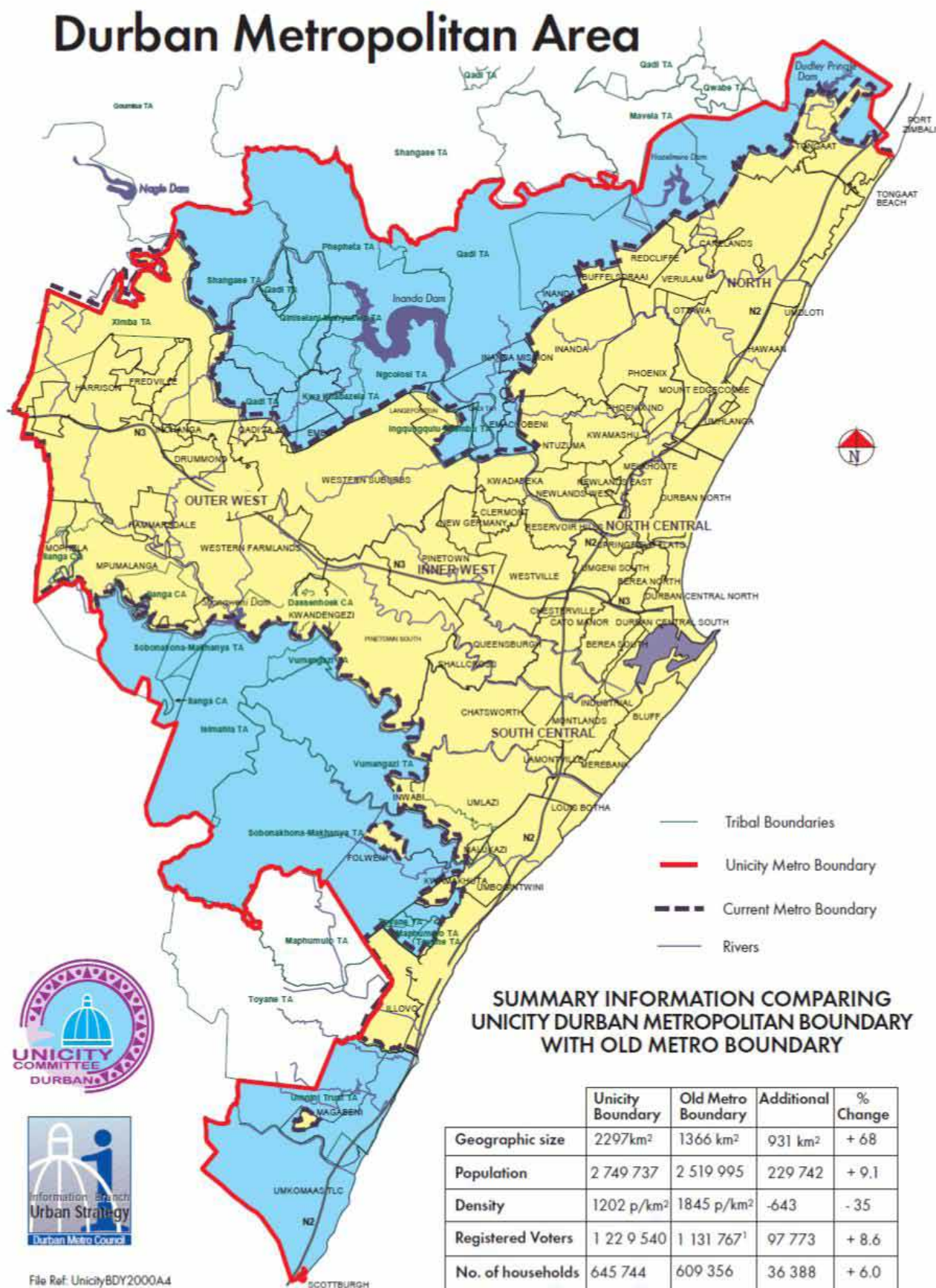
Since the establishment of the new metropolitan boundary in 2000, the eThekwini Municipality has consistently produced an Integrated Development Plan every year, which is based on a five year development cycle reviewed annually. The IDP contains the city"s development vision, strategic approach and plans and programmes that cut across eight different sectors and which are directly linked to the city"s budget. The city prepares a separate Service Delivery and Budget Implementation Plan (SDBIP) as the implementation tool of the IDP, as stipulated in the Municipal Finance Management Act of 2003.The Spatial Development Framework is part of the IDP"s Plan One: Sustaining our Spatial, Natural and Built Environment (discussed in more detail below).

The production of the IDP, which involves an annual review, is managed by the eThekwini Municipality"s Corporate Policy Unit (CPU). The process does attempt to involve the local citizenry through a process of consultation. The Municipality submits an IDP Process Plan to the provincial Department of Cooperative Governance and Traditional Affairs (COGTA) which outlines the iterative and consultative process it follows for the annual IDP review (eThekwini Municipality, 2012a). The stages in the 2013/14 IDP review process are summarised in Table 2 below. Approximately R1.3 million is spent on the review process of which the majority is spent on public participation.

In this last review process, the Municipality used the Mayoral imbizos held in some regions of the city to identify key issues raised by communities to feed into the early phases of the IDP process, instead of a consultation process devoted solely to the IDP review. A combined approach was also used to present the draft IDP at public meetings held in each of the city's 17 zones[6] in March 2013. The IDP and city budget were presented together by the City Manager, Deputy City Manager and Heads of Departments in both

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6   Initially 17 zones were demarcated, each being a cluster of wards. Recently, the zones have been restructured to consist of 24 zones (Breetzke, 19 April 2013).

Figure 4: Durban Metropolitan Area – comparing old with new boundary

Durban Metropolitan Area

SUMMARY INFORMATION COMPARING UNICITY DURBAN METROPOLITAN BOUNDARY WITH OLD METRO BOUNDARY

	Unicity Boundary	Old Metro Boundary	Additional	% Change
Geographic size	2297km²	1366 km²	931 km²	+ 68
Population	2 749 737	2 519 995	229 742	+ 9.1
Density	1202 p/km²	1845 p/km²	-643	- 35
Registered Voters	1 22 9 540	1 131 767¹	97 773	+ 8.6
No. of households	645 744	609 356	36 388	+ 6.0

Legend:
- Tribal Boundaries
- Unicity Metro Boundary
- Current Metro Boundary
- Rivers

File Ref: UnicityBDY2000A4

Source: Durban Metropolitan Council (2000)

Table 2: IDP review process 2013/14

Month	Actions
July 2012	Process plan submitted to provincial department COGTA.
July 2012	Process plan advertised
July 2012	English and isiZulu versions of 2012/13 IDP and summary printed and distributed
July & Aug 2012	Zonal public participation
August 2012	Strategic Issues Workshop with senior municipal officials
September 2012	Alignment with Budget, Annual Report and Performance Management
September 2012	First draft 2013/14 IDP prepared based on Strategic Issues Workshop
October 2012	Draft 2013/14 IDP presented to Deputy City Managers Forum, Executive Committee and full Council
November 2012	Strategic Workshop with Plan owners (i.e. city departments responsible for 8 strategic plans in IDP)
December 2012	IDP Best Practice Conference
December 2012/ January 2013	Second draft 2013/14 IDP prepared by CPU and Plan owners
February 2013	Third draft 2013/14 IDP based on public comment received from public participation
March 2013	Advertise third draft for public comment
March 2013	Third draft 2013/14 IDP tabled at DCM Forum, EXCO and Council for noting
March/April 2013	Third draft 2013/14 IDP submitted to provincial Department of COGTA for assessment
April 2013	Sector Forums with National and Provincial Sector Departments
April 2013	Present Third Draft 2013/14IDP /PMS/Budget at Cluster and Regional Hearings
May 2013	Prepare Fourth Draft 2013/14 IDP based on public comment from Cluster and Regional Hearings and COGTA assessment
May 2013	IDP Festival
May 2013	Fourth Draft 2013/14 IDP tabled at EXCO, then Council for adoption.
	Summary of approved 2013/14 IDP prepared in plain English and isiZulu.
June 2013	Approved 2013/14 IDP submitted to MEC, COGTA.

English and isiZulu. By combining the IDP and budget, the process has been much more successful as communities are able to see the link between the needs identified in the IDP and how the city intends to respond in each region, in terms of projects identified over a three year period (Puven Akkiah, 2013, pers.comm.)

Apart from these regional meetings, the city is also holding presentations of the draft IDP with specific interest groups including faith-based and civic organisations. The draft IDP was also presented quite early on to the Chamber of Commerce for their input. In May 2013 there will be a presentation of the City Strategy which is included in the IDP to residents, similar to the Big Mama IDP workshops held in the past, which will be advertised in the local media and the city's bi-monthly newspaper.

The current draft 2013/14 IDP is structured into four main sections: Situational Analysis, IDP Strategic Approach, The Eight Point Plan, and Implementing the IDP. With the exception of the situational analysis in the first section, the IDP has maintained this format over most of

the past decade. The section on the IDP's strategic approach indicates how the city intends to translate it long term 2030 development vision into an effective plan that achieves the five year targets set out in the IDP. This section details the city vision, the key development challenges faced by the city, the city's strategic focus areas and development principles (framed from a sustainability perspective), and identifies the city's strategic projects for 2013/14 and beyond (eThekwini Municipality, 2013).

An interesting shift in the IDP's strategic approach since the 2011/12 IDP is how it is starting to reflect back on international, national and provincial strategic imperatives. In earlier versions of the IDP this broader strategic context was lacking. The specific policies that underpin the city's strategic approach include the Millennium Development Goals, the National Development Plan (2011), Service Delivery Agreement Outcome 9[7], National Government Programme of Action 2009 – 2014, the Provincial Growth and Development Strategy and Provincial Government Priorities, along with the city's own internal strategic policies (see Table 3 below).

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[7] Aimed at ensuring 'a responsive, accountable, effective and efficient local government system' (eThekwini Municipality, 2013:47).

Table 3: Strategic policies underpinning the city's IDP

(Red: international; orange: national; pink: provincial; green: local)

Source: South African Cities Network (2006)

The city's vision as follows, is "By 2030, eThekwini will enjoy the reputation of being Africa's most caring and liveable City, where all citizens live in harmony", and has remained the same over the past decade with the exception of the timeframe (previously 2020). It has been changed to 2030 to align with national and provincial strategies. The 2013/14 draft IDP lists 14 key development challenges to achieving its vision as shown in Table 4 below. Earlier versions of the IDP listed only eight challenges but since the 2011/2012 IDP, a number of additional challenges have been included reflecting a stronger focus on broader sustainability issues beyond predominantly social and economic challenges. The 2013/14 draft IDP then goes on to unpack six strategic priority areas: creating sustainable livelihoods, a socially cohesive city, a financially sustainable city, creating a safer city, promoting an accessible city and an environmentally sustainable city.

The city's programmes and projects are outlined in the IDP's Eight Point Plan divided into the following focus areas:

- Plan One: Develop and sustain our spatial, natural and built environment
- Plan Two: Developing a prosperous, diverse economy and employment creation
- Plan Three: Creating a quality living environment
- Plan Four: Fostering a socially equitable environment
- Plan Five: Creating a platform for growth, empowerment and skills development
- Plan Six: Embracing our cultural diversity, arts and heritage
- Plan Seven: Good governance and responsive local government
- Plan Eight: Financially accountable and sustainable city

The city's Spatial Development Framework (SDF) is situated within Plan One. It provides a spatial image of how the municipal area should be developed as envisaged by the IDP over the long term (20+ years). The SDF is the city-wide plan in the municipal hierarchy of plans (see Figure 5 below).

The SDF is informed strategically by the Long Term Development Framework (eThekwini Municipality, 2001) and the more recent Long Term Plan (eThekwini Municipality, 2010a) and the IDP. More detailed spatial planning at the level of the Spatial Development Plan8 (SDP) and Local Area Plan (LAP) informs the SDF from below as part of an iterative process. The preparation of the SDF in eThekwini has been an internal process of

development by the city planners, based mainly on what has emerged from the Spatial Development Plan (SDP) processes. The city has prepared four SDPs that cover the full extent of the city. These too have mostly been developed through internal processes by the city planners in collaboration with other city departments (particularly the engineering services departments) and in some cases guided by an external planning consultant. There has been some public engagement towards the end of these SDP processes, but this has not led to any major changes to the content of these plans.

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Table 4: Key development challenges identified in the eThekwini IDP

IDPs prior to 2011/12	IDP's 2011/12 and onwards
Low economic growth and high rate of unemployment	High rates of unemployment and low economic growth
Relatively high levels of poverty	High levels of poverty
Access to basic household and community services not optimal	Limited access to basic household and community services
Low levels of literacy and skills development	Low levels of skills development and literacy
Sick and dying population affected by HIV/AIDS	Increased incidence of HIV/AIDS and communicable diseases
Exposure to unacceptably high levels of crime and risk	High levels of crime and risk
Many development practices still unsustainable	Unsustainable development practices
Ineffectiveness and inefficiency of inward-looking local government still prevalent in the municipality	Ineffectiveness and inefficiency of inward-looking local government still prevalent in the Municipality
	Loss of natural capital
	Ensuring adequate energy and water supply
	Ensuring food security
	Infrastructure degradation
	Climate change
	Ensuring financial sustainability

Source: eThekwini Municipality, 2010a; eThekwini Municipality, 2013

Municipality, 2010a) and the IDP. More detailed spatial planning at the level of the Spatial Development Plan[8] (SDP) and Local Area Plan (LAP) informs the SDF from below as part of an iterative process. The preparation of the SDF in eThekwini has been an internal process of development by the city planners, based mainly on what has emerged from the Spatial Development Plan (SDP) processes. The city has prepared four SDPs that cover the full extent of the city. These too have mostly been developed through internal processes by the city planners in collaboration with other city departments (particularly the engineering services departments) and in some cases guided by an external planning consultant. There has been some public engagement towards the end of these SDP processes, but this has not led to any major changes to the content of these plans.

The SDF's spatial vision is „a socially equitable, environmentally sustainable and functionally efficient municipality that bolsters its status as a gateway to Africa

8   The city is divided into four SDP areas – North, Central, South and Outer West.

and the world" (eThekwini Municipality, 2013: 68). This vision is supported by the following development principles: promoting spatial concentration/efficiency; enhancing economic potential, co-ordinated planning and implementation; mainstreaming and coordinating environmental planning; and promoting balanced and sustainable urban and rural development. The SDF's spatial vision and principles were informed by the IDP, the Provincial Growth and Development Strategy (KwaZulu-Natal Planning Commission, 2011) and the National Development Plan, Vision for 2030 (National Planning Commission, 2011).

A review of the how the city's SDF has changed over the past decade provides an interesting study of the influence of external political forces as well as the city's internal SDP process in reshaping the spatial structure of city planning. The city's first SDF (see Figure 6) which was formulated in 2002 by the city's Urban Strategy Department, with input from the planning regions, remained fairly fixed for several years until 2008. The main conceptual components of the SDF were the central urban core (focusing on the port, CBD and the original municipal areas of Durban and Pinetown),

Figure 5: The city's hierarchy of plans

Source: eThekwini Municipality (2013)

surrounded by an urban periphery (predominantly comprising the townships) and then an extensive rural/ peri-urban hinterland, much of which was not part of the municipal area until 2000. In the north of the city, the economic node of Umhlanga was given status as a major economic investment node, although located outside of the urban core. This reflected the influence of the private developer Moreland that developed the Umhlanga New Town Centre from the late 1990s, and which stimulated the flight of corporates from the CBD to the north.

The principles of densification and the compact city were strong influences in this first SDF, linked with perhaps its most contentious concept, the urban edge. The urban edge did not in fact define the edge of urban or suburban development, but was in fact a „services edge" indicating the city"s lack of support for providing new services infrastructure (particularly waterborne sanitation) beyond this line, in the interests densifying the city. The urban edge was used by the city to argue against development proposals submitted for new predominantly suburban residential development beyond it, especially in the northern and western parts of the city. Although a planning concept, the urban edge was strongly supported by the city"s Water and Sanitation Unit, as it reinforced their efforts to optimise the use of existing wastewater treatment capacity within more centrally located treatment works in the city before incurring substantial expense in constructing new treatment works on the outskirts of the city.

In 2008, the revised SDF indicated a shift since 2002, by prioritising growth to the north of the city beyond the urban edge (see Figure 7). In the intervening years, pressure had been mounting in the city from the private sector and from national and provincial government for this shift. Ultimately, it was the provincial and national government approval in 2007 of the mega-project comprising of the new international airport and Dube Tradeport north of Umhlanga that cemented the shift to the north (despite the efforts of the City Manager and city planners to contain city growth). In the 2008 SDF, the urban edge is still in place but the large arrow on the map in the north indicates the impending policy change, with the words „investment direction subject to servicing and phasing limitations". Again the limits of sanitation infrastructure are evident. Other changes in the 2008 SDF are that the concept of urban periphery is now termed „suburban" and beyond the urban edge „suburban infill".

By 2010, the new international airport had become a reality in time for the 2010 World Cup, and the northern

growth trajectory of the city was clearly evident in the 2010 version of the SDF (see Figure 8). The concept of the urban edge was discarded in favour of a new concept, the Urban Development Line (UDL) (see dark blue line on 2010 SDF). This concept emerged from the Northern Development Plan which had been in the making for several years and which was completed in 2008. The Northern Development Plan was largely an internal process led by the city"s Framework Planning Branch in consultation with the city"s engineering services departments, and supported by an external planning consultant, Tony Markewicz. Some of the planning concepts introduced by Markewicz in the Northern Development Plan, specifically the UDL and the development phasing line, were then applied by the city planners to the rest of the city in the revised 2010 SDF. The UDL is defined by the city in the 2010/11 IDP as:

"a concept used to not only demarcate the extent to which urban development will be permitted to establish within the metropolitan area in the long term, but more specifically to promote a more convenient, efficient, equitable and sustainable settlement form … the line indicates the outer limit to which urban development will be restricted … The UDL implies that there is a rural periphery … that is different in character and which has different servicing needs and servicing constraints, and which supports different lifestyles. … . Within the UDL, the development phasing line demarcates the interim spatial limit to which development will be allowed in accordance with infrastructure availability and capacity" (eThekwini Municipality, 2010a: 23).

Through the UDL, the 2010 SDF defines large areas previously defined as suburban, peri-urban and rural in the earlier SDFs as urban. This new urban area includes the northern areas surrounding the new international airport right up to the city"s northern boundary, the greater Hillcrest area in the Outer West, leapfrogging over to the Cato Ridge/Mpumalanga area in the Outer West, and extending further south around Umkomaas. The UDL therefore recognises the existing residential development in these areas previously shown as rural. A new land use Future Rural Residential is another change to the 2010 SDF and includes areas south west of Umlazi township and north west of Inanda/Ntuzuma. The 2010 SDF is therefore more realistic in terms of the development that already exists and well as recognising the development pressures for housing in the rural areas. Dube Tradeport is now accorded the status of an economic investment node.
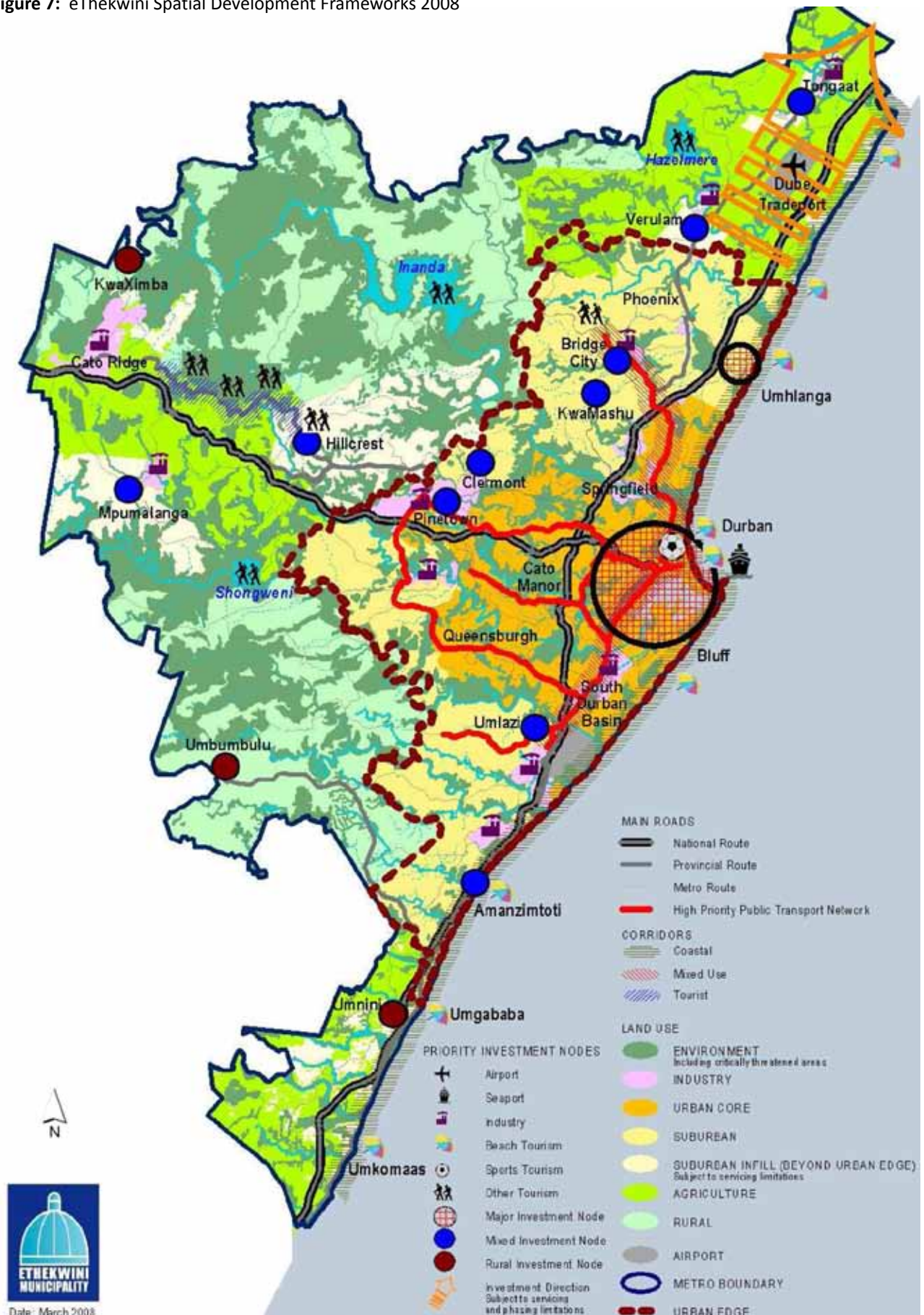
Figure 6: eThekwini SDF 2002-2007
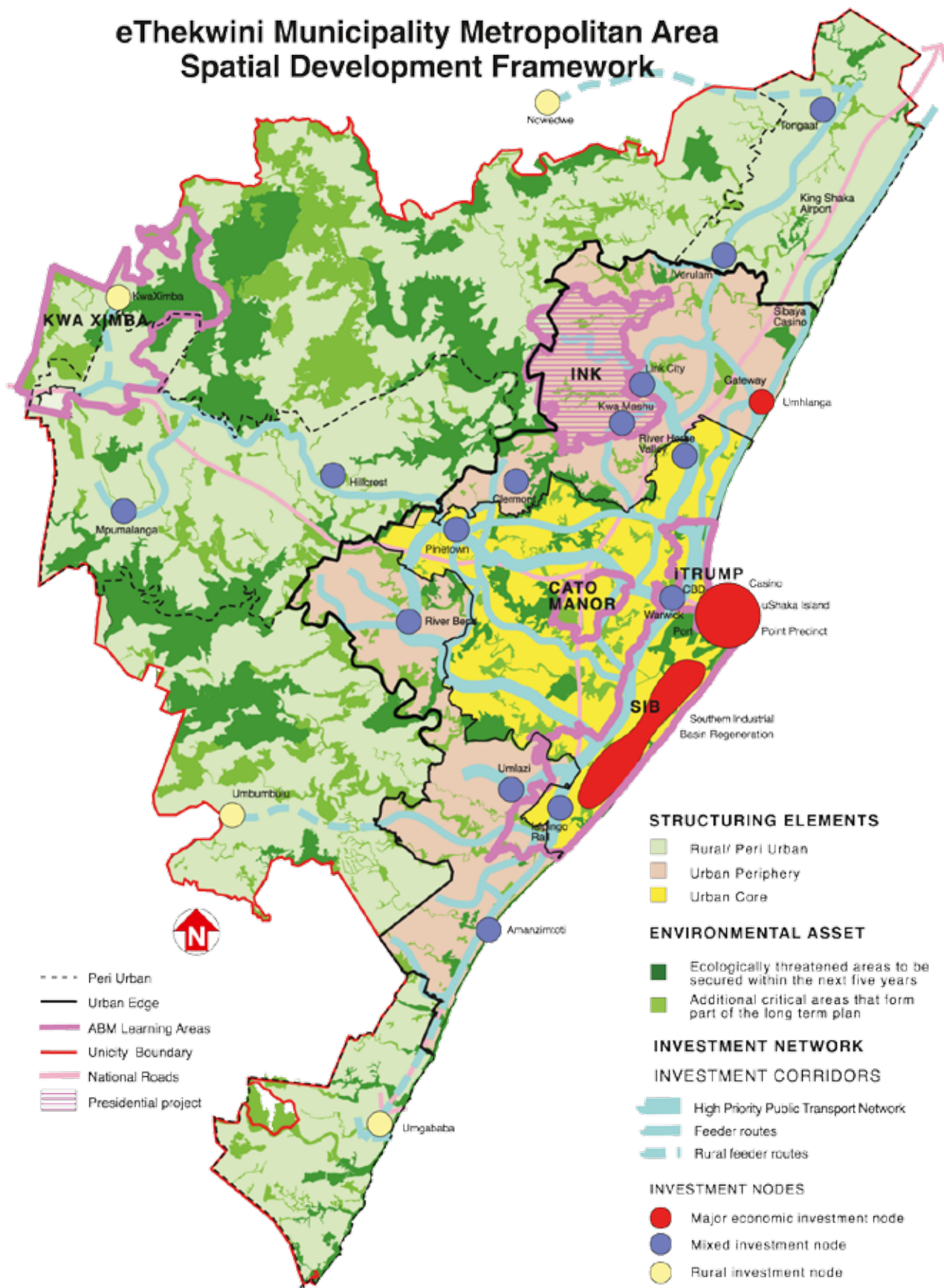
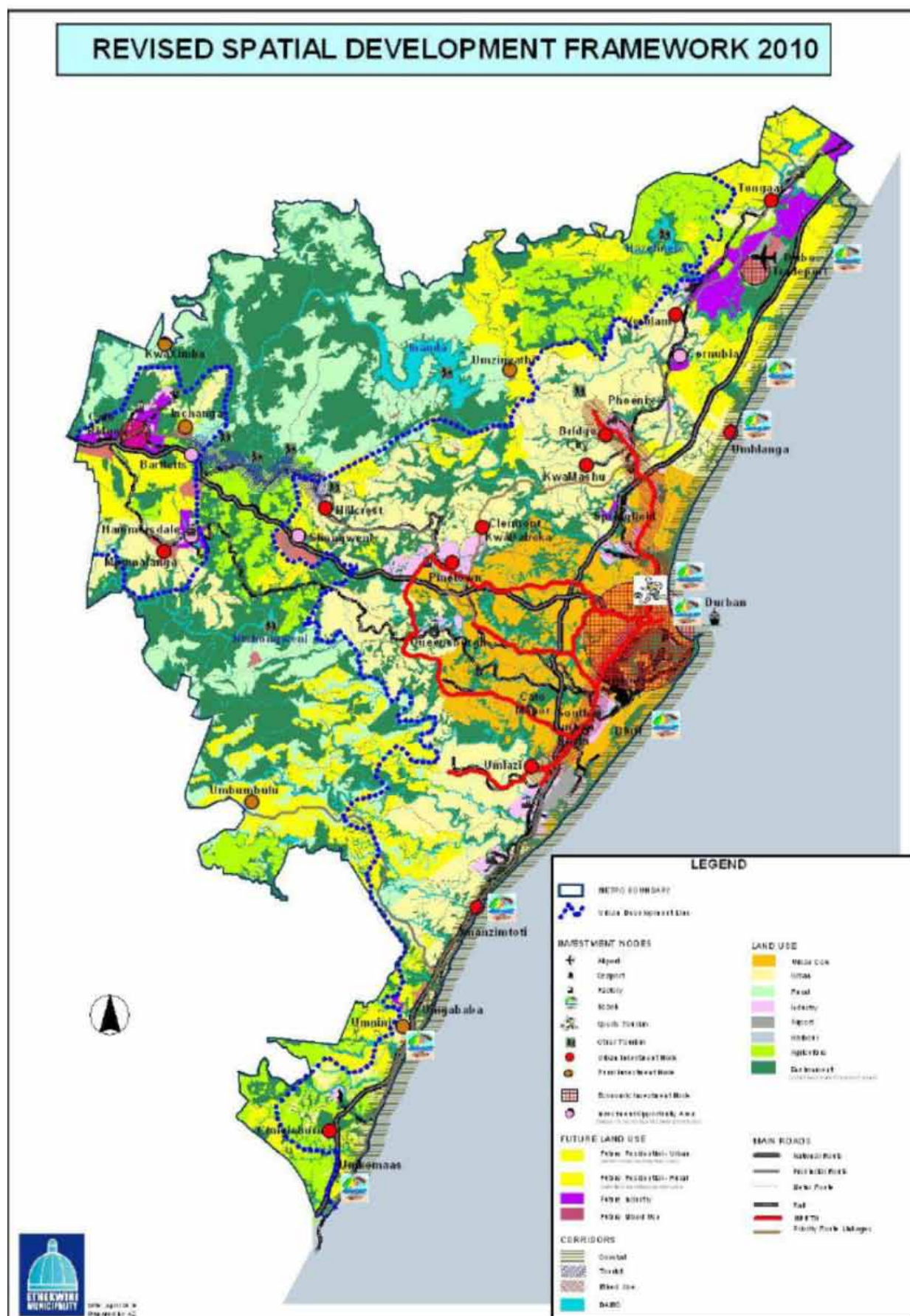Source: eThekwini Municipality (2004)

Figure 7: eThekwini Spatial Development Frameworks 2008
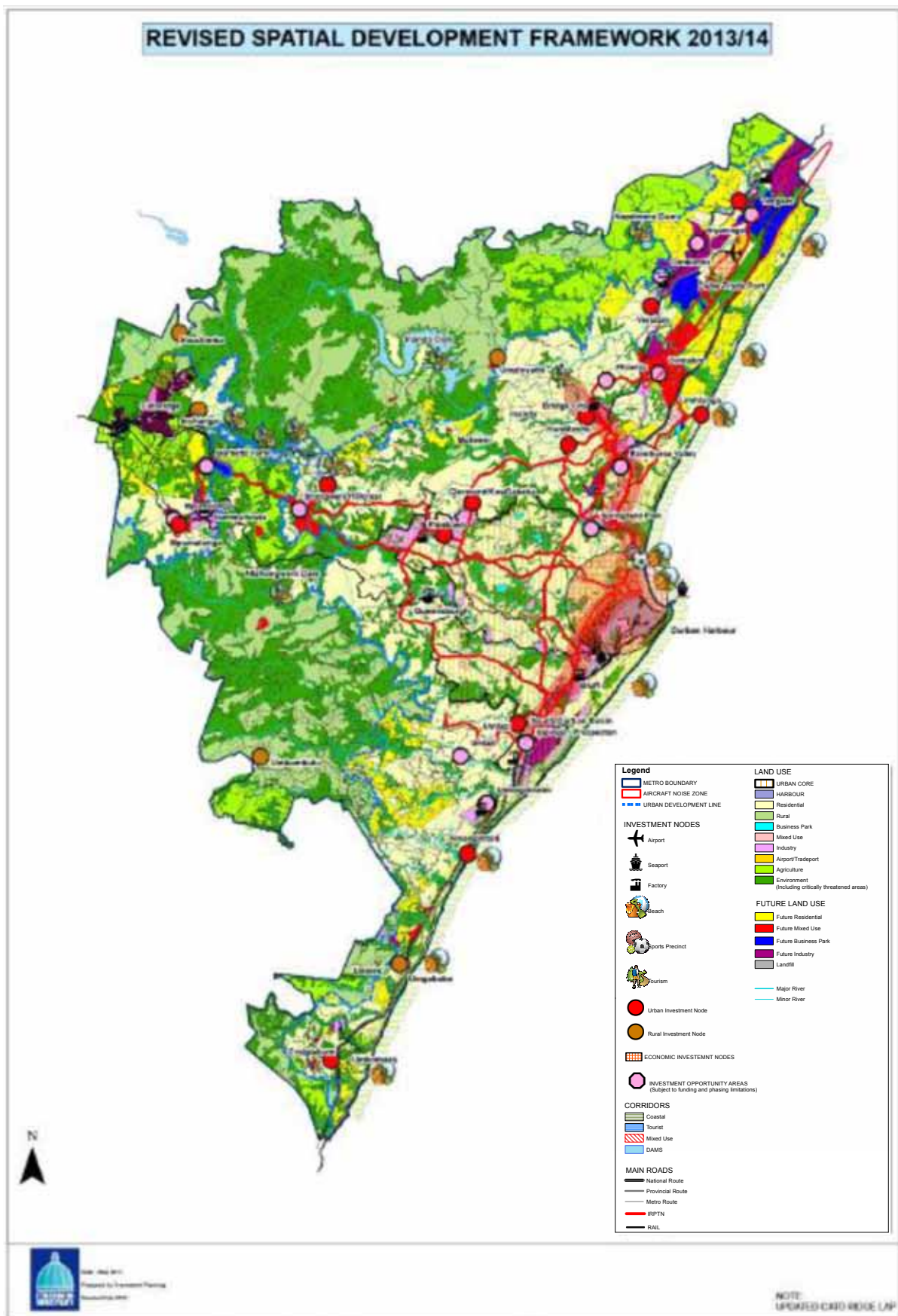

Source: eThekwini Municipality (2008a)

Figure 8: eThekwini Spatial Development Frameworks 2010

Source: eThekwini Municipality (2010a)

Figure 9: eThekwini Spatial Development Framework 2013

Source: eThekwini Municipality (2013)

3 Main Urban Growth Strategies – The Role of Mega-Projects (WP2)

3.1. Introduction[9]

The King Shaka International Airport (KSIA) opened for flights in May 2012 and replaced an airport to south of the historic city centre of Durban and south of the Port of Durban – South Africa‟s busiest port. The project to open a new airport on a greenfield site, on the northern fringe of the metropolitan boundary, was initiated and driven by the Provincial Government of KwaZulu-Natal. The case for the relocation was intertwined with the proposed co-location of a range of publically funded export-oriented infrastructure and services at the KSIA aimed to better position the region to take advantage of global economic opportunities. The proposal was that the trade connectivity provided by a modern airport within a well planned "aerotropolis" (see Kasarda, 2000) would help reinforce an export-oriented development path, not just for the City and Province, but also for the country as a whole.

3.2. The position of the Urban Economy Related to National and International Economic Processes

The city of Durban, on South Africa‟s east coast, contributes about nine percent to South Africa‟s GDP and has a population estimated to be close to three-and-half million people (South African Cities Network, 2011: 20, 146). Durban has, since its earliest days, as a supply depot for trading vessels plying the route to the „East Indies", been heavily influenced by its engagement with maritime trade.

In the last two decades, the region has experienced consistently low (and at times negative) growth in the

manufacturing sector and has seen important shifts in the local economy as other sectors have emerged to challenge its dominance with levels of growth well above that of manufacturing. Economic activities within the Province of KZN are important for the economic performance of South Africa as a whole. Between 2000 and 2009, KZN contributed a little over 16 percent of South Africa‟s gross value added (GVA). In terms of the structure of its economy, KZN is, like all other provinces, dominated by the tertiary sector (see Table 5). Manufacturing, within the secondary sector, has accounted for 21.4 percent of the value of economic activities in the Province between 2000 and 2009.

Of note is that KZN‟s economic performance has been driven by a handful of municipal districts. The metropolitan city of Durban, administered by the eThekwini Metropolitan Municipality, is critical in this regard as, with only 33 percent of the Province‟s population, it contributes 54.7 percent of KZN GVA. This reflects the situation of Durban as an economic hub across a range of economic sectors (as can be seen from the last two columns of Table 6).

Whilst Durban has not grown economically as fast as other less economically significant municipalities over the last decade, notable changes have occurred over time. In spite of nuances across data sources in terms of which economic sector has expanded the most rapidly, there are signs that the structure of the economy has evolved; this has been away from manufacturing, and somewhat surprisingly, partially in favour of the primary sector; also, a displacement appears to have been towards transport, storage and communication, that is logistics activities, at least since 1995 (Table 6). Almost 61 percent of the total value of KZN activities in transport, storage and communication were in eThekwini Municipality in 2009.

3.3. The National Framework and Mega-Projects (Including the Current Role)

South Africa has had no particular policy thrust in support of mega projects in urban spaces. Although no urban policy framework has been adopted at a national level, various draft reports talk rather about scaling up project activity aimed at meeting the needs of the urban

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9   The research process drew on interviews, extensive document analysis and a review of a range of other material such as press reports and the like. The research benefitted considerably from engagement within the Work Package 2 research team of the Chance 2 Sustain project and from extensive engagement with colleagues in other work packages and in particular extensive collaborative research with those team members based at the School of Built Environment and Development and the University of KwaZulu-Natal.

Table 5: Economic Activities by Main Provinces in South Africa

Province	GVA* share of SA total (Based on 2000 to 2009 averages)	GVA growth (2000 to 2009, AAG**)	% of population	GVA/capita (2000 to 2009, AAG**)	Distribution of GVA across main economic sectors (2000 to 2009, %)	
Gauteng	34.4%	4.6%	20.75%	2.4%	Primary: Secondary: Tertiary:	3.2% 27.3% 69.5%
KZN	16.2%	4.2%	21%	3.3%	Primary: Secondary: Tertiary:	6.4% 29.2% 64.5%
WC	14.5%	4.8%	10.5%	2.6%	Primary: Secondary: Tertiary:	4.4% 24.5% 71.1%
Other Provinces (6)	34.85%	3.3%	52.3%	2.7%	Primary: Secondary: Tertiary:	20.7% 16.99% 62.5%
South Africa	100%	4.1%	100%	2.9%	Primary: Secondary: Tertiary:	10% 23.6% 66.5%

Notes: Note: South Africa has nine provinces: Gauteng, KZN, the Western Cape (WC), the Eastern Cape, Northern Cape, Western Cape, the Free State, Limpopo and Mpumalanga. Each of the three main economic provinces has a major city: Johannesburg in Gauteng, Cape Town in the Western Cape, and Durban in KZN.

*:   Using GVA at basic prices data at 2005 constant prices;

** AAG: Average Annual Growth

Source: Calculated using data from the Quantec Regional Indicators database (Quantec, 2011) (Robbins & Velia, 2012)

poor, although there is a strong appreciation in these documents for the need for cities to ensure they remain integrated with national and global economic processes. The implication of this is that cities need to find ways to invest, together with other actors, in infrastructure to enable this global and national economic integration. During the late 1990s, the government initiated a series of spatial economic initiatives, called the Spatial Development Initiatives (SDIs), some of which had priority projects of considerable scale located in cities but these tended not to yield much in the way of results in major urban areas. In the early 2000s, the national cabinet considered a document prepared by specialist advisors to the Presidency called the National Spatial Development Perspective (NSDP) which set out a case for a more differentiated policy across space, including recognizing the need for investment in major urban centres and their transport connections as a priority to support economic growth. However, the NSDP remained little more than a discussion document and national government chose not to draw on this in adopting

a national urban policy. In fact, there was a strong sentiment in national government, which remains today, that the most important priorities and opportunities in the country are in rural areas. Here it is worth noting that since President Jacob Zuma took office in 2009, his mentions of urban areas in annual State of the Nation addresses are almost non-existent although there has been mention of the need to deal with local government failure.

However, although formal policy documents at a national policy level do not suggest an endorsement of mega projects, the actions of government has tended to be one where large scale urban projects are given some considerable attention and political backing. This was particularly noticeable in the context of the 2010 FIFA World Cup bid and subsequent implementation. This also saw the creation of a national grant fund to support local government in delivering new stadiums and upgrading transport infrastructure. It is also noticeable that national level political leaders were very supportive in public of

Table 6: Activities in eThekweni – breakdown of activities by GVA and average annual growth of the value of the activities (%)

Sector/ subsector	Share of sector in eThek relative to eThek total GVA values (%)				AAG (2000 to 2009, %)		Share of sector in total eThek GVA as % of KZN's GVA (2000-2009 period average)	Share of sector in eThekwini as % of RSA's GVA (2000-2009 period average)
	1995	2000	2005	2009/ 2010	RSA	eThek		
Primary Sector**		1.6	1.8	2.2	0.3	1.0	15.4	10.4
Manufacturing	26.7		24.4*	21.2*				
		27.1**	24.7**	21.3**	3.1**	3.0**	56.1**	21.2**
Wholesale & Retail*	14.5		16.6	21.2				
Trade**		14.85	15.25	14.5	4.4	4.0	57.8**	16.9
Transport, Storage & Communication	12.7		15.9	16.7				
		14.2	15.3	15.5	5.5**	5.6**	63.7**	21.5**
FIRE**		18.85	21.2	23.4	6.8	7.1	63.5	13.7

Notes:

*: refer to calculations using data from the Global Insight database;

**: Refer to calculations using data from the Quantec database.

AAG: Average annual growth (rate)

GVA data from Quantec are at 2005 constant prices.

FIRE: Financial, insurance and real estate (services);

RSA: Republic of South Africa;

eThek: eThekwini Municipality

Source: Calculated using data from the Quantec Regional Indicators database (Quantec, 2011) (Robbins & Velia, 2012)

cities undertaking large scale economic development projects such as conference centres and waterfronts.

South African cities and their municipal governments have all, at various points in time, associated themselves with a desire to initiate and support large scale urban projects with both social and economic aims. Because of revenue constraints, and with the exception of the 2010 World Cup and major transport parastatal investment, especially in ports, more large scale urban projects have been planned than delivered. The 1990s was a period when conference centres were built, although there were some other major projects, such as the Nelson Mandela Bridge in Johannesburg. Local governments did support very large-scale private sector mall developments on the city peripheries for which they provided road and utility investments. In Durban, Cape Town (perhaps to a lesser degree), Johannesburg and Pretoria, the 1990s also saw the confirmation of new decentralised commercial nodes as major business service hubs outside the traditional CBDs that have been in decline since the mid 1980s. Although these often involved a host of separate private sector projects driven by big corporate players they were often made possible by municipal planning and infrastructure investment. For example, the Umhlanga Rocks/Mt Edgecombe node north of Durban.

However, the past decade has seen these kinds of major scaled-up project proposals forming a greater part of city dialogues, although not always driven by municipal leaders or through municipal plans. For instance, the Gautrain project linking the country‟s main international airport with Johannesburg, Sandton and Pretoria would feature as one of those initiatives which succeeded and probably stands out as the single largest project commitment in an urban megaproject in South Africa (the project cost in

excess of R18 billion, funded mainly through a loan to the provincial government to be repaid through revenues from the train, which is operated by a private consortium on behalf of government).

3.4. Discourses on Mega-Projects in South Africa's Cities

It is important to note that although the use of the term mega project is not that common in South African development discourse, the notion that large scale investment projects are critical is one that is very present in the discourse of government. Mega-projects are motivated by state officials for a range of reasons – in some cases economic and in some cases social. The case often made is that the country has to make these large scale commitments, in infrastructure in particular, to redress apartheid ills and to secure longer term economic benefit. An important contextual issue here is that in the 1980s and 1990s South Africa"s level of fixed investment as a share of GDP, particularly public sector investment, dropped to historically low levels and was seen to be a factor contributing to the country"s lack-lustre economic growth and uncompetitive business environment.

Related to this was a substantial national government push, initiated in the 1990s, to raise the levels of Foreign Direct Investment into South Africa to compensate for domestic capital shortages within the neoliberal macroeconomic policy of GEAR. In many instances, major public projects were proposed as being bound in to partnerships with investors to secure improved economic performance in the country and ultimately growth of employment and a decline in poverty. A prime example of this is the Coega Industrial Development Zone and Nqura Port developed to the east of Port Elizabeth with state investment in excess of R10bn aimed at providing export investment sites for foreign investors in a region that has suffered high unemployment and poverty (the Eastern Cape). This particular project was not presented as a urban project as it took place on a greenfield site a considerable distance from Port Elizabeth (the Nelson Mandela Metro).

Government has also tended, as was implied previously, to suggest that larger scale initiatives in urban social investment should be considered. In fact the national government directly initiated projects such as the N2 Gateway housing project in Cape Town and was instrumental in supporting the Coronation and Cornubia projects in Johannesburg and Durban respectively.

Private sector players have often been in support of scaled up investment projects, especially the corporate sector, as these suit their desire for opportunities for major contracts and an improved business environment There has at times been a considerable congruence of perspectives as government has viewed public private projects as an opportunity to promote greater participation of black business in the corporate business sphere. In recent years some of these relationships have been shown to be driven by patronage and issues of corruption have come to the fore.

Civil society players have often been very critical of the government and private sector approaches to larger projects as they are viewed as capturing public resources; to result in the neglect of a variety of other social needs, especially at the more discreet neighbourhood scale; and to have displacement effects or negative social impact. There have often been very strident campaigns by a variety of civil society organisations against big projects that do not take account of the needs of more marginalised stakeholders. In Durban, much has been written about port and industrial development plans in the southern part of the city (see Scott and Sutherland (2009) and others on this). Issues were also raised before the 2010 World Cup about the framing of the event host agreements in which FIFA required exclusion of informal public space traders and were also seen to divert public investment from important social obligations.

3.5. Mega-Projects in Durban

In the early 1990s, following on a process of extra-local government dialogue between organized business formations, some anti-apartheid civil society groupings and some supportive political parties, an initiative called Operation Jumpstart was launched in Durban. This was geared to get partners to work together around improving education through a corporate funded school building programme in disadvantaged areas and through working in support of growth and employment in the greater Durban area. This group promoted the idea of building a convention centre which become concretised in the transition around 1994, resulting ultimately in the Durban funded International Convention Centre (ICC) being opened in 1997 as South Africa"s premier international conference destination. This process brought a variety of public sector and private sector players together around big project discussions on a regular basis and the apparent success of the project gave a variety of these local leaders confidence to explore other projects that started to be termed as „Flagship Projects" in the Municipality"s documentation and in the public discourse.

Local government in what had been the City of Durban (or the Durban Corporation) was uniquely placed to invest in these initiatives because it was the South African city with the best financial resources developed through years of prudent fiscal management during the late apartheid period. The Municipality could thus fulfill its commitments around addressing backlogs – which it managed to do at a rate faster than other large cities (although with a much deeper set of backlogs and a higher proportion of households in poverty) – and also begin to explore a more ambitious economic programme. Here it is noteworthy that the Durban Metropolitan Council (the metropolitan predecessor to the eThekwini Municipality) was also the first in the country to set up an Economic Development Unit.

Although the Durban Metropolitan Council"s first strategy document produced in 1996 was somewhat subdued about these major initiatives, the notion of „Flagship Projects" became further entrenched in municipal planning leading up to the turn of the century. One factor that also influenced this was that a consortium of political leaders had facilitated the sale of 54 hectares of port authority owned land (under the national transport parastatal, Transnet) to a Malaysian-South African empowerment joint venture company for a major Waterfront development at the entrance to the port of Durban. However, the project struggled to get off the ground as the Asian crisis reduced prospects of foreign investment from the Malaysian partners and the South African partners could not raise funds domestically as interest rates began to spike. The initial failure of the this project, which has been seen as core to the cities plan to reinvent itself, became a major obsession in the city amongst many different stakeholders including local government, politicians (local, provincial and national) and business who sustained a dialogue about how to get the project off the ground. Discussions also focused on general frustration amongst the private sector that municipal processes were not „business friendly". As a result the Municipality established the Best Practices City Commission – chaired by a number of private sector representatives. This body made a series of recommendations on improving the municipal processes around planning and the like, although its impact was viewed as quite muted it reinforced the processes of interaction between city leadership in the public and private sectors.

These processes led to the formation, initially on an informal basis, of what became the Durban Growth Coalition, a forum of local business leaders, the top municipal politicians and officials and some provincial cabinet members. This body took on the task of working behind the scenes to unlock the Point waterfront

development to allow the City to acquire the land and facilitate a major development on the site. Part of this deal-making process, involved a series of agreements with the largest private sector developer in the city, the Tongaat Hulett Group, to partner around a series of joint ventures, including them bringing their development management expertise to the Point; a major light industrial estate named Riverhorse Valley; and a major new administrative and commercial centre on the edge of KwaMashu township funded out of profits of the light industrial estate land sales.

The pursuing of these „flagship" projects is reflected as critical during this period by city officials, and in a variety of documents where they are often listed as part of the city priorities and in the city"s economic strategy. The projects were also given considerable mention by business members of the Durban Growth Coalition at the time. The set of initiatives getting attention during this period also included the awarding of two casino licenses associated with new hotels (a process administered by the under national legislation) and a variety of other private sector led developments. Within the process it is also notable that agreement was also reached on expanding the ICC with public funds. Figure 10 shows the location of eThekwini"s strategic economic interventions.

In the eThekwini 2003 Integrated Development Plan (IDP), the Municipality specified one of its propriety programme areas as "Strengthening the Economy" and under this item specified actions as, (1) regeneration of key economic zones CBD/SDB; and (2) flagship projects eg. (Point redevelopment) (eThekwini Metropolitan Municipality, 2003: 14). Later on in same document the municipal plans around infrastructure delivery are also specified as being aligned to the meeting of basic needs as well as to "[be] highly responsive to the service delivery needs of economic growth generators within the context of the SDF" (eThekwini Metropolitan Municipality, 2003: 26). Of particular note is the budget information in the document which specified the allocation of a sum of over R1,262 billion for "Flagship projects" over a the period 2002/2002 to 2005/2006 including the following:

- uShaka Island (theme park and aquarium)
- Effingham / Avoca mixed use industrial park
- ICC Expansion (Convention centre)
- Point Precinct Development (inner city waterfront tourism and commercial investment)
- La Mercy Airport (later KSIA and the associated DTP) (eThekwini Metropolitan Municipality, 2003: 38)

This sum amounted to, in any one financial year, between 10 and 15 percent of all capital spending in the city.

Figure 10: eThekwini Municipality map showing "Strategic Economic Interventions"
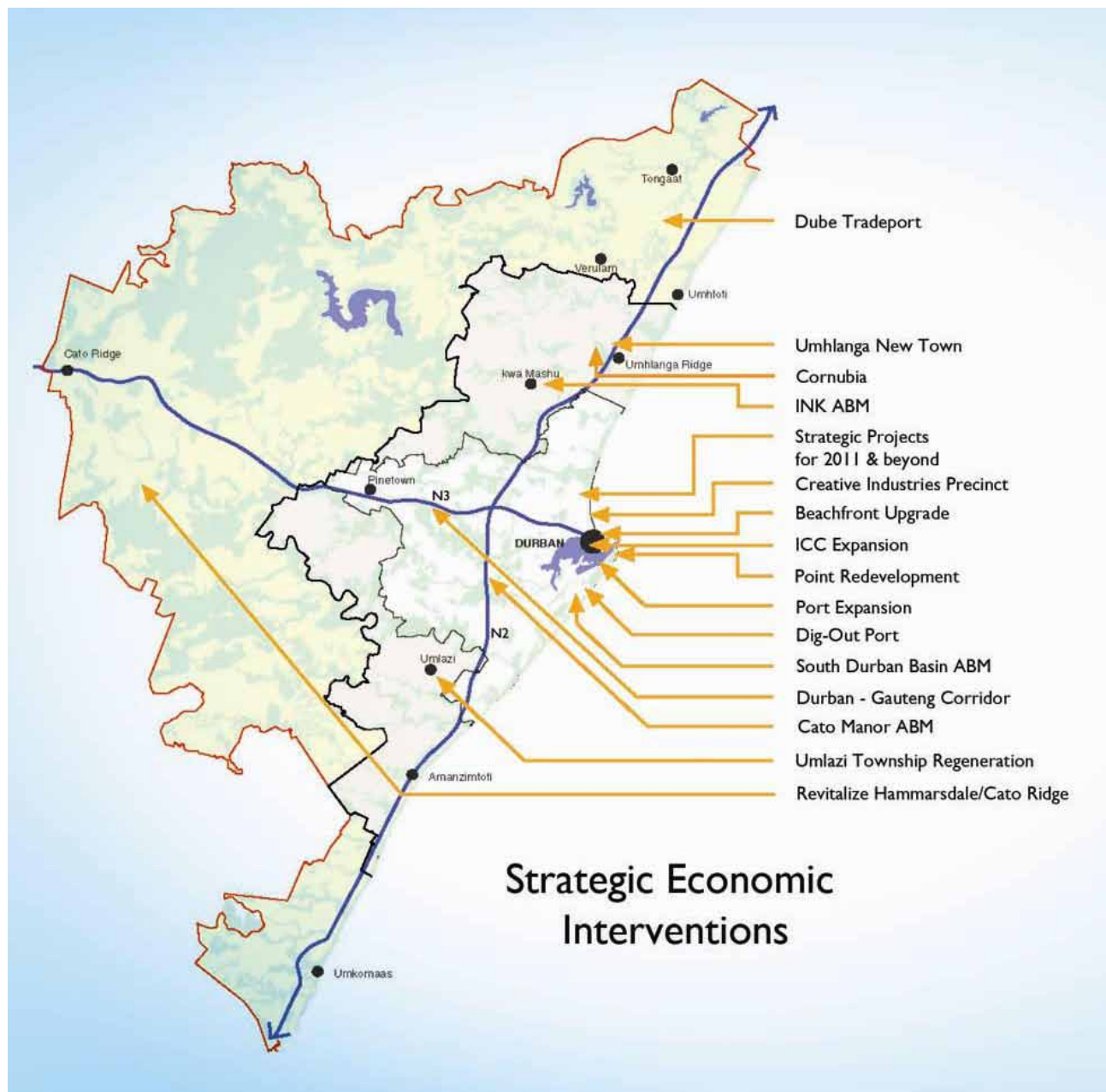
Source: Provided by eThekwini Municipality Economic Development official, personal communication, 16 February 2011)
(the document itself was undated but estimated to be from 2002)

By 2007, with the Convention Centre expansion completed and much of the work on the Point, uShaka and Effingham Avoca (named Riverhorse Valley Business Estate) reaching maturity, the IDP documents focus in on the Dube TradePort, the upgrading of the Port of Durban and preparations for the 2010 Football World Cup (eThekwini Municipality, 2007). This economic focus is maintained thoughout the 2000s with the projects given the status of „strategic programmes", a term used throughout the IDP documents produced by the city . However, it is worth noting that budgetary allocations for such projects become much less easy to follow as they are not included, in this more recent period, under a single budgetary line. Investment in infrastructure for the airport, for instance, is captured under a range of line function department budgets and unusually not specified as such. The World Cup expenditure was lumped under the City Manager"s budget for a period of four years and under the direct expenditure influence of a Strategic Projects Unit that reported directly to his team.

3.6. The Dube TradePort/King Shaka International Airport (KSIA) and the Aerotropolis

The first case made, by the KZN Provincial Government steerng committee in the mid 1990s, for development of the northern or LaMercy site, involved two basic arguments. The first of these, and the primary argument, was that the Durban International Airport (DIA) site had its runway length constrained by other land-uses which made it unsuitable to handle newer classes of intercontinental passenger aircraft. The argument made here was that an expanded runway length at the new site, along with more extensive and improved facilities at the more spacious LaMercy location, would make it possible to attract more international carriers back to Durban and thereby enhance the city and the region"s global connectivity to the benefit of tourism and other business. The secondary argument was that the location of the airport, in the city"s industrial heartland was not conducive to promoting its tourism potential which was often stated to be stronger to the north of the city than to the south. This case was backed up by considerable investment in a variety of local and international specialist technical studies geared to reinforce the legitimacy of the argument to national decision makers who controlled the parastatal Airports Company of South Africa (ACSA) and the licensing of airports.

The 1999 national and provincial elections changed the balance of power in KwaZulu-Natal Province with the African National Congress (ANC) becoming the majority party. The provincial Department of Economic Development and Tourism (DEDT) had shown much interest in the airport project and invested its own time and efforts in commissioning some investigations as well as resources to try and attract more international flights to the region. Interestingly, the then provincial minister (or Member of the Executive Committee – MEC) was Jacob Zuma – now President of South Africa. The shift in power saw the successor MEC to Zuma (Michael Mabuyakhulu) and the Premier (Sbusiso Ndebele) place considerable significance on the development of the new airport (see Figure 11 below). As a result, the specialist team that was set up within the DEDT was reinforced and further technical studies were completed in line with the National government"s Treasury Department approval system for major public-private partnership projects. The included, for instance, feasibility reports commissioned from Schipol Project Consult completed in 2000. As a result the project featured prominently in provincial strategy statements as well as in processes such as the then emergent Durban Growth Coalition.

The go-ahead for the airport that came during the 2005/2006 period was based on the combination case that the Province would benefit from higher passenger volumes, more international flights and greater integration with regional tourism assets and also the case made for the positioning the region as a cargo export location. This was supported by a range of reports and studies that documented projected economic impacts for the project in terms of a variety of indictors of employment, exports and investment. The case for the airport was very closely associated with these various claims made about the project and its potential impact. In a context of high levels of unemployment (in excess of 25%) and low growth for much of the period under consideration, the impact of these projections of impact was very important in helping to make the case for the project to go ahead.

Due to the fact that the new airport is located within the metropolitan boundary of the city of Durban, but was driven by the Provincial government as a priority project, it is interesting to follow up the discussion of the Provincial and Municipal approach. It is notable that the city of Durban"s regional and global connectivity through transport infrastructure has been consistently reflected on in municipal strategic documents since the late 1990s and more especially so in documents referring to economic programmes of local government in Durban. However, of importance in this discussion is the fact that the overwhelming focus of these mentions was initially predominantly around the rapid expansion in demand for cargo handling at the Port of Durban[10]. It was only following the announcement, in August 2006, by the Provincial Government of KwaZulu-Natal, which confirmed that a new airport would be constructed to the north of the City that issues around the airport began to receive more consistent attention in the Municipality"s primary strategic documents (eThekwini Municipality, 2006a, 2008a.) In the City"s 2006 Economic Review, it was stated that, "the lack of an unconstrained international airport capable of serving wide-bodied airliners with maximum payloads" was a strategic „gap" (Dray et al., 2006: 9-10) The Municipality started to make some budgetary commitment to the commissioning of studies to inform a response in its 2003-2007 Integrated Development Plan (eThekwini Municipality, 2003). This rather delayed and cautious commitment was notable considering the fact that the airport development had been consistently high on the Provincial government"s

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10   "Durban is South Africa's major port city and the second largest industrial hub (after Gauteng). Durban is a key trading gateway, the main entry and exit point for imports and exports, with its access to important trading routes to the east, and its proximity to the Gauteng mineral-industrial complex." (eThekwini Municipality, 2003: 1)

Plate 1: A sign at the entrance of the new airport announcing it as an "aerotropolis"

Source: Glen Robbins, April 2013

Plate 2: A sign at the entrance of the new airport announcing it as an "aerotropolis"

Source: Glen Robbins, April 2013

agenda going back to the adoption of the 1996 Provincial Growth and Development Strategy (KwaZulu-Natal Department of Economic Development and Tourism, 2006). The impression gained, and one confirmed by municipal as well as Provincial government officials, is that the construction of a new international airport within the timeframes preferred by the Provincial government was not high on the Municipality‟s agenda.

3.7. Reflections on the Durban Case

These reflections try to tease out some of the issues that have been identified. In some cases they are quite speculative, but are founded on perspectives articulated by respondents interviewed for this study.

Almost all respondents indicated that they felt that mega-projects had become more and more important in South Africa and in Durban by virtue of a number of factors. These included that the country‟s urban services backlogs required large scale, bold programmes to make an impact at scale in a desired time period. This was primarily seen in terms of basic services (and related bulk infrastructure) and

settlement (housing) that have dominated the city capital and operating budget for well over a decade. However, it was notable to all respondents that at various moments the municipality and other actors had little choice but to make major „flagship", „catalyst" or „game-changing" investments in the urban space to secure a stronger economic positioning and to leverage economic success.

In terms of stakeholder interactions around mega projects in Durban, the comments above need to be taken into account. Much of the time and energy in these projects, according to those involved, is about negotiating through complex political relations – often between groups in the same political party. These relations are core to state invested and state driven projects proceeding and are also seen as the greatest risk factor. Relations with business were by no means consistent through these processes. At a formal level both the provincial leadership and the Durban leadership (political) worked under the framework of the Durban Growth Coalition which brought together influential business and political leaders with the common objectives of promoting major projects to drive growth in KZN. It is also worth noting that the Municipality sought partnerships across a range of projects with the city‟s largest private land owner, the Tongaat Hulett Group.

Plate 3: Looking south from the new airport towards the Cornubia development site.

Source: Glen Robbins, April 2013

Relations with community level stakeholders were not at all consistent through these processes. Although all mega-projects required an full EIA with mandatory public consultation, it was generally the case that public engagement only took place after proponents had already made a decision to proceed with projects and had confirmed many of the design considerations. In the case of the airport some contact was initiated with surrounding communities in the lead up to the airport to communicate the intended project and to mobilise potential business and employment potentials.

The airport development case also provides a very strong case for how widespread the notion that large-scale projects are almost inevitable in growing urban places as they seek to respond to the demands of growth and the need to deliver services to citizens. It is widely acknowledged that these have trade-offs, sometimes substantial ones, but these are seen as necessary to confront and negotiate in a context where big projects „have to happen". Pressures of escalating costs that are incredibly sensitive to delays and changes in project scope are common in these projects but are also seen to drive decision makers to at times act „more decisively" as one respondent put it or perhaps with less sensitivity to widening the range of concerns that needed to be accommodated.

It is also clear that in the local context major project influencers have used extensive expert studies and reports to build a case for projects that often draw on „best practice" or international examples and tend to work on

the assumption that such initiatives need to meet some notion of world class performance. This, as a respondent working with street traders pointed out, is world class for the elite and not world class for the poor (Interview with AET, March 2011). This notion of having to deliver facilities that would not look out of place in any leading city in the world was widely seen by political, bureaucratic and business leaders as an imperative. Many of these respondents had gained insight into these facilities through their own travel as part of the work or privately. Community stakeholders generally felt excluded from these processes to develop common sets of knowledge.

In terms of how this knowledge has been spatialised it is worth noting that in its early stages the project was most commonly presented with a map illustrating connections between the new location and major economic hubs of the world. This global connectivity imagery has been retained in branding and images on the web site and in many presentations made by the proponents. This reinforced the notion that this was not just a local project but one about global engagement with the often unstated suggestion that local concerns were somehow less important when matched up to these critical global considerations. As one respondent put it, this was one way of interpreting the „think global, act local" mantra.

This case study does offer some potential to reflect on how such projects impact on settlement and related community mobilisation dynamics as well as in terms of competing pressures on sustainability of services.

4. Addressing Urban Inequality: Focus on Sub-Standard Settlements (WP3)

Housing provides a useful lens through which to consider the way in which the state addresses poverty and inequality in cities. It also provides insight in to the relationship between the state and its citizens, revealing the nature, strategies and power of social mobilization in the city. States responsible for housing provision in fast growing cities need to move away from the mere provision of housing units, which is often politically motivated, and focus on the development of integrated human settlements, that provide the poor with a bundle of urban resources that enable them to improve their quality of life in the city. This is evident in Durban where the large scale roll out of formal housing units post 1994 has not created the types of human

settlements that adequately address poverty. According to the Municipality, the number of people living in poverty in the city increased by 441,327 people between 1996 and 2004 with a total number of people living in poverty in the city at 1,093,372 in 2011. Although the percentage of people living in poverty in the city, according to these measures, has dropped from 38.1% in 2004 to 31.3% in 2011, the absolute numbers of people living in poverty remains a growing problem (UrbanEcon, 2012). However, as discussed in work package 5, Engineering Services and Housing within the Municipality are seeking to jointly address this problem by using spatial knowledge to better distribute social facilities and resources to settlements

within the city. The following section presents the housing typology of the city, provides data on housing backlogs and reflects on the spatial distribution of inequality. It then reviews the Municipality"s housing policy, and finally analyses the nature and power of social mobilization around housing issues in the city.

4.1. The Shortage of Housing and Socio-Spatial Segregation

Poverty and inequality remain a major challenge in South Africa and in Durban. Absolute and relative poverty has decreased in the country since 2000, mostly as a result of the uptake of a range of social grants and improvements in the social wage, which includes housing and basic services (National Planning Commission, 2011). However, the severity of poverty amongst the very poor has not improved and inequality has intensified. Housing challenges in South Africa and Durban reflect these high levels of poverty and inequality. Post 1994 state subsidised formal housing delivery became a core focus of the Reconstruction and Development Programme (RDP) with the newly elected ANC state committing itself to building one million houses within five years. However, even though South Africa has a one of the highest levels of delivery of state built housing in the world, this approach of providing formal „RDP housing" has not been able to address the settlement challenges of the country, resulting in the growth of

informal settlements. This challenge has had to be addressed in the absence of any overarching pro-poor urban development framework. Turok and Parnell (2009, p 164) suggest that "whatever progress there has been in urban areas after apartheid has come about mainly through expanded social grants, free basic housing and extended household services, rather than any restructuring of urban spaces or national commitments to making cities work better for all". Since 2010, national policy has shifted towards a far greater acceptance of informal housing as part of the housing solution in cities, with the discourse of slum eradication being replaced by slum upgrading.

Post 1994, the eThekwini Municipality strongly supported the national approach to housing delivery and delivered a significant number of RDP houses in both peripheral and central locations within the city. The Municipality has always adopted a relatively tolerant approach to informal housing, due to its progressive attitude towards housing the poor, with the city actively committing itself to in-situ upgrading of informal settlements, as a result of it engagment with Abhlahli baseMjondolo (AbM) from 2009. Post 2010, the pace of state provided formal housing delivery in the city has slowed down considerably (see Figure 11) and programmes, such as the Interim Services Programme for providing basic services to informal settlements, have become more prominant. The provison of housing in the Municipality is the responsibility of the Housing Department, with housing projects being predominantly funded by the KwaZulu-Natal Provincial government. The provision of water and sanitation services falls under the eThekwini Water and Sanitation Unit. The

Figure 11: Delivery of formal houses in eThekwini Municipality
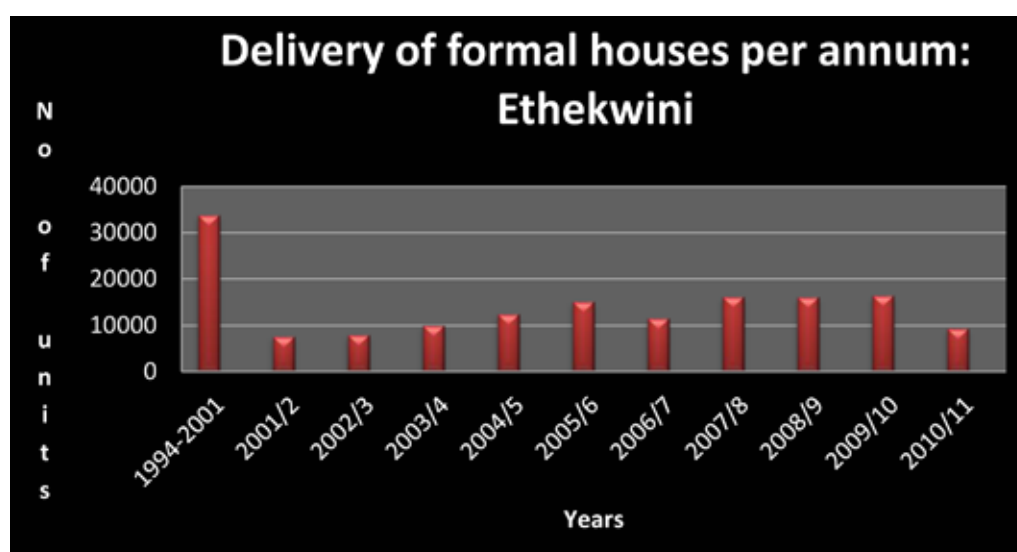
Source: Data sourced from eThekwini Municipality (2011c)

type, location and form of sub-standard housing in Durban reflects the influence of national, provincial and local policy and practice, the spatial and social history of the city which contains both rural and urban spaces (see section 1), and the action of the poor as they claim their „rights to the city". Sub-standard housing in Durban includes a wide range of housing typologies, namely RDP housing[11], informal housing („mjondolos", which include self-built single shacks and those with tenants" rooms attached to them) and peri-urban or rural housing which is located in the rural periphery of the city (see Plate 4 and Table 7).

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11   RDP housing is the name given to state delivered formal housing, which has been delivered at scale post- apartheid in South Africa, as a means of addressing the inequalities of the past. The houses vary depending on provincial standards but the national Department of Housing (now Department of Human Settlements) requires at least 30 square metres of floor space as a minimum standard and the provision of water through at least a standpipe in the yard of the house. Five related objectives are apparent in the housing programme: to demonstrate delivery to an expectant post-democracy constituency; to contribute to the economy11; to contribute to poverty alleviation; to establish housing markets and to develop urban citizenship through the creation of a democratic and integrated society (Rust, 2003, cited in Charlton, 2009).

eThekwini Municipality has a large housing backlog. In 2013, there were approximately 262 000 households comprising just over a million people (assuming a household size of 3,9 people) residing in informal settlements. This represents about 27% of the Durban population (Seedat, 20/05/2013).

The recent upsurge in social unrest, land invasions and the demolition of shacks under court order that have taken place since January 2013 reveals the pressure on housing in the Municipality. The decrease in formal housing delivery will have a signficant impact on housing backlogs and social conflict over housing, as there are still high expectations from the poor that they will receive formal subsidised housing. However, there is evidence that this perception is shifting (Sutherland and Robbins, 2013; Misselhorn, 26/03/2013). The decrease in formal housing delivery will influence the way in which the city deals with informal settlements and further land invasions. However, formal housing has not delivered on all its promises for the poor and this pressure on housing may ensure that more sustainable and equitable solutions to housing are developed in the future.

Inequality in housing has a clear spatial dimension with most sub-standard housing being found on the periphery

Plate 4: Informal housing (a), RDP housing (b and c) and peri-urban housing (d) in Durban

Source: Catherine Sutherland and Bonang Lewis (2012)

Table 7: Dwelling Counts in eThekwini Municipality 2011

Type	Sub-type	Households	Population
Formal	Houses	414 357	1 597 455 (42.5%)
	Flats	110 225	320 113 (8.5%)
	Hostels		110 152 (2.9%)
	Hotels		10 512 (0.3%)
	Sub Total	**524 582**	**2 038 231 (54.2%)**
Informal	Single Dwelling (shack)	265 542	955 951 (25.5%)
	Backyard	48 975	191 003 (5.1%)
	Formal / Informal	3 096	13 347 (0.3%)
	Sub Total	**317 613**	**1 160 301 (30.8%)**
Rural	Cluster (Umuzi)	70 317	379 713 (10.1.%)
	Single Dwelling	26 949	145 525 (3.9%)
	Formal / Informal	6 449	33 781 (0.9%)
	Sub Total	**103 715**	**559 019 (14.9%)**
	Total	**945 910**	**3 757 551**

Source: Byerley (22/05/2013)

Table 8: Housing backlogs in eThekwini Municipality 2011

| Backlog	Number of Households
Informal Single Dwelling (Shack)	265 542
Backyard informal	48 975
Rural Cluster (Umuzi)	70 317
Rural single dwelling	26 949
Total Backlog = Shack + Backyard + Rural	**411 783**

Source: Byerley (22/05/2013)

of the city, along the UDL[12], or on marginalised sites in inner-city areas as a result of apartheid"s spatial planning (see Figure 2 and Figure 12). Townships and informal settlements on the periphery of the urban core have the highest densities, while the rural areas on the periphery, which contain peri-urban housing, have lower densities. All of these areas have low levels of resources and high unemployment, low household income, poor levels of

education and little access to areas of opportunity. People therefore have to commute to gain access to employment opportunities or engage in informal activities within their settlements. Many of the informal settlements in Durban have developed in close proximity to where people work in an attempt to reduce household costs by reducing transport costs. This issue becomes important when informal settlements are relocated to new sites that are distant from the original location of the settlement – a reality which often forms the basis of resistance to a proposed move.

The geography of the city, with its urban core and rural periphery, results in the state having to address housing backlogs in different contexts. Dense informal settlements, peri-urban areas and the rural periphery have very different characteristics and needs which require or support different

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12   The Urban Development Line is a socially constructed line in the eThekwini Municipality that is used to guide spatial development planning and the provision of services. Physically it marks the outer edge of water borne sewerage provision in the city, but it also reflects the discourses of development and planning in the city as it demarcates the urban and rural zones of the city (see Sutherland et al, 2013).

Figure 12: Delivery of formal houses in eThekwini Municipality
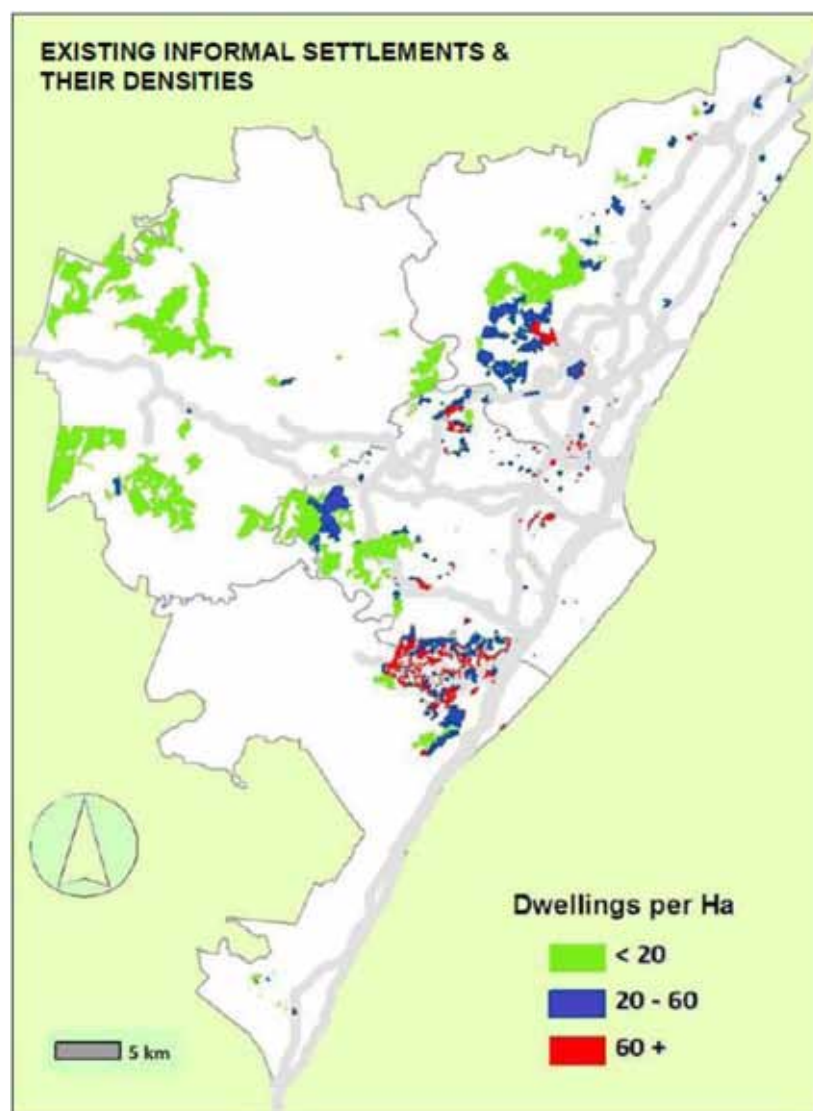
Source: eThekwini Municipality (2012a)

solutions. The current model of upgrading both informal and peri-urban housing with state subsidised formal housing is proving challenging as this is not always the most appropriate way of dealing with housing issues as the history of housing development post 1994 both in Durban and South Africa reveals.

The rapid densification of the rural periphery (see Plate 5) is also cause for concern. Much of the rural land on the rural periphery is Ingonyama Trust Land, held under Traditional Authority. Both the poor and the middle class and wealthy (who are seeking a rural lifestyle with low rates and fees for basic services), are building homes in this area. Houses built on Ingonyama Trust Land are exempt from the formal planning processes of the city. These houses are being built by citizens themselves, however, they place intense pressure on the provision of services and facilities and they are not aligned with the corridors and nodes that the Municipality has identified through planning processes as appropriate densification zones.

The Engineering Services of the Municipality have adopted a differentiated service provision model based on the spatial geography of the city, as well as an Interim Service Programme, which is presented in section 4 below. Although these approaches have significant challenges and do not always address inequality and at times may perpetuate it, they reveal a form of governance that reflects innovation, incremental learning and responsive policy making within a cost-recovery and pro poor framework. This approach has achieved success by providing a universal basic level of services to the poor, particularly with respect to water. The alignment of this approach with the strategies adopted by housing is becoming more evident and necessary as they Municipality has increasingly accepted that upgraded informal housing forms part of the solution of housing the poor. The Housing Sector of the Municipality has numerous housing programmes that have been developed to address housing issues in different contexts. Housing policy, programmes and practice in South African and eThekwini Municipality are presented in the section below.

Plate 5: Densification of the rural periphery 2007-2011: Adams Mission

Source: Breetzke, eThekwini Municipality (2012a)

4.2. Housing Policy: South Africa and eThekwini Municipality

4.2.1. National housing policy

South African housing policy post 1994, which was driven by the national Department of Housing (renamed the Department of Human Settlements in 2009) adopted a state subsidized system of large scale formal housing delivery, which became known as the RDP housing programme. Since this process was initiated the responsibility for housing delivery has been vested with Provincial Governments who control the funding and facilitate and approve projects and schemes. Local governments are expected to identify housing demand areas and suitable sites and to motivate for the requisite funding for these projects, alongside committing their own infrastructure to service the projects. It is notable that only since 2013 has local government been offered the opportunity to become fully accredited as a direct housing provider. However, in KZN Province, the eThekwini Municipality has for many years assumed the lead in effective housing provision in its area, with the Provincial Government

remaining only nominally and procedurally responsible for approving subsidy-linked schemes. Standardised houses on small plots were delivered at scale, usually on greenfield sites that were often poorly located, across the urban landscapes of South Africa. eThekwini Municipality aligned itself with national policy, and under the leadership of the previous City Manager, Mike Sutcliffe, was a leading Municipality in formal housing delivery. Green, pink and yellow RDP houses appeared at scale on greenfield sites, such as Waterloo and Lovu on the periphery of the city and later on in central locations such as Cato Crest (see Plate 6).

Delivery was not the only goal of the national state driven housing programme. Five related objectives formed part of the housing programme: to demonstrate delivery to an expectant post-democracy constituency; to contribute to the economy[13]; to contribute to poverty alleviation; to establish housing markets and to develop urban citizenship

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13   The Housing Code notes that housing practices should also 'reinforce the wider economic impact and benefits derived from effective and adequate housing provision in the domestic economy' (NDoH, 2000:11).

Plate 6: Waterloo housing project in the north of the city: 1999
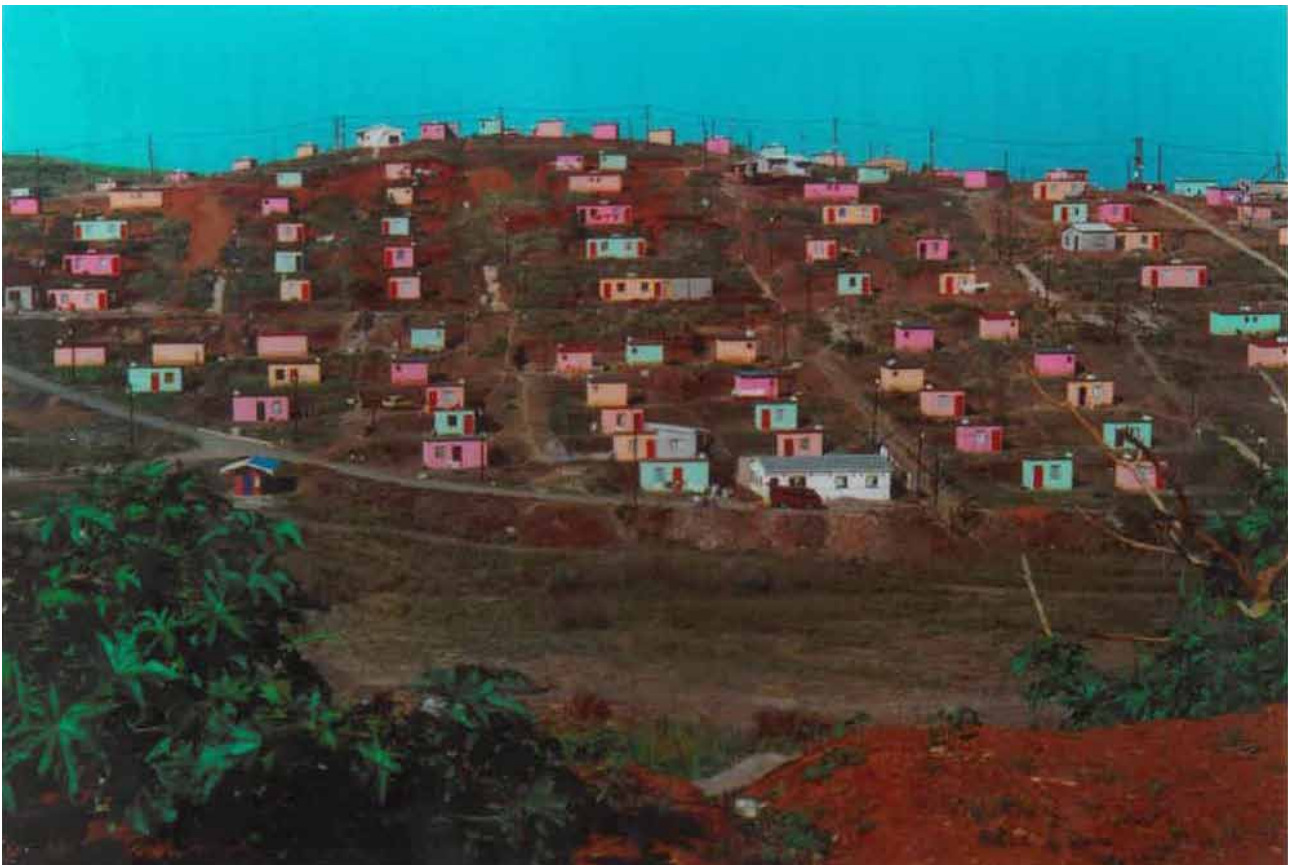
Source: Breetzke, eThekwini Municipality (2012a)

through the creation of a democratic and integrated society (Charlton, 2009). The South African government claims to have built 2.3 million housing units since 1994 and the eThekwini Municipality has built over 160 000 units to date. Although large numbers of houses have been transferred to the poor, these houses are often of sub-standard quality, small, and hence do not offer privacy or dignity, and are located on the periphery of cities, reinforcing the spatial legacy of apartheid. This programme has not produced integrated and sustainable neighbourhoods which offer a range of social facilities (Charlton, 2009; Pithouse, 2009). Due to their peripheral location these housing projects are isolated from social services and livelihood opportunities and they perpetuate urban sprawl.

The housing subsidy system and the determination by the national state to pursue this model had led to the widespread view by politicians, government officials and communities, that informal settlements are temporary phenomena in the South African urban landscape that will be replaced by formal housing. The eradication of „slums", was, and still is the dominant discourse of the ANC government post 1994, which was legitimised by the state because it „addressed" poverty and it was aligned with the UN and Cities Alliances slogan of „Cities Without Slums" (Huchzermeyer, 2011).

However, by the early 2000s, it became clear that this large scale housing programme was delivering housing units, but it was not addressing the „urban settlement problem". It became evident that informal settlements were not simply representing a „housing backlog". Rather, they were expressions of an intense urbanisation process based on rural-urban migration and linkages, and population growth, shaped by the legacy of racial segregation and a fundamental mismatch between available land for poor people and the location of economic opportunities (Huchzermeyer, 2011). This realization, as well as the inability of local Municipalities to eliminate informal settlements and widespread protests over housing and services issues, resulted in a shift in policy, culminating in the Breaking New Ground (BNG) policy (2004). The Upgrading Informal Settlements Programme (UISP), formed part of the BNG policy. It represented a move towards a more socially embedded, incrementalist approach to informal settlement upgrading with (i) a focus on in-situ upgrading; (ii) new measures for acquiring and rehabilitating well-located urban land; (iii) increased flexibility in planning; (iv) provision of social services and economic amenities; (v) increased community participation and community-based grants. However, the Upgrading of Informal Settlements programme received very little attention and support and was only promoted through rights-based action from within civil society (Huchzermeyer 2006).

In 2007, provincial housing policy in KwaZulu-Natal led the shift in national policy back to informal settlement eradication (2007-2010). In KwaZulu-Natal, the Department of Housing"s Strategic Plan for 2004-2007 ignored almost all of the innovations in BNG, and listed the aspiration of „eradicating slums" in the province by 2010 as the first of its strategic objectives (Pithouse, 2009). This resulted in the passing of a slums Act in KwaZulu-Natal in 2007, known as the Elimination and Prevention of Re-emergence of Slums Act. According to the MEC at the time, Mike Mabuyakhulu, this Act was not about „forced evictions" but rather was the Province"s attempt to address the UN"s MDGs (Huchzermeyer, 2011). The ANC conference at Polokwane in December 2007 resolved to extend the Act nationally despite opposition from shack dwellers movements and human rights organisations (Pithouse, 2009). The discourse of „slum elimination" is that it makes shacks, which are nothing more than the self built housing solution of the poor, appear as if they are a threat to society (Pithouse, 2009). The BNG policy has therefore not been implemented successfully as a result of the limited political will and bureaucratic support for the new innovative policy. What was more concerning was that the policy was accompanied by a discourse of slum eradication (Charlton and Kihato, 2006).

Since 2006, a wide range of actors, from consultants, NGOs, think tanks and donor funded initiatives to municipal officials have called for informal settlement upgrading to be intensified in the country to deal with the urgent need for basic services and interim improvements to address issues of human rights, dignity and health conditions (Huchzermeyer, 2011; Misselhorn, 26/03/2013). This thinking has started to take hold with the national state committing itself to informal settlement upgrading since 2010. At the base of this shift is an acknowledgement that informal settlements are here to stay and hence should be upgraded, where possible, as part of the provision of housing in South African cities. Outcome 8[14] of the Presidency in 2010 has provided the policy platform for informal settlement upgrading. Outcome 8 focuses on four outputs: accelerated delivery of housing opportunities, which includes a strong focus on informal settlement upgrades and rental housing; improved access to basic services; more efficient land utilisation and improved property markets. The language of Output 1 reveals the

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14 Outcome 8 is one of a system of Outcomes that has been introduced by the Presidency for different government departments. Outcome 8 defines sustainable human settlements in terms of the quality of accommodation, access to basic services, security of tenure and access of social services and economic opportunities. It also contains measures of success which include citizens' access to a bundle of urban resources, sufficient funding for

significant shift that has taken place at national level from the delivery of formal state subisidsed housing to the delivery of „housing opportunities". At a provincial level the Sustainable Human Settlements Strategy for KwaZulu-Natal (2011) provides similar guidance within the context of KwaZulu-Natal. The Provincial Informal Settlements Eradication Strategy (2011) is in the final stage of being adopted and will also inform housing policy in eThekwini Municipality (Misselhorn, 26/03/2013).

The housing question in South Africa is therefore a continual site of political struggle between repressive and transformative policy (Huchzermeyer and Karam, 2006). In the absence of any national policy on urban development, planning and the management of urban growth, the housing question and the way it can address urban integration and transformation remains a challenge as government attitudes to rural-urban migration and informal settlements continue to be ambiguous and at times ambivalent (Pillay, et al, 2006; Harrison, et al 2008; Turok and Parnell, 2009).

4.2.2. Housing policy and practice in Durban

The eThekwini Municipality"s Housing Unit has adopted a flexible policy framework for housing so as to enable the city to be innovative and responsive to housing needs. However, this flexible approach also undermines public accountability in housing as the local state can shift its position as it does not have a fixed policy framework with which it has to abide. The eThekwini Housing Sector Plan (eThekwini Municipality, 2011c), which provides the Housing Chapter for the IDP[15], provides a comprehensive overview of the Municipality"s approach to housing. The Housing sector recognises that it has be guided by municipal development objectives and that it has to engage and work with other sectors within the Municipality, Provincial Government and National Government, as well as external actors to achieve its objectives (eThekwini Municipality, 2011c). Housing in the city is a complex process and the Housing Sector has developed a range of strategies to address housing challenges for the poor[16], including the

provision of greenfield low cost housing projects, now with a range of densities and typologies; informal settlements in-situ upgrades; and hostel upgrading, as well as the provision of formal housing and upgrades through the Rural Settlement Programme. Rental housing has, as yet, not received adequate attention, which is problematic, as there is a high demand for rental accommodation in the city. The Community Residential Units programme (CRU) provides rental tenure for low income housing and it currently focuses on the upgrading of hostels, replacing the apartheid single sex hostels with decent, family orientated accommodation. Spatial knowledge and spatial models, such as the Access Model for Services (see Section 6.3) and the Cost Surface Model (see Section 6.3) have played a major role in informing strategies for housing in the city and in prioritising housing projects.

The mission statement of the eThekwini Housing Unit is to:

"facilitate and actively participate in housing delivery and the creation of sustainable human settlements in the eThekwini Municipality area with a view to ensuring that all citizens of Durban have access to a housing opportunity which includes secure tenure, basic services and support in achieving incremental housing improvement in living environments with requisite social, economic and physical infrastructure" (eThekwini Municipality, 2011c).

The provision of formal state subsidized low cost housing has been the main focus of housing policy for the poor in the city. Most of this housing has been developed on greenfields sites, but this is changing as in-situ upgrading of informal settlements has become an important programme in the city post 2009. The eThekwini Municipality has a successful track record in the delivery of higher numbers of formal houses to the poor, although the rate of delivery of RDP houses has declined over the past three years as the strategy around meeting housing needs has shifted (see Figure 10). According to the previous City Manager Mike Sutcliffe (2009) "no city in the world .... [has] provided 90 000 houses for the truly poor over five years and this year may well provide 30 000 houses as Cornubia comes on stream[17]". In 2007, the city received the National Govan Mbeki award for "being the only metro in the country to deliver low- and middle-income housing on a large scale" (eThekwini Municipality, 2008a). The local state had clearly aligned itself with national state policy on

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15 The Housing Chapter for the IDP is funded by the KwaZulu-Natal Department of Human Settlements and is a five year plan that contains an analysis of housing demand, strategy for housing supply, set of designed and prioritized housing projects and strategic links with other related sectors.

16 Low income housing in the Municipality is "informal, traditional, rental or individual ownership of serviced or un-serviced dwelling units by low income households with

incomes under R3500 per month. Single sex hostels also form part of low income housing" (eThekwini Municipality, 2011, p 25).

17 By 2012 the Cornubia project had only delivered 486 houses to the poor (Joyce and Mchunu, July 15, 2012).

housing. It should be noted here that the scaling up of delivery did come at some costs to quality where deficiencies in the quality of housing stock have been widely noted.

However, the city has also always adopted a relatively progressive approach to informal housing as an official from the Housing department suggests: "Our focus has always been (since 1997) on upgrading of informal setlements which includes re-location to greenfields development where required...what happened in 2009 was an increased focus on servicing of informal settlements and provision of interim services" (Byerley, 27/02/2013). This shift towards informal settlement upgrading is reflected in the ongoing debates and struggles over how to achieve the new national objectives at the local level of regularizing and upgrading informal settlements.

The Municipality has numerous housing programmes, many of which promote the ownership of homes, although this takes time to be realized in practice. The Greenfields Programme focuses on the delivery of formal, state subsidized houses (RDP houses) to relocated informal settlers (75% of all allocations), backyard residents and those that live in overcrowded accommodation. Residents that meet the criteria of state subsidized housing[18] can apply to the Municipality for housing, when housing projects are advertised as being available in the weekly Municipal newsletter. In the past they would have been placed on the Municipal Housing List. The Municipality"s approach of prioritizing informal settlements for relocation, which are located on inappropriate or private land, or at risk for flooding and landslides, has caused considerable conflict since January 2013. The recent land invasions in Cato Crest that have taken place as lodgers/tenants take land as a result of being displaced by in-situ upgrading projects; and the demolition of shacks in Lamontville, that were built as the older township decompressed; has raised the issue of the status of the „housing lists". Many poor residents in the city continued to believe that they were on the „housing list", having applied to the Municipality for low cost housing over the past ten years. However, the Housing Department has now publically stated that the housing lists no longer exist and have not been used to allocate housing in the city since 2007. There is considerable debate around the „housing list" system for allocating low cost housing in South African with researchers and

practitioners arguing that is no longer is an appropriate way of allocating housing. However, the expectations of communities is this is the mechanism of how low cost housing should be allocated in the country, and for those that have had their names on the lists for many years, the abolition of these lists would be a travesty.

This research has revealed that in eThekwini Municipality there are Councillors that promote the idea that they are in control of the housing allocation process and use this power over the residents in informal and peri-urban settlements within their wards (Sutherland and Robbins, 2013). Officials from the Housing Department indicate that they are responsible for allocating low cost housing, and that they obtain input from Councillors about the areas of greatest need. The allocation of housing in the city is therefore a highly political and contested process, with decisions taken on the ground not always mapping to policy and guidelines. For example, the relocation of over 800 households from Ocean Drive-In informal settlement to Hammonds Farm did not depend on whether residents of Ocean Drive-In were at a certain position on a housing list, whether they owned or rented their shacks, or satisfied the criteria for subsidised low cost housing. Residents had to be registered on the settlement list, reflected in the numbers painted on their doors, and they were allocated housing by virtue of the fact that they had mobilized around the issue of formal housing and were living on private land that was now being released to the valuable formal land market associated with Dube Trade Port (see Plate 7).

One of the most significant shifts in the provision of low cost housing has been the change in the typology of housing. The single house on a single plot model has been replaced with medium density housing typologies, including double story row housing. This increases density and ensures more efficient use of scarce land. The impact of this change is that those being relocated or allocated formal housing, do not have any choice around the type of housing they will receive. The relocation of informal settlers from Ocean Drive-In informal settlement to Hammonds Farm reveals the challenges which individuals, families, and those from different stages in the life cycle face when moving in to double story tenement houses from free standing informal homes. This case study revealed that the double story row houses appealed to the young and those with few dependents. Larger families, those that had relied on income from tenants and the elderly were concerned about the impact of this form of housing on their lives.

One of the government"s objectives of transferring an asset to the poor through formal housing, and thereby increasing the social wage, was to ensure that housing grew in value and became part of the formal property market.

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18   To qualify for state subsidized housing the applicants must be a South African citizen or a lawful South African resident, have a combined monthly income of less than R3 500 per month, must be married, have a partner or have dependents, must not have obtained subsidized housing before, and must not own another property.

Plate 7: Housing registration numbers in Ocean Drive-In informal settlement

Source: Sibongile Buthelezi (2012)

Plate 8: Housing registration numbers in Ocean Drive-In informal settlement

Source: Sibongile Buthelezi (2012)

Although RDP houses are sold within eThekwini Municipality, there is still a significant gap between low income housing and the formal property market. Most poor households rely on the informal housing market, which can lead to exploitation, but which also results in low cost houses being sold for less than what it cost the state to build them[19] and without the transfer of title deeds.

There is no doubt that the state has delivered a large number of houses to the poor in the city. There is also evidence that many of the earlier low cost housing projects are now developing in to more integrated and diverse neighbourhoods as communities invest in these spaces over time. Perhaps the most striking outcome of this process, is that the „dream of a formal house" becomes a reality for the poor, each time an individual or family is relocated or moved in to a formal house. The end product of this is a deep and strong feeling that the ANC has delivered, which echoes the conflation of the state and the party, which is so strongly evident in South African politics. ANC colours and paraphernalia were displayed with great intensity and joy on the day of the first move of residents of Ocean Drive-In in November 2012, as Plate 8 reveals.

The Informal Settlements Upgrading Programme is another of the eThekwini Housing Unit"s major housing programmes and it receives a large share of the provincial budget. According to the SDF 2012/2013 (eThekwini Municipality, 2012a) the policy of the city and its Housing Unit is to upgrade informal settlements wherever possible and to only relocate residents if upgrading is impossible for health, safety or technical reasons. The aim of upgrading of settlements includes the provision of social and economic amenities and the integration of these settlements into the broader urban fabric to enhance sustainability. The Informal Settlement Programme in eThekwini Municipality (which used to be called the Informal Settlements Upgrade Programme) has been running for five years and categorises informal settlements in the following manner: relocation, in-situ upgrades, immediate attention (short term), medium attention and long term attention (Magerman, 06/11/2012). A total of 167 informal settlements have been identified as being on the priority list for relocation and upgrading based on a number of different criteria: their location in relation to the cost surface model (see Figure 26); trunk routes; the UDL (see Figure 2, Figure 3 and Figure 12) and the Spatial Development Framework (see Figure 8). This list was sent to Council for approval and now informs the approach adopted in the city. Spatial knowledge is very important in the process of prioritising informal settlements for upgrading or relocation.

Informal settlements in the city range in size from a few dwellings to 14 000 dwellings. Water, sanitation and refuse removal services are either provided or planned for roll out in these settlements. Illegal electrical connections are widespread, which causes safety issues and disrupts supply to formal residents. The Interim Services Programme forms a major focus of informal settlement upgrading in the Municipality (see work package 4). Interim Services are provided to settlements earmarked for upgrade but which will not be relocated or upgraded via the housing programme in the short term (eThekwini Municipality, 2012a). The package of services includes water, sanitation (communal ablutions, UD scheme), roads, footpaths, stormwater controls and electricity. Depending on the location and density of settlements, the full package of services may be altered or reduced. The goal of eThekwini"s Interim Services Approach is to rapidly deliver to as many settlements as possible a basic set of interim services as opposed to providing a high level of services or housing to only a small number of selected settlements. The interim services roll out is beginning to emerge as a core programme which may overtake the formal housing delivery programme in term of its reach, as it will benefit larger numbers of households. The interim services approach is supported by both National and Provincial Departments of Human Settlements and is provided through the Consolidated Infrastructure Plan (CIP) and is driven by the Engineering Services Department (see work package 4). The roll out of interim services through a renewed commitment to informal settlement upgrading in Durban, represents an important advancement towards the targets of the MDG. However, there is limited community level participation and a lack of bottom-up definitions of appropriate qualities of services (Huchzermeyer, 2011).

However according to Huchzermeyer (2011, p 245):

"the new urgency of the interim services rollout has largely prevented any bottom-up definition of what might be considered appropriate levels and forms of interim services, and any consideration of whether communities could be involved in their implementation".

There is also concern that the roll out of these interim services, where they occur, will postpone decisions about permanent recognition and upgrading and so they will become a stop-gap that does not prompt long term change or the possibility of permanence through in situ upgrading (Huchzermeyer, 2011).

The Rural Housing Programme applies to housing development outside the UDL. A large percentage of this land is under Traditional Authority and hence land tenure

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19 A typical RDP house costs approximately R120 000 to build (eThekwini Municipality, 2011)

in these communal areas in this instance becomes a long term lease. Functional tenure allows beneficiaries to obtain subsidies for housing or obtain in-situ upgrades of services or top-structures (eThekwini Municipality, 2011c). Newcomers with new builds negotiate with the person living on the land and the Nduna (sub-Chief) to obtain space to build a new home in the rural area. The rural programme funds in-situ upgrading projects that include new builds, upgrading of services and upgrading of dwellings. Community members in peri-urban areas report that Councillors are responsible for allocating upgrade opportunities and that they will upgrading houses with the greatest need. Tension has arisen over the allocation of jobs related to upgrading projects with local communities arguing that local labour should be used and allocated in a fair and transparent manner. In KwaNgcolosi, the community led a protest in 2012 against the unfair allocation of employment opportunities by the Councillor.

Dense peri-urban and informal settlements that are located outside the Urban Development Line will be considered for interim services, where applicable. The bulk of investment and upgrading in the rural periphery has been done by the Engineering Department through the provision of basic services (see work package 4 below). The research reveals that the quality and functioning of peri-urban and rural households is often better than in many low cost formal housing projects, raising the question of the appropriateness and value of „upgrading" peri-urban or rural housing to RDP housing. Rural mass housing is not supported by the Housing Sector Plan, with lower densities being encouraged in the rural periphery, because of the opportunities environmental services offer in this area of the city, particularly to assimilate waste water.

The relationship between land demand and housing typology is considered to be a major issue in the Municipality. The IDP, as well as other strategic planning documents, indicates the intent of the city is to densify. A land audit will be conducted to determine spaces in the city where densification can take place. The greatest opportunity for land acquisition in the city is in the North and the Outer West. Densification also needs to take place along major transport routes.

There are major land constraints for housing development in the Municipality including "lack of well located and suitable land; poor geo-technical conditions; high land values; competing land uses; environmental restrictions; land claims and conflicting interests with adjoining communities" (eThekwini Municipality, 2011c: 31). Land acquisition for informal settlement relocations also requires that land is found in close proximity to the existing settlement so as to ensure that the livelihoods and

social capital of informal settlers is not too severely disrupted by the relocation. Many informal settlers work in close proximity to their homes and relocation can impact significantly on household income as a result of increased transport costs for work and other activities, such as transporting children to school. The acquisition of well located land is becoming increasingly difficult in the Municipality and therefore impacts on the development of sustainable human settlements. This is coupled with a change in funding regimes which makes access to land a major problem for the Greenfields Programme.

Cornubia Development, which is a large scale mixed use development in the north of the Municipality, has a large low cost housing component. This project was designated as a National Presidential Lead Project, like N2 Gateway in Cape Town, and has been developed through a public-private partnership between the Municipality and Tongaat-Hulett Properties. The land for this project has been obtained through the release of both public and private land holdings. The politics of decision making around the provision of low cost housing in this project is reflected on in Sutherland et al (2011). Since the inception of the project, the number of low-cost housing units has steadily declined. With tensions around the allocation of formal housing in the city growing, it is evident that the limited number of low cost houses in Cornubia will be competed for by a number of communities represented by their Councillors in the surrounding wards, as well as the residents of Blackburn informal settlement who currently live on the site. The allocation of housing as a result of this development is likely to be a highly contested process which is yet to be played out through the housing allocation system developed by the Housing Department in the Municipality, which is currently being questioned by communities living in informal settlements, and the political structures of the Municipality and those waiting to receive formal housing.

A critical issue in housing the poor that is not adequately addressed is the issue of where newcomers and those that decompress out of existing crowded areas in the city find housing and secure a „right to the city". The Municipality cannot demolish shacks unless it has a court order. However, communities have reported that as soon as a new shack is built the Land Invasion Unit will arrive and take it down. These „rules of the game" are well known by communities and are supported by the Councillor"s office. Community members keep their records updated on informal housing lists that are held in the Councillors" offices. These lists also record the selling of shacks from one person to another. In two community case studies that form part of this research, community members reported that houses that were being rebuilt by individuals after they had been damaged by rain, were immediately taken down by the Municipality as they

were considered to be new shacks. The Land Monitoring Section monitors the building of new shacks on a daily basis but the Municipality cannot order the demolition of these shacks without a court order.

The Housing Department also states that it empowers communities to monitor their own settlements, by educating them about the risks of allowing new land invasions when their settlement has been identified for relocation. This self-monitoring is evident in communities, which is a shift from the past where informal settlers understood that new invaders were searching for the „right to the city" just like they were when they moved in to the informal settlement. Informal settlers now argue that it is in their interests to prevent the building of new shacks or to report them, as new shacks will impact on service delivery or the provision of formal housing for their community. Housing officials state that there are opportunistic individuals who build new shacks within settlements, not for their own housing, but to rent to lodgers/tenants thereby making an income from these invasions. The recent protests around housing in the city reveal that many of those whose houses have been demolished are poor, often women headed households with nowhere else to go. The rapid densification of the rural periphery, as shown in Plate 5 provides evidence of where those moving in to the city, or out of crowded areas are gaining access to land and housing. This provides a contrasting story where court orders allow shack demolitions within the city, but those that are able to negotiate with a household with functional tenure, can gain access to land on the periphery of the city, without being at risk of having their house demolished.

In most cases shack owners, or those that inhabit the main shack, are treated in the same way as lodgers/tenants. In the past lodgers/tenants would not have been moved along with the main household to formal housing, which meant that in in-situ upgrades as soon as the main households were moved to transit camps or new housing projects, the site would not be clear, as the shacks would not be inhabited by lodgers/tenants with nowhere to go. In the Ocean Drive-In case study the relocation of households to Hammonds Farm was decisive: both owners and tenants were allocated formal housing and on the day that a household was moved, the shack was razed to the ground to prevent new people moving on to the site. The move has taken over seven months to complete and this has raised challenges for those left behind as they live amongst the rubble in a dis-functional settlement that has lost its sub-ward committee to Hammonds Farm, as well as its crèche, spaza shops and other forms of social capital (see Plate 9).

Figure 13 shows the planned housing projects for the Municipality. The Housing Sector Plan recognises the importance and value of densification in the city and has ensured that 80%of its new housing projects are located within the UDL, which reveals the stabilisation of the discourse of the UDL within the city and the impact this is having on planning and development (see work package 4 as well). The Housing Department, along with other sectors in the Municipality, have also recognised that the housing programme has provided houses, not human settlements. It is will now be developing pilot projects for the development of social and economic facilities within existing RDP housing projects so as to address this social amenities deficit (Bhengu, 06/11/2012).

Housing in Durban is funded by a range of funding programmes provided by national and provincial Departments of Human Settlements. The three main sources of funding are the housing subsidies from Provincial government, the Urban Settlement Development Grant (USDG) from national government and internal funds from eThekwini Council. The funding arena has shifted considerably in the last few years, particularly as a result of Outcome 8, and this has impacted on housing delivery in the city. The most critical issue for eThekwini Municipality is that the Interim Services Programme cannot be funded by the national Upgrading of Informal Settlements Programme which reveals a disjuncture between different tiers of government and the challenges that arise when different levels of government are not aligned with each other.

Housing decisions in the Muncipality are made through a hierarchy of structures. The political nature and magnitude of the housing decision determines which level in the hierarchy the decision is taken. eThekwini Housing Department reports to two Committees: the Sector Housing Committee and the Housing Working Group. These two committees report to the Standing Committee on Housing and Infrastructure which then reports to the Executive Committee of the Municipality (eThekwini Municipality, 2011c).

4.3. Social Mobilization

Social mobilisation around housing issues has increased in Durban since January 2013 as a signal of the pressure that is building in the housing system in the city. Although the Municipality has a range of housing programmes in place, these programmes are not keeping up with the demand for low cost housing in the city. These recent „flashpoints" are being widely reported in the media, and are shaping people"s perceptions about housing challenges in the city.
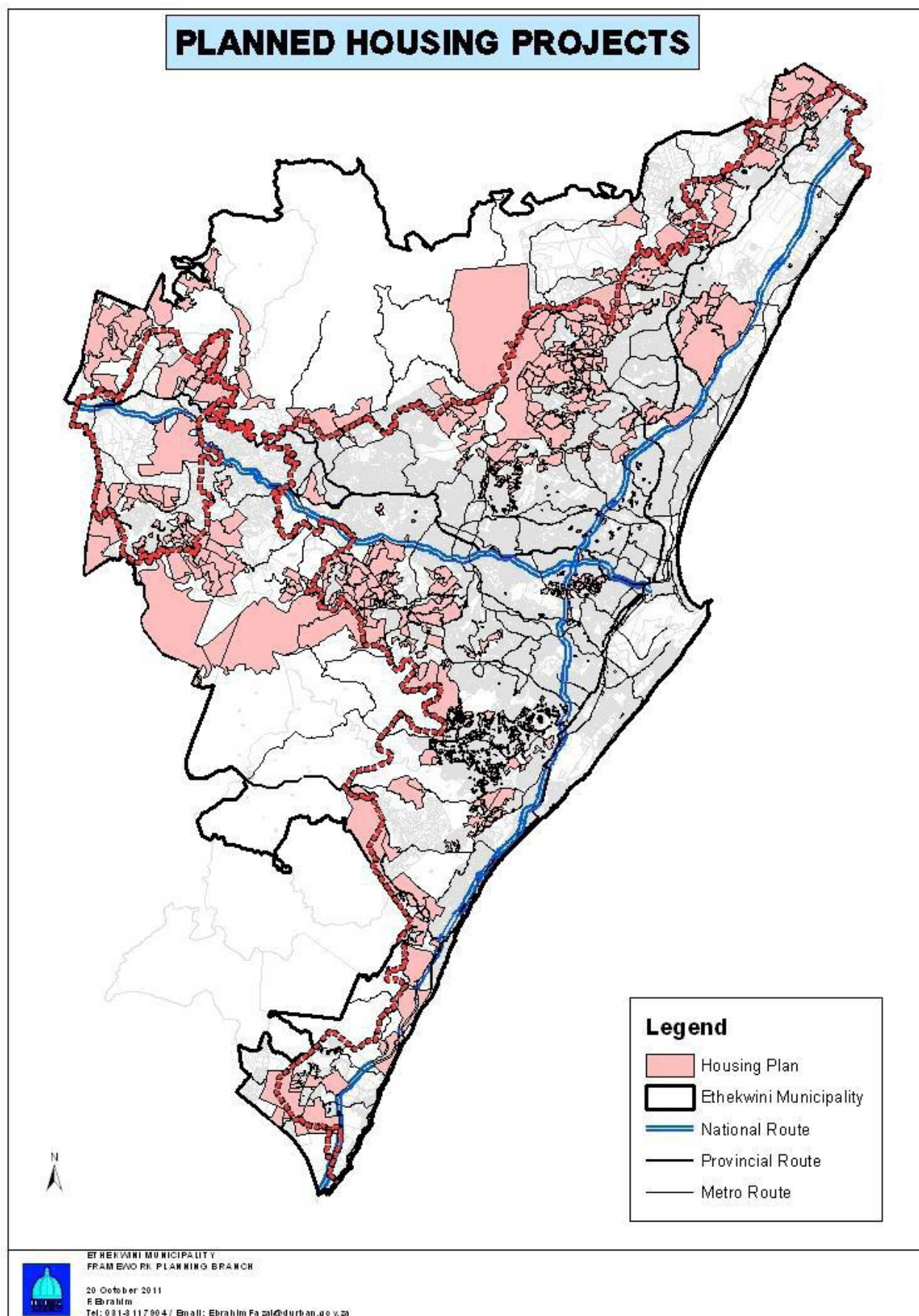
Plate 9: Moving from Ocean Drive-In: those that leave and those that get left behind

Source: Catherine Sutherland, November 2012

Figure 13: Delivery of formal houses in eThekwini Municipality

Source: eThekwini Municipality (2012a)

Prior to this many smaller local protests around the „right to housing" were taking place, however these were going on relatively „unnoticed" in the city. This has happened for a number of reasons which are explored below.

Since 1994, the ANC has argued that social movements need to become part of the institutional structures of the state and hence be aligned with the institutional politics of the ruling party. According to Tshishonga (2012) the broader agenda of democratising, restructuring and decentralising decision-making was to be achieved through the formation of the participatory ward system in South Africa, as municipalities were to engage with citizens through ward committees. The development of the Ward[20] Committee System, with an elected Ward Councillor has defined the relationship between the state and its citizens. The ward committees are legislated and established through the Municipal Structures Act (1998) and they are considered to be any form of structure, channel, development forum and residents association for local democracy and participation that is re-constituted to form the ward committee as stipulated in the Municipal Structures Act (1998) (Davids, 2005; Tshishonga, 2012). They are not the only mechanism for citizens to engage with the state, but they have become the dominant model as this research shows (Sutherland et al 2012). Ward Committees were not set up in Durban up until 2006 (Piper and Navdi, 2010).

The control of ward councillors and ward committees of communities, and the co-option of local organisations into ward structures have led to the demobilisation of civil society (Pithouse, 2009; Piper and Navdi, 2010). Community members, particularly in informal settlements, have indicated that their relationship with the state is defined and controlled by the Ward Councillor. In Traditional Authority (peri-urban) areas, where power is distributed between the Councillor and the Nduna (traditional leader), there appears to be more space for negotiation. In most communities, a proxy of a sub-ward committee exists, given that ward committees have not been elected post the 2011 local government elections, as well as a policing committee or security committee. Stokvels (savings groups) and care based committees occur in abundance in communities, but these social organisations only deal with social issues, with members stating that they purposively keep politics out of them. Many community members stated that they do not attend committee meetings as they are all about promoting party politics, and they do not address community issues. Protests are held around housing issues, but these are not done to topple the state,

but rather as „flashpoints" to gain attention. These are quickly quelled by the Councillor with the support of the police. Many community members indicated that they were scared to protest as they feared the police. Civil disobedience in the form of social protests is also controlled by threats of the allocation of formal housing for informal settlements waiting to be relocated being withdrawn. However, in some communities social protests have led to positive responses from the Councillor and hence they have served their purpose of drawing attention to a particular group or community within a ward.

The majority of social mobilisation within Durban is localised and fragmented. However, Abahlali base Mjondolo (AbM) and to a certain extent Shack Dwellers International (SDI), have had a significant role to play in developing a broader „city wide" approach to social mobilisation, that has been addressed at the highest levels within the Municipality. AbM"s claim of „no house, no vote" challenged the politics of the state and began to set new precedents around how civil society groups engaged with the local state. The relationship between AbM and the ANC in Durban has been highly confrontational and difficult, and it is clear that in ANC dominant communities within the city, AbM is not welcome (Huchzermeyer, 2011; Sutherland et al, 2012). However, even with these constraints, AbM has been successful in creating a „framework of resistance" upon which other social organisations in the city can draw, and against which other social protests can be framed. Negotiations between (AbM) and the eThekwini Municipality led to the signing of an agreement in 2009 that three informal settlements would be upgraded in situ within the inner urban core and that a further fourteen settlements would obtain basic services in line with the principles of the BNG. AbM has been very successful in terms of obtaining court orders to address housing rights. Using the judiciary to advance social rights for housing has become the dominant approach of this organization. Although AbM has a presence in a limited number of settlements, its impact on housing in the Municipality has been significant.

The state and SDI in Durban portray ABM as a protest movement, with SDI advancing its agenda by positioning itself as a constructive deal maker (Huchzermeyer, 2011) even though ABM was negotiating with the state in 2008 to ensure that interim services were provided to 14 informal settlements as opposed to formal housing being provided for an elite few (Huchzermeyer, 2011). The Project Preparation Trust (PPT), a progressive project management team acted as the intermediary in this process, providing evidence that communities and the state can engage meaningfully in collaborative processes that ensure sustainable outcomes (Huchzermeyer, 2011).

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20   The eThekwini Municipality is divided into 105 wards, each with an elected ward councillor who represents his or her ward on the Municipal Council.

Huchzermeyer (2011, p 15) states that the "majority of informal settlement and right-to-the-city struggles across South Africa and other African countries are still fought without legal, social movement or progressive NGO and academic support of any kind". As Hunter (2010) argues the real struggles happen through the energy and commitment of thousands of individuals in informal settlements whose daily struggles and ways of finding a place in the city individually and collectively shape urban space, often against all odds. The complex relations, innovation, humanity and political action of these urban residents as they are expressed in informal settlements need to be recognised as part of the struggle for the right to the city. Often the continual threats of relocation, consistent hostility and the undermining of their place, in the city prevent these settlements from developing and progressing into neighbourhoods that provide improved living environments (Hunter, 2010).

Social movements in informal settlements are difficult to sustain due to power struggles and political competition, the power of councillors in controlling and shaping the resistance and organisation that is tolerated in the informal settlement and as a result of NGOs providing unequal support to ensure that their own interests are met (Huchzermeyer, 2011; Sutherland et al, 2012). The lack of the most basic resources also undermines people"s ability to participate consistently and over the long term in the struggle to secure better housing. The top down approach of the ANC and its control of communities through the ward structures that have been put in place plays a critical role in demobilising civil society. Huchzermeyer (2011) argues that decisions by the state around upgrading projects and the relocation or demolition of informal settlements, or their replacement in situ by standardised housing are not only technical decisions. She stated that in many cases

"the local or even central political order perceives an organised struggle for self-definition or emancipation in the 'development' process, for in situ upgrading and against externally defined relocation projects, when articulated from within informal settlements, as a threat. Voices from within informal settlements have often unleashed intensified attempts at forcing relocation" (Huchzermeyer, 2011, p 244).

4.4. Reflections

Rapid urbanization and decompression from existing crowded settlements within eThekwini Municipality is placing intense pressure on the housing situation in the city. At the same time the social contract between the state and

its citizens in relationship to housing is changing, as the state (both local and national) moves away from a state drive subsidized housing model towards facilitating and supporting a set of „housing opportunities" (Misselhorn, 26/03/2013). This new approach reveals a shift for the state from being the „provider of housing" to „working with communities to produce sustainable human settlements". This is being supported by civil society organisations and academics who are arguing for a more innovative and progressive solution to informal settlements that takes into account the bundle of urban resources the poor need access to, so as to improve their quality of life in the city.

However, the danger here is that the state can delegate its responsibility of addressing the housing needs of the poor to the poor themselves, making the urban settlement question an issue for the poor to resolve. Upgrading of informal settlements is challenging as there is no clear or dominant discourse around what „upgrading" means and hence it remains a contested term. It may be that a flexible and context specific approach to upgrading is necessary, as is incremental learning, however, given the impact informal settlements have on people"s health, quality of life and dignity, it is essential that that state and its citizens deliberate what „upgrading" and inclusion means. Currently secure tenure and the provision of basic services is the baseline for upgrading, however this needs to be expanded to include social and health facilities (Misselhorn, 26/03/2013). Solutions for developing sustainable human settlements for the poor, which include informal settlements, need to be delivered at scale and with relative speed as it morally unacceptable not to address these problems, while seeking out a „good" solution. Engineering Services in the Municipality have been progressive and innovative and have led by doing and other sectors within the city need to follow a similar path to ensure resilience.

The Municipality is also shifting towards more dense typologies of housing, such as double story row houses. The Housing Sector recognises the importance and value of densification in the city and has ensured that 80% of its new housing projects are located within the UDL (eThekwini Municipality, 2011a). The need to develop a viable public transport system, curb urban sprawl, locate poor people close to employment opportunities, create urban efficiencies and protect the ecological buffer and rural way of life of the periphery all support the densification of the Municipality. However, densification, due to higher land and top structure costs, is not easily supported by the current funding regime. Land acquisition is a major issue in the city. Well located land is dwindling in supply, is expensive and has to compete with a whole range of other land uses.

The politics of the housing process has now fallen under the spotlight with the Housing Department stating that housing lists are no longer used to allocate housing in the Municipality. The confusion that exists around the allocation of housing and upgrading of informal settlements creates conflict and tension, as allocation is currently done through a mix of input from both councillors and officials. The pressure on housing allocations in new large scale projects, such as Cornubia will intensify the situation as this housing has been earmarked by a significant number of ward councillors and communities for relocation.

The eThekwini Municipality and those that have engaged with the state around housing in the city, such as AbM and PPT, have shaped the response of national government to housing. The relationship between the local and national state around housing is a constructive relationship and this has played a positive role in shaping housing in the city. At a local government level the relationship between the Housing Sector and Engineering Services has been important, with Engineering Services providing significant positive input in addressing the housing challenges in the city. The leadership and level of professionalism of the Engineering Services has been critical in addressing both short term and long term housing needs in the Municipality.

The majority of the challenges around creating sustainable human settlements are spatial and can be addressed through the improved location of housing and public transport. The Housing Sector argues that the main criteria that should be prioritised in greenfields projects and informal settlement upgrades are: walking distance to public transport trunks; upgrading in existing settlements that have higher densities; location in spaces that require low investments in bulk infrastructure; location within the Urban Development Line; and be located close to social facilities. The Housing Sector plan reveals the importance of spatial knowledge in informing decision making in housing as spatial knowledge produced by other sectors within the Municipality, as well as the Housing Sector, plays a critical role in informing both policy decisions and implementation.

Defining what is rural and urban in the city and exploring how both formality and informality address poverty in the city are critical issues that need to be explored. In many cases in the Municipality, citizens are relocated to formal RDP housing projects from informal settlements, only to return to informal settlements because they provide them with more opportunities in the city. Formal houses are rented out or sold and those moving back to informal housing therefore re-invest in these spaces, making them a housing solution that will therefore always be part of the city. Circular migration of people between Durban and rural areas in KwaZulu-Natal and the Eastern Cape also perpetuates the growth and value of informal settlements, which are cheap to live in, allowing working migrants to send the bulk of their money home in the form of remittances. This changes the commitment people have to the „urban" and hence raises questions about how the development of sustainable urban developments can allow for and support this dual citizenship between an urban and rural space.

Public participation in the housing process has been weak as this research reveals. The relationship between the state and its citizens over housing includes protests, legal action and more recently land invasions. The Municipality relies on the weak Ward Committee system, which provides a channel for information sharing and feedback, but it does not allow for communities to actively engage in the planning and development of their housing solutions for the future. Communities do not always claim their right to participate in the ward committees, as is shown by a recent Ward General Mass Meeting in Ward 62 where 1000 people turned up for the meeting out of 24 000 ward members (Mabaso, 03/12/2012). The need for control by Councillors and their fear of opening up debates with their constituents means that the poor are providing very little meaningful input in to the housing process and social capital is therefore not being leveraged or developed. However, there are Councillors in the city that argue that more participation is required to build a stronger civic identity and to be able to hear and respond to the needs of the poor.

Researchers working on participation in the city have suggested that a new institutional model for participation needs to be developed in the Municipality that functions at the neighbourhood level and which re-democratises society thereby developing a robust civil society (Pithouse, 2009; Sutherland et al 2010; Misselhorn, 26/03/2013) as the 17 (recently enlarged to 24) planning clusters or 105 wards are too large. However, there is also concern that communities have become complacent and are waiting for the state to deliver. Councillors indicated that the poor were not always willing to work with the government to help themselves, but rather wait for the state to solve their problems as this is what the post-apartheid state had promised them. The unwillingness of the youth to engage in building their future was of strong concern to councillors.

Water Governance and Climate Change Issues (WP4)

5.1 Introduction

In South Africa the National government is responsible for and has authority over the country‟s water resources but local governments or Municipalities, which act as Water Services Authorities, are responsible for water and sanitation service provision[21]. Water and sanitation in the eThekwini Municipality is managed by the eThekwini Water and Sanitation Services (EWS), which is located within Engineering Services. EWS is globally acclaimed for its technical capacity and innovative approach to water and sanitation provision in a fast growing developing world city. This research defines water governance as including both water and sanitation services as EWS argues that water and sanitation cannot be governed and managed separately as they are interdependent and strongly shape each other in the city[22] (Macleod, 25/04/2012)[23].

The water supply systems in Durban are under considerable stress as a result of periods of droughts, more intense rainfall events due to climate change, deterioration of water quality and catchments, lack of adequate bulk infrastructure and rapid urban growth (eThekwini Municipality, 2012; Gillham, 10/03/2012). Although the eThekwini Municipality is a water scarce Municipality, the city experiences periods of higher rainfall that creates the public perception that water supply is not a major issue in the city. Climate change predictions suggest that the Municipality will experience wetter summers and winters, with a higher frequency of storm events (Tooley, 21/08/2012; Pfaff, 10/09/2012). However, this does not translate into a stable supply of water for the city due to the increasing demand for water and the lack of bulk

infrastructure to manage and distribute water. Poor long term infrastructure planning over the past twenty years has impacted on the future supply of water in the Municipality. The steep topography of the Municipality, particularly in the rural periphery, also poses significant challenges for water supply. The Umgeni Water system can only provide a level of assurance of water supply at 95%, which has dropped from 99%, which will lead to water restrictions once rainfall returns to normal from the wet cycle the city has currently been experiencing (eThekwini Municipality, 2012).

The water supplied in the Municipality is purchased in bulk from the state-owned entity, Umgeni Water. This water is then distributed by EWS to the Municipality‟s residents, which EWS refers to as its „customers‟, reflecting its „business-oriented‟ approach to service provision. The Spring Grove Dam, which is due to be completed in 2014, has been built to supplement water supply in the Municipality, as the Umgeni system no longer meets the demand for water. This new dam will only meet the current demand for water. As a result, the eThekwini Municipality is presently considering the development of a direct re-use system, however, this has met strong public resistance as a result of social, cultural and technical concerns about recycling sewage water in the city (Mercury, 29/10/2012; Pfaff, 10/09/2012). The development of the Western Aqueduct which will move bulk water to the north of the city, where there is a shortage of bulk water supply, will also facilitate better management of water resources in Durban in relation to the distribution of water from the Umgeni system. Water quality in the rivers of Durban is another challenge faced by EWS and other sectors of the Municipality. This issue is the responsibility of a number of different departments and units in the Municipality and is dependent on an integrated planning approach in order to mitigate the impacts of un-serviced settlements and industry on river quality.

Water loss through leaks is also a major issue in the Municipality. The Municipality does not obtain enough funding through the National Municipal Infrastructure Grant for service provision and maintenance. One of the most significant impacts of this lack of funding is that infrastructure for water and sanitation services are not adequately maintained. This leads to a significant amount of water being lost through leaks, which has implications for water demand management. Water losses through

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21 The Constitution (Chapter 7, ss 155 (4)) states that Municipalities must provide municipal services in an equitable and sustainable manner. The main areas of service provision within water and sanitation at the Municipal level are stormwater management systems, water and sanitation services including potable water systems and domestic waste-water and sewerage disposal systems (Meyer, 2013).

22 The National Department of Water Affairs and Forestry (DWAF) now Department of Water Affairs (DWA) (2003) defines water services to mean both water supply services and sanitation services.

23 Neil Macleod is the Head of the eThekwini Water and Sanitation Unit.

leaking pipes and illegal connections contributed to 36.4% of non-revenue water in the 2011/2012 financial year.

The Municipality has completed a number of ecological reserve determination studies as part of their planning for new sewerage works, however, the Department of Water Affairs (DWA) have not finalised these applications and hence the Municipality cannot proceed with its future sewerage planning, which given the controls DWA is likely to place on ecological resources, will have to be based on extensive and expensive cross-catchment pumping and direct re-use of treated sewage effluent for potable water supply (eThekwini Municipality, 2012a).

The provision of an acceptable level of basic services is a major focus of both the national and eThekwini Municipality developmental agenda. However, this pro-poor effort is tempered by the neo-liberal pro-growth approach that is dominant in the development agenda of South Africa. Water and sanitation in the eThekwini Municipality therefore has both a cost-recovery and pro-poor focus. Both national and local policy states that the Municipality has to ensure regional efficiency in water provision, be cost effective and socially responsive, ensuring that all residents have access to a basic level of affordable water, and achieve the benefits of scale (South African Government, 1998; EWS, nd). Table 9 presents the current level of service provision in the Municipality, which reveals the high level of water provision and the challenges associated with sanitation provision.

The following section explores water and sanitation vulnerabilities in the Municipality and their spatial distribution.

5.2. Water and Sanitation Vulnerabilities in Durban and Their Spatial Distribution

Considerable progress has been made in Durban in water and sanitation service delivery post 1994 (see Table 9). The eThekwini Municipality has reduced its water backlog to 15% of what it was in 1996 and the sewerage backlog stands at approximately 50% of the 1996 figure (Macleod, 25/04/2012). In terms of water delivery, 91% of households have water available within 200 m of their home. Water was rated as the tenth most serious day to day problem in the city (after poverty, employment, health issues, drugs, housing, etc.) (eThekwini Municipality, 2011b) and this research reveals that most citizens feel that they have adequate access to water. EWS has been the lead

agency in securing free basic water for citizens in South Africa. The Municipality provides free basic water of 9 000 litres per month to households whose value is below R250 000. The city offers three systems of water provision based on tariffs: the full pressure system, the semi-pressure system where flow restrictors are applied when households cannot manage the costs of water on a full pressure system and ground tanks or yard tanks that are supplied with 300 litres per day to the poor who qualify for free basic water (9 000 litres per month). Residents of informal settlements, who are the most vulnerable in the city, obtain free water through communal tap points that are provided within the settlement. Empirical research reveals that poor residents are generally satisfied with water provision in the Municipality (Lewis et al, 2013).

EWS has adopted a pro-active and socially responsive position in terms of the provision of free basic water. The Municipality was the first to provide free basic water in South Africa and the lessons learnt in the city led to the development of the free basic water policy at National level. Initially the poor were provided with 6 000 litres of free basic water per household per month. However, as a result of EWS"s concerns about the impact of illegal connections on water supply in the city, and the social learning that occurred through water forums and surveys with customers in the Municipality around the amount of water households required to meet their basic needs, particularly with ill household residents, EWS raised the amount of free basic water supplied to poor households to 9 000 litres per month. EWS had hoped that by providing an additional amount of free basic water household would be more willing to participate in the formal administrative system of water provision, rather than obtaining it from illegal connections. According to Galvin (25/07/2013) the increase was also cost effective for the Municipality as the costs associated with providing additional water were balanced by the costs of billing people once they had used 6 000 litres per month. Initially this was provided universally across the city, but in June 2012 the policy shifted whereby only those living in households valued at below R250 000 per month had access to free basic water.

There are concerns from a number of different actors both within the Municipality and outside of it that the provision of free basic water undermines the social and economic value of water (SPEIPD Strategic Manager, 31/07/2013 and Manager Decentralised Environmental Solutions, 29/08/2012, cited in Meyer, 2013). These actors believe that the Municipality has to generate revenue to support sustainable water and sanitation services and that by attaching an economic value to water, the social value of water and its value as a limited resource, is raised within communities.

Table 9: Housing backlogs in eThekwini Municipality 2011

	Water provision 200m from household	Municipal water borne sewerage	Septic Tanks	Ventilated Improved Pit Latrines	Urine Diversion Toilets (UD Toilets)	Communal Toilet Blocks	Backlog
Water provision	91%						9%
Sanitation provision		47.5%	11.4%	3.7%	8.4%	5.2%	23.7%

Source: Byerley (22/05/2013)

Plate 10: Grey water tanks which provide 9 000 litres of free water per month and a tap point in a household that pays for municipal water through the formal billing system: KwaNgolosi

Source: Bonang Lewis, 2012

Plate 11: Dis-functional VIP toilets in Ocean Drive-In and new Interim Services Programme Communal Toilet Blocks

Source: Kim Geesink and Bonang Lewis (2012)

Sanitation provision is more challenging in the city as bulk sewerage infrastructure only extends to the edge of the urban core (see Figure 15) and water borne sanitation is dependent on increased water use. This has resulted in a spatially differentiated model of sanitation service provision with those in formal housing in the urban core having access to flush toilets, while residents living in informal settlements have access to on-site sanitation, such as pit latrines and toilets in communal blocks provided through the Interim Services Programme. Those living beyond the UDL in formal suburbs have access to on-site septic tanks, while those in peri-urban and rural areas have access to pit latrines and Urine Diversion Toilets (Sutherland et al, 2013). Sanitation tariffs are also sensitive to the ability of people to pay for such services. Prior to 2010 residents were charged a sewerage tariff based on the value of their property. This was added to the rates bill. There is now no fixed charge for residential users. Domestic users pay on a five tiered unit charge while non-domestic users pay a flat unit charge plus fixed charge depending on the connection size. The charge is based on the percentage of each user"s monthly water meter consumption.

There are still high levels of dissatisfaction with sanitation provision in poor communities within the city. Residents of informal settlements experience considerable health risks and loss of dignity as a result of the high level of open defecation that takes place in settlements. Many of the pit latrines in settlements do not function properly and hence people resort to using open spaces around the settlements, where these exist in less dense settlements, or use the pathways within the settlement as toilets. This becomes particularly problematic after rain where pathways become open sewers of waste water and human waste, often rushing in to resident"s homes. In some areas the Communal Toilet Blocks function well under the care of community based supervisors but in other areas these blocks are vandalised and become un-useable.

EWS is committed to finding solutions for managing the communal blocks that form part of the Interim Services Programme, as they believe the backlogs in housing and service provision make it essential that the Interim Services Programme functions effectively. In peri-urban and rural areas where Urine Diversion Toilets (UD toilets) have been provided, research reveals that these toilets are not always used as intended. Communities in some parts of the city refer to these toilets as „gobiqolo" toilets as result of the way in which they were built. Communities indicate that the toilets are too difficult to use with too many instructions, that it is hard work to clean them and that they do not function properly. Some residents stated that they reserve them for visitors and build and use their own pit latrines. Many residents feel that the UD toilets are unacceptable

and reflect inequality as they are a form of second rate technology that has been foisted on the poor. VIPs and UD toilets have been criticised in South Africa as being an inadequate form of sanitation delivery due to poor management and maintenance, particularly in terms of the emptying VIP and UD toilets; the smell produced by the toilets; hygiene problems associated with such systems when they are shared and have to be emptied; and the lack of space within these toilets (Matsebe and Duncker, nd; Austin, 2006). However, large numbers of residents do use these toilets and the Municipality is engaged in on-going research to improve their functioning. EWS has also now taken on the responsibility of emptying these toilets. In peri-urban and rural areas, the environment manages most of the waste water from households as residents use their larger plots with gardens to dispose of waste. With increasing densification of these areas the sustainability of this approach, which takes place in the ecological buffer zone of the city (the rural periphery) is questioned.

The „ladder of water and sanitation provision" was presented by national government as a means of progressively improving levels of service over time in line with the original aims of the Reconstruction and Development Programme in 1994. However, expectations around water and sanitation delivery in South Africa have been raised by this concept, as poor communities believe that the level of services they obtain will continually improve as they move from basic sanitation systems such as UD Toilets and communal stand pipes to full service provision (Gounden et al, 2006). However, this model is not sustainable in the South African context as it is not possible for municipalities to provide full waterborne sewerage services to all citizens across the country, given the resources available and the backlogs in basic service provision that exist. Research on water and climate related vulnerabilities reveals that in all communities surveyed for this study the main vulnerabilities relate to poor sanitation services and flooding caused by storm events. Sanitation and waste water problems are the most problematic as a result of their impact on human dignity and on health issues.

The spatial history of the Municipality has had a considerable impact on the spatial distribution of water and sanitation vulnerabilities in the Municipality. During the apartheid era, the homeland of KwaZulu was located adjacent to the boundary of the city of Durban, resulting in a dense under-developed zone of rural and peri-urban households on the edge of the city. In 2002 under the national municipal demarcation process, which focused on the redistribution of urban resources to rural hinterlands, 75 000 rural households were added to the city. The boundaries of the Durban Metropolitan Area were extended by a land area of 67% to incorporate the rural

periphery, forming the eThekwini Municipality. At this time, due to the underdevelopment of the homeland areas, 60 000 of these households did not have access to basic sanitation (Gounden et al, 2006). The rural areas of the city cover 1500 km2 of the hinterland and they are located in the north-west and south-west of the Municipality (eThekwini Municipality, 2012a). These areas contain dispersed settlement patterns of traditional homes and are extremely poor with many people relying on social grants (eThekwini Municipality, 2012a). More than half the land is held under the Ingonyama Trust as communal land, although the Municipality has to take responsibility for its development and service provision. The past five years has seen an intense densification of these areas. Communities in these areas live at a close interface with the environment and rely on environmental resources and environmental services to sustain themselves.

Table 10 below reflects the backlogs of service provision, while Figure 14, Figure 15 and Figure 16 show the spatial distribution of water and sanitation infrastructure and the areas where service provision is inadequate.

Figure 15 and Figure 16 reveal that there is a clear spatial pattern to water and sanitation vulnerabilities and service provision in the Municipality (see Table 11) that have a strong relationship with the city"s spatial planning boundaries. The urban edge line (shown in red in Figure 16) and the more recent UDL were both concepts introduced by urban planners responsible for developing the Spatial Development Frameworks for the city (refer also to the discussion of the SDF in section 1 of this report). The purpose of both concepts has been to spatially contain urban growth by demarcating the urban core and the rural periphery. These concepts reflect that there is a rural hinterland in the city that is different in character and servicing needs and which supports

different densities and lifestyles (eThekwini Municipality, 2012a). The urban edge was predominantly aligned with the outer limit of the provision of waterborne sanitation. It strengthened the city"s spatial policy to contain urban growth and to manage service infrastructure development. The current UDL contains a much larger area defined as urban than the original urban edge concept (which excluded urban areas comprising of the small towns and suburbs situated at the edge of the Municipality). Nonetheless the UDL still does not accurately reflect the reality of rural and urban development in the municipal area. The rural-urban interface and the transitional peri-urban zone are dynamic, and therefore characteristics of urban and rural development can be found on either side of the current UDL.

The Urban Development Line is now a well-established discourse in the Municipality and it has been used to inform and defend the spatially differentiated service provision model that has developed in the Municipality (Sutherland et al, 2013). The Municipality"s cost surface model, which underpins the logic of the UDL, reveals the high service costs associated with developing housing projects and new developments on the periphery of the city. This is particularly true where growth has occurred ahead of the development of bulk infrastructure, such as in the north. According to the eThekwini Municipality (2012a) the economic slowdown has enabled EWS to deal with its resource capacity and continue with more efficient and more equitable growth through the timeous supply of infrastructure to the new main growth areas.

Patrick Bond from the Centre for Civil Society (03/09/2012, cited in Meyer, 2013) is critical of the UDL which he refers to as a class line based on neo-liberal principles, stating that "geographically that belt represents the distance and housing density that deters municipal

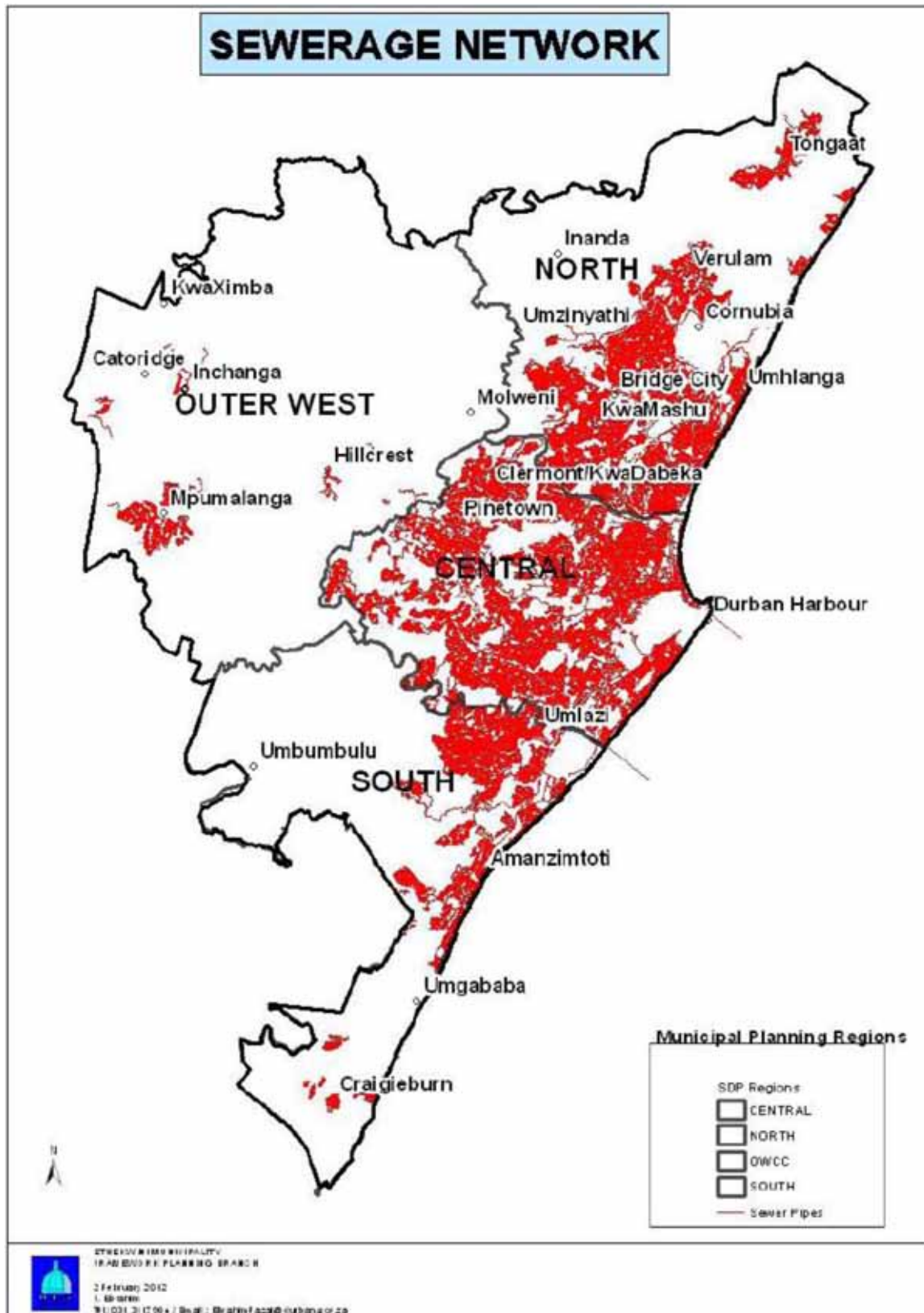**Table 10:** Backlogs of service delivery in eThekwini Municipality

	Existing Backlog (consumer units) as at 30 June 2012	Delivery ranges per annum	Timeframe to address based on current funding levels*
Housing	408 394	5000 - 10000	41 - 82 years
Water	73 460	2000 - 2500	29 - 37 years
Sanitation	226 557	8000 - 10000	23 - 28 years
Electricity	301 448	8000 - 13000	23 - 37 years
Refuse removal	0	1500 - 2000	0 years
Roads	1 125 kms	10 - 15	75 - 110 years

Source: eThekwini Municipality (2012a)

Figure 14: The spatial distribution of water services network in eThekwini Municipality
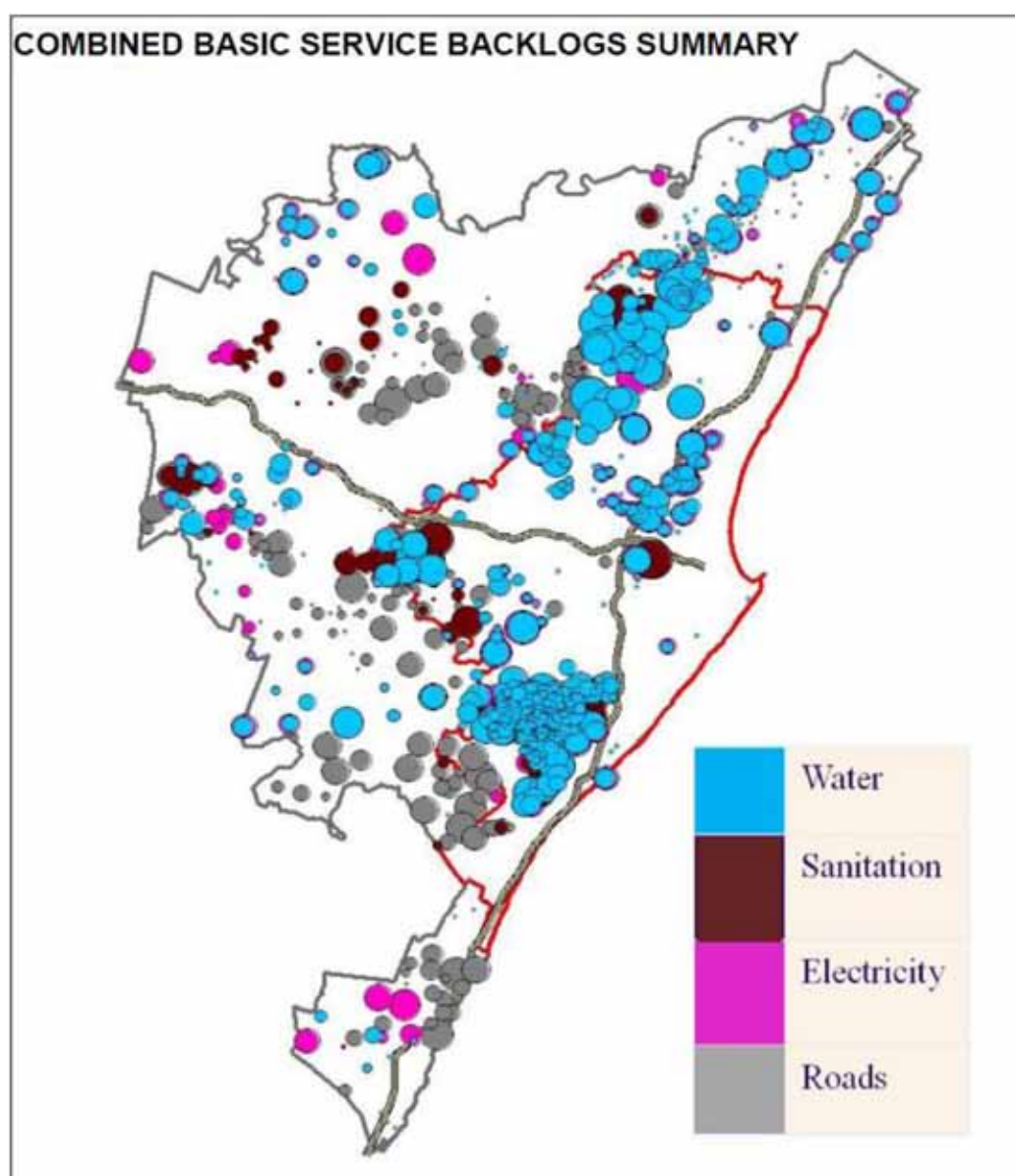

Source: eThekwini Municipality, 2012a
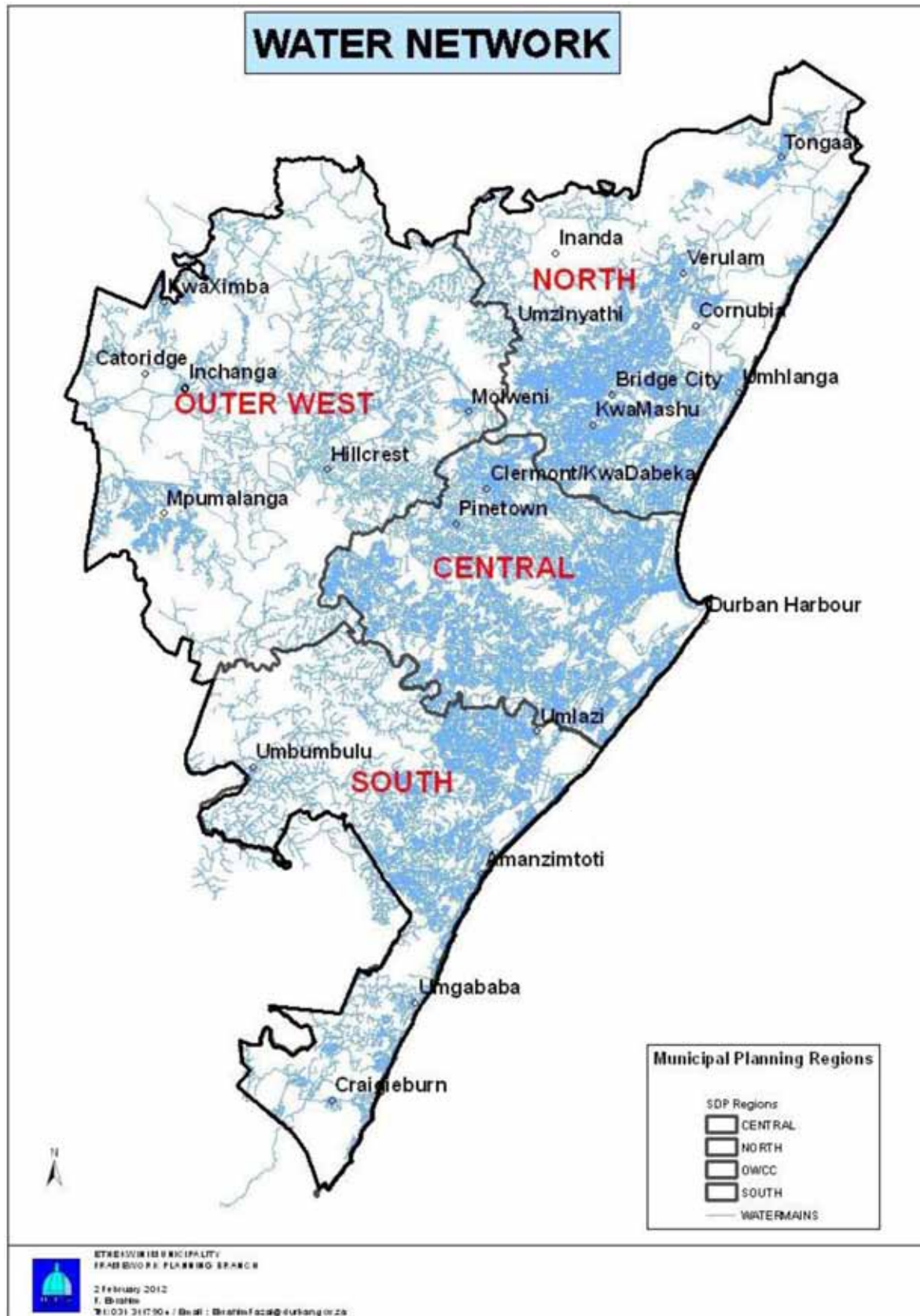
Figure 15: The waterborne sewerage network in eThekwini Municipality

Source: eThekwini Municipality, 2012a

Figure 16: The waterborne sewerage network in eThekwini Municipality

COMBINED BASIC SERVICE BACKLOGS SUMMARY

Water
Sanitation
Electricity
Roads

Source: eThekwini Municipality, 2012a

Table 11: Backlogs of service delivery in eThekwini Municipality

Area	Standard
Rural service standards	One ground tank per household supplied with 300l per day; Urine diversion toilet; Electrification only of densely clustered pockets; All weather surface to all public transport routes and roads within communities having a density greater than 15 person per Ha.
Interim Service standards	Communal ablution blocks (toilets and showers) within 200m of served households; Electricity to every dwelling; High mast lightning for security; Emergency access roads for waste removal, fire and emergency vehicles.
Urban service standards	Full pressure house connections; Waterborne sanitation; Electricity connection; All weather surface roads

Source: eThekwini Municipality (2012a)

planners from installing waterborne sanitation – although the numerous exceptions make it clear that socio-economic relations rather than spatial relations are the decisive factor". The more recent IDP (2012/2013) recognises the challenges of spatially differentiated service provision and the service backlogs that are present in the periphery of the city. The Municipality does, however, adopt a cross-subsidisation model for water and sanitation services, ensuring a certain level of redistribution of resources across the city, reflecting its commitment to water as a social good or human right (Galvin, 25/07/2012). However, other civil society groups argue that the Municipality does not pay adequate attention to specific situational problems on the ground and the inequality that the spatially differentiated service model produces (Bond, 25/07/2012).

The extension of existing sewerage works or the building of new treatment works is regulated by DWA. Under the National Water Act an application for a water use license must be made to undertake either of these activities. Before a license application is assessed by DWA the ecological reserve of any affected water resource must be established. According to eThekwini Municipality (2012a, p 88) the response of DWA to the river reserve applications for sewage treatment works implies that these applications will not easily be granted and hence "a combination of direct re-use of treated sewage effluent for potable water supply and some quite extensive and expensive, cross-catchment pumping, will have to form the basis of future sewerage planning". This will be required as a result of the controls DWA is placing on sensitive catchments within Durban, through the licenses provided for the management of ecological reserves for water resources.

Informal settlements reflect the highest levels of vulnerability and inequality in the city. Currently there are 430 000 people living in informal settlements with access to basic housing in the form of shacks and basic levels of services. Water provision is through tap points within the settlements while sanitation is a major issue in most settlements. The Engineering Services Department has been driving the Interim Services Programme as a means of providing basic services to informal settlements that are not on the priority list of settlements (see section 4 above) reflecting the recognition that informal settlements are part of the housing solutions of the Municipality.

The Municipality also needs to maintain its existing network of water and sanitation services and hence cannot focus all its technical capacity and resources in to expanding new networks out to the periphery. This creates a tension between the technical staff or officials of the Municipality and the politicians, whose main interest is to extend and expand the service networks. If the Municipality does not maintain its existing network it will not able to service the newly expanded networks to the periphery.

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A large number of actors within the water governance arena within the Municipality questioned why EWS did not promote water conservation through education programmes with the middle class and wealthy, who are often considered as wasteful users of water in the city. It can be argued that the Municipality has to maintain a certain level of usage from its paying customers to be able to cross-subsidise those that cannot afford to pay for water and sanitation. EWS focuses on innovation, new sustainable technologies and overall efficiencies to ensure that alternatives for service provision are found to replace the current financially and environmentally costly infrastructure, such as waterborne sanitation. These innovations include water harvesting, run-off capture, water re-use and dry sanitation. Currently, these new technologies are being delivered to the poor, as that is where the new service provision needs are, and this produces inequality as those better off in the city are not experiencing the same level of services. There is also strong social, and at times, political resistance to these new technologies as they are often considered inferior based on community"s expectations of the „ladder of service delivery" that follows traditional models of service provision. The challenge for EWS officials is to innovate through partnerships with research institutions to make these new technologies the „technology of choice" and to ensure they are delivered more universally across the city (EWS Water Supply Manager, 07/08/2012, cited in Meyer, 2013).

Climate related vulnerabilities are linked to flooding and the impact of severe storm events on sub-standard housing. The eThekwini Municipality has adopted an adaptation focus in its climate change programme which is being driven by Debra Roberts of the Environmental Planning and Climate Protection Department (see Taylor et al, 2013). Most officials in EWS are sceptical of climate change and hence it has not formed a major focus of the work done in the Unit. However, the Stormwater and Catchment Management department is one of the champions for climate change in the city and this group is actively including climate change predications for Durban, produced by scientists at UKZN (Roland Schulze and his team) in their stormwater management plans and policy. Predictions for Durban are that there will be increased water flows in the

city as a result of higher summer and winter rainfall and hence the flooding risk that increased vulnerability in the city, particularly in informal settlements, will increase.

5.3. Water and Climate Governance in the City

The Constitution of South Africa Act 108 (1996) provides everyone with the right of access to sufficient water (Section 27, (1b)) and compels the state to "take reasonable legislative and other measures, within its available resources, to achieve the progressive realisation" of everyone"s right of access to sufficient water (Section 27 (2)). The Constitution states that water and sanitation services are a local government responsibility. Human dignity (Section 10) and the promotion of equality (Section 9) are also core values of the Constitution (Section 10) which should underpin water and sanitation service provision.

The overarching national framework for the governance and management of water resources in South Africa is the National Water Act 36 of 1998. The management of water resources is therefore a national government responsibility. The provision of water and sanitation services to households and other water users which is the responsibility of local government is governed by the Water Services Act 108 of 1997. Although water service provision is a local government responsibility all spheres of government are required to support water and sanitation provision where possible.

In eThekwini Municipality EWS, which is located within the Engineering Services Cluster, is responsible for water and sanitation provision. Municipalities are best positioned to identify, react and respond to what is happening in reality on the ground and they can be much more responsive than national government and hence they are well suited to the responsibility of providing and managing water and sanitation services. Policy changes in EWS and the dynamic manner in which the Unit shifts its approaches to water and sanitation provision based on incremental learning and public participation reflects the benefits of local government being responsible for water and sanitation provision as both an economic and social good. Local governments can drive change as they are much closer to the issues and realities and can influence decisions more easily (Conservation Manager, WESSA, 10/01/2012, cited in Meyer, 2013).

The eThekwini Municipality, in accordance with national legislation consists of two sets of actors, namely the Municipal Council, which is made up of locally elected

councillors (politicians) who make the decisions and the municipal officials who, in partnership with research institutions and consultants, produce the knowledge, construct the programmes and plans, and implement the work of the Municipality. The different influence, roles and responsibilities of the politicians and the officials has a significant impact on how the city can deliver on its development agenda. The strong leadership, high technical capacity and the national and international profile of EWS and its officials has enabled the Unit to inform and shape water and sanitation provision in the city based on scientific and technical knowledge, within a powerful political arena, that may at times have a different agenda.

The aim of EWS which is stated in its Customer Service Charter is

"to provide all citizens within the eThekwini Municipality access to appropriate, acceptable, safe and affordable basic water supply and sanitation services. We would like all citizens to be educated in the sustainable and healthy use of water and sanitation services that are equitable (adequate services are provides fairly to all people); affordable (no one is excluded access to basic services because of cost); efficient and effective (the job is well done); sustainable (services are financially, environmentally, institutionally and socially sustainable); and professional".

The philosophy of EWS is based on five main pillars: human resources/skills; customer management; asset management, new service delivery and revenue management (Malakoana, 2012). The following technical initiatives have all been introduced first in South Africa by the eThekwini Municipality: free basic water (9000 l/month), flow limiters, the use of plastic bodied water meters, polypropylene water piping, ground tanks and semi-pressure water service levels, UD toilets, anaerobic baffled reactors, the use of grey water for urban agriculture, customer services agents, condominial sewerage and a customer water debt repayment policy. Spatial knowledge management through the use of GIS also informs decision making, with EWS being home to the leading ITC-GIS group in the city.

EWS engages with a wide range of actors within the water governance arena. The Unit has partnerships with research institutions, such as the Pollution Research Group at the University of KwaZulu-Natal, the CSIR, consultants and civil society organisations. A number of different civil society organisations focus on water governance in the Municipality, including Umphilo waManzi; Centre for Civil Society, Wildlife and Environment Society (WESSA) and

GeaSphere, challenging the state and the representative system of local councillors (the ward committee system) on both green and brown issues. These organisations advocate civil society rights and social concerns around water and sanitation provision, facilitate the protection, management and restoration of ecosystems and disseminate information to all sectors of society, building capacity for civil society engagement. WESSA considers its role to be a "connection point between broader civil society and eThekwini Municipality particularly through forums such as the forum for the Water Reconciliation Strategy for Coastal Municipalities (WESSA Conservation Manager, 10/01/2012; cited in Meyer, 2013). The CBO networks have different ideological positions on water governance in the city with some supporting the approach adopted by EWS and others remaining highly critical of it, arguing that the city has adopted a neo-liberal approach to water provision which undermines a „rights based" approach. This division in approach between those considered to be more radical and those that appear to be partnering with the state has fragmented civil society responses to water governance in the city.

Consultants play a major role in governance in South Africa, where state control and knowledge production is outsourced to consultants, often due to a lack of capacity within the state to meet its legislative and policy requirements (Ponte et al, 2007, cited in Meyer, 2013). In the case of EWS, which has strong scientific and technical capacity, consultants work in partnership with the Unit to extend the research and development component of the department through particular technical and scientific specialisations, rather than filing in capacity gaps, as may occur in other government departments.

The private sector which plays a significant role in large scale development and changes in land use in the Municipality, and which is a major consumer and polluter of water is another major actor within the water governance arena in eThekwini Municipality. However, the private sector did not emerge as a major player in the water governance arena in eThekwini Municipality, other than driving development into areas that lie outside of currently services sewerage area, thereby demanding the extension of services that undermines the current thinking of spatially differentiated service provision beyond the Urban Development Line.

Ordinary citizens are important actors in water governance in the way in which they navigate the systems that are presented to them. The research has revealed the many interesting ways that ordinary citizens find pathways through technical systems, adapting them to meet their needs (Lewis et al, 2013). There are many examples where

citizens from households or communities that have to pay for water, move across to other spaces where free water is available. Formal residents who pay for water or who have access to limited water cross over to informal settlements to access an unlimited supply of water for free. In other cases residents design storage mechanisms to store water when they are impacted upon by restricted flow meters. Residents in informal settlements such as Ocean Drive In use sugar cane fields as their sanitation system when the VIP latrines in the community fail as a result of technical and social problems. Ocean Drive In residents have designed a simple form of recycled technology to deal with the problem of their hands touching the water that comes out of the communal taps due to the tap mechanism. They use the cut-off tops of 2 litre coca-cola or other cooldrink bottles to push the tap upwards, thereby creating a clean, plastic funnel through which the water flows.

The legislation and policy that was developed for water and sanitation services post 1994 identifies public participation as central to water governance. Public participation around water and sanitation services was initiated in 1997. EWS was facing a number of critical challenges such as the blockage of pipes, misuse and wastage of water, vandalism, high levels of non-revenue water, difficulty in accessing remote areas and the presence of water borne diseases such as cholera. According to Gounden (nd) these issues arose post 1994 from a lack of awareness and education, especially in those areas that had not previously had access to water or sanitation services, while others consumers had never had a voice with regard to any services. „Consumers" had also emerged from the struggles and protests against apartheid believing that non-payment, passive protest and vandalism of infrastructure was a legitimate action (Gounden, nd). An awareness and education programme was therefore launched to run alongside the service provision programme to ensure continuous engagement with the target communities so as to ensure the proper use and management of services, and to monitor the acceptance, problems and successes of the services delivered (Gounden, nd).

EWS has focused on public participation through the „Raising the Citizen"s Voice" programme and the Water Dialogues, which was a national project that drew in a wide range of actors to deliberate and share knowledge on water and sanitation provision in the country (Galvin, 2013). According to Galvin (2013, p 8) "Neil Macleod of eThekwini Water and Sanitation attributes his decision to increase the free water allocation from 6 000 l to 9 000 l to his engagement with civil society as part of The Water Dialogues process (Macleod interview, 2010)". The Ward Committee System which was established as part of the Municipal Structures Act (1998), and which aimed at

drawing community based organisations in to the formal political structures of the state, has had a significant impact on public participation and the relationship between the state and its citizens (Sutherland, et al, 2012; Piper and Nadvi, 2010). The Ward Committee with its elected Ward Councillor is meant to act as the interface between citizens and the Municipality. The Ward Committee has three major functions: to enable community representatives to participate on behalf of their communities to inform council decisions; to ensure effective communication between communities and the council and to assist the ward councillor with consultation and report-backs to the community. However, party politics, patronage, corruption and the control of Councillors of their citizens has meant that this system does not always serve the interests of the state or its citizens. Rather it serves the interests of the political party in power. Ward Committees have not been established since the last government elections in 2011 and hence self-appointed ward committees in some wards in the city act in their place.

EWS has established a number of platforms through which it can engage with citizens, all of which represent the „invited" spaces of the state to ensure higher levels of participatory local governance (Cornwall, 2002; Piper and Nadvi, 2010). Public responsiveness is a cornerstone of EWS"s Water and Sanitation Services Charter and forms a core focus of the business of the Unit. EWA engaged with the public though Focus Groups and User Forums, which were established as a result of the „Raising the Citizen"s Voice" Project. The User Forums are consultative platforms with participants from a wide range of user groups meeting to discuss issues that are deemed relevant and within the mandate of EWS. The main aim of these forums is to get user feedback on service provision. There are seventeen User Forums which align with the planning zones that are currently in place for the strategic planning of the city. The eThekwini Sizekala Centres are „one-stop" centres that are located across the city where citizens can register service related complaints. Citizens can interact with these centres by visiting them, calling them on a telephone hotline and toll free number, sending sms"s or emailing. These centres and the processes they use to engage with the public are more accessible to younger citizens as e-governance and internet technology, including GIS and Google Maps, is used as a means of communicating with residents. Officials in the Sizekala Centres argue that it is important to address public concerns about service provision on an individual basis so as to ensure customer satisfaction and avoid social protest (Manager Municipality Call Centre, 21/09/2012, cited in Meyer, 2013). This statement, as well as others made by Municipal Officials, indicates that social protests are a driver of change and are „events" that EWS does not want to see happening in the city.

As a result of its intent of increasing public participation EWS has developed the User Platforms so that ordinary citizens can communicate their concerns to the state. According to officials from EWS, the Unit commits itself to reflecting on its behaviour and practices as a result of the feedback obtained from communities, hence ensuring greater accountability. EWS also uses the media, including the radio and the newspaper to communicate with its customers and to inform the public of responses to water and sanitation issues. The widely available Customer Services Charter and the Service Level Standards provide a clear indication of the vision and practices of EWS. All of these processes therefore encourage an on-going dialogue between EWS and the community. It also enables EWS to understand its customers and their needs better (Malakoana, 2012). The Unit has identified the following themes as the main areas around which it needs to engage with its customers. These include: trust and overall satisfaction, (including service and accountability), billing and pricing, infrastructure, environment, conflict over service provision, and health and education (Malakoana, 2012). Officials from EWS state that EWS commits itself to reflecting on its behaviour and practices as a result of the feedback obtained from communities hence ensuring greater accountability. All of these processes therefore encourage an on-going dialogue between EWS and the community. It also enables EWS to understand its customers and their needs better (Malakoana, 2012).Tacit or experienced based knowledge is integrated through the participatory processes, or „invited spaces", that have been created by EWS at a range of levels and has been used to inform and shape policy making in water governance in the city.

According to Galvin and Goldberg (2011) legislation and policy supports participation and so spaces for civil society participation do exist, but these „invited" spaces do not allow for the depth and rigour of engagement that is required to meaningfully address water and sanitation provision. More radical and activist civil society groups such as CCS are often excluded from these invited spaces as they are considered to be a burden on the Municipality (Galvin and Goldberg, 2011). This also means that the impact of public participation on decision making is relatively low. However, officials from EWS provide many examples of where, from their perspective, input from public engagement has shifted policy and practice. Civil society organisations in Durban do however recognise that the varying approaches and attitudes of civil society groups make it difficult for the Municipality to engage with civil society. Civil society also needs to add value and provide support across critical lines in water governance to ensure that the Municipality includes them as it deals with the multiple challenges of providing water and sanitation in a developing world context (Galvin and Goldberg, 2011;

Programme Manager Decentralised Environmental Solutions, 29/08/2012, cited in Meyer, 2013). Most actors argue that the development of trust, rapport and real dialogue is essential for public participation in water governance in the future. The dominance of the neo-liberal agenda in framing all discussions around service provision is also a stumbling block to greater engagement by a wide range of actors in the water governance arena. Social mobilisation around water issues takes on a number of different forms from protests, which are less common in Durban than other large cities in South Africa, to mundane ways in which local people adapt the way they engage with services provided to improve their quality of life. Community members indicated that communities were often too fragmented or divided to mobilise around specific issues, while older community members stated that it was more constructive to adopt a deliberative approach and sit around the table and talk.

The leadership style and strategic and technical ability of the Head of EWS, Neil Macleod, has had a significant impact on water and sanitation service provision in eThekwini Municipality. Macleod has been a pivotal actor in water governance in the city and he is supported by a well capacitated and highly committed team, who support and enact the principles of EWS"s water and sanitation services Charter. The high level of technical competence of this team and the leadership style of its Head, has enabled EWS to be an innovative and adaptive Unit that has achieved considerable success in meeting water and sanitation needs and challenges for the poor in a fast growing city. This sets eThekwini"s Water and Sanitation Unit apart from other municipalities. As a result of its strong leadership it has been able to shift political will towards innovative and progressive water and sanitation services delivery.

However, the different capacities and professional capital of the different sectors within the Municipality creates tensions between strong departments or Units that are driving change in a fast changing environment, and weaker departments that are less decisive. This imbalance in capacity and power reduces integration and results in strong departments „batoning down the hatches" and focusing on what they can achieve within their own domain of control. Strong departments can also land up in conflict with each other as the Municipal sector landscape begins to resemble a medieval landscape of hilltop villages that have leaders and walls and that act as independently as possible. However, it appears that greater integration is taking place across the Municipality, as spatial knowledge and the spatially differentiated discourse around the Urban Development Line influences decision making across a range of sectors.

Knowledge transfer and exchange within the water governance arena mostly occurs within the boundaries of a dominant technical-scientific sphere and a less dominant socio-political sphere that are not easily exchangeable and hence remain as two different bodies of knowledge. However the responsiveness of EWS to water and sanitation services in the city, and the shifts in policy, reveal that socio-political knowledge is taken seriously and attempts are made to integrate it in to decision making and practice in the city.

According to Meyer (2013) there is considerable knowledge transfer between different institutions working on water governance in the Municipality. This includes the transfer of knowledge between the Municipality, universities, civil society organisations, international organisations and consultants. Highly technical and managerial space of governance, civil society and response by communities through everyday lived practice shifts this.

All relevant actors within the Municipality have shown that they are committed to the Constitution"s ambitious objective of ensuring economic and social development while sustaining the ecological resource base (water systems) upon which this development depends (Constitution, 1996, s 23 (b) iii)

Castro (2007) argues that sustainable water governance can be achieved if actors in the water governance arena find ways to implement more inter-disciplinary, deliberative, co-ordinated and collaborative modes of negotiation and knowledge exchange. The positionality of actors in water governance is also important to consider. Personalities in leading positions play a crucial role in water governance and can act as innovators or gatekeepers in knowledge exchange (Meyer, 2013). Their personal views, priorities and interests dominate responsiveness, strategy, approach and types of trade-offs, including the choice of which actors are involved in knowledge production process and how issues are addressed. The approach to issues tends to be shaped by educational background, with the majority of actors emanating from a technical or scientific background. However, communities rely mostly on community-based knowledge and the media, particularly the radio, for information (Meyer, 2013).

5.4. Reflections

EWS has been able to establish and stabilize its main discourses around water and sanitation services as a result of the knowledge base that supports these discourses. The free water discourse, the interim services discourse, the UD toilets discourse, the „engagement with clients" discourse and the discourse around the spatial rationale for differential service delivery in the city are all evident in EWS and other sectors within the Municipality (Sutherland et al, 2013). According to Gounden (nd) the EWS has also been able to develop the well-defended argument that innovative technical methods of service delivery are required in the city to ensure sustainability for environmental, financial and water scarcity reasons, requiring customer acceptance, education and training. The established and responsible customer base must also be retained and reassured that costs and quality of delivery would not be compromised and hence a great deal of effort has been put in to developing platforms through which the state could engage with citizens (Gounden, nd). This has been done to ensure greater efficiency and as part of the vision of EWS. The EWS has had a strong influence on other sectors within the Municipality and has been able to ensure that their dominant discourses have become part of the broader planning discourses within the city. The 2012/2013 SDF and IDP clearly reflect the objectives and approaches of EWS to service delivery in the city.

In Durban the state has developed a strong and well-defended spatial discourse which has provided justification for inequalities in service delivery using historical, technical, environmental and economic explanations. This discourse explains the difficulty of expanding the infrastructural network to the harder-to-reach areas beyond the urban edge. By rendering the spatial inequalities scientific and technical, through the use of the UDL, the „politics" has been taken out of the process of service delivery, enabling the state to navigate around the social and political processes which reinforce the inequalities.

However, the research reveals both a state and citizens that are attempting to move toward greater resilience through engagement with water as a social good, water as an economic good and the spatial reality within which these discourses are situated. In this way the politics of service provision has been opened up, albeit at times in a controlled and structured manner through the „invited spaces" created by the state. Despite the clear and laudable successes of EWS, the outcome in terms of differentiated service provision, which implies that peri-urban and rural households which are mainly poor and often black, receive lower standard services is read by some as a continuation of the past (Bond, 07/02/2013), and certainly comes with its own problems.

The relationship between the state and citizens around service provision has been strengthened through the creation of effective channels of communication, which have allowed each party to better understand the position

of the other. Through this engagement, citizens have come to understand the technical explanations put forward by the state to explain the issue of inequality (Khumalo, 21/01/2013). Similarly, the state has become more responsive to the circumstances of the poor and has aimed to tackle the more challenging social problems associated with service delivery. Therefore by understanding each other"s position, citizens" and the state"s perceptions of inequalities (social reality) adjust, which in turn has the potential to influence changes in the material reality of the poor. Interestingly, through these interactions, the social reality of citizens and the state adjust in different ways. Through their engagement, citizens are more likely to accept inequalities as a result of the physical and material reality, whereas the state is likely to gain an understanding of the injustices of the inequalities (Lewis et al, 2013).

Likewise the strong leadership role of a municipal department, with a unified discourse, and significant success in addressing water backlogs can be considered a sign of transformation. Water governance in eThekwini Municipality reflects that it is in a phase of resilient transition and much of its success can be attributed to good leadership and knowledge production (Sutherland et al, 2013). This leadership is of a generation about to retire, and many respondents pointed to the fact that among the next generation, the combination of such strong commitment to municipal service and leadership qualities is rare. The future will reveal if the shared discourses, and the integrated knowledge and praxis that have developed will survive a leadership change. Yet at the same time such leadership change would offer opportunities for a further shift towards the „social-ecological" agenda and greater equality.

6 Spatial Knowledge Production for more Resilient Cities (WP5)

6.1. Discourses and Rationales for Introducing ICT-GIS-Based KM in Urban Governance; Boundaries, Work Processes, Mapping Needs

ICT-GIS based knowledge management in eThekwini Municipality, its institutionalisation, uses, main drivers and related actors are a function of the global development of information technology since the late 1980s and the national and local socio-economic-political context in which it has emerged. Spatial knowledge has played a critical role on the post-apartheid context of transformation. The ITC-GIS system serves as a knowledge base to make development decision relating to spatial restructuring; infrastructure, housing and service delivery and strategic planning as well as providing information to citizens. It therefore plays a crucial role in contributing to the addressing of the pro-poor strategies of the Municipality which are embedded in the IDP, and the strategic planning of a restructured post-1994 city, which is characterised by deeply entrenched spatial inequality. The Municipality has a very well developed GIS system which is being used increasingly.

The good record of service delivery in the city can be partly attributed to the use of ITC-GIS based knowledge. It has also provided a foundational role in the excellent financial management of the city by providing an efficient tool for managing land parcels in the city and the collection of rates therefrom, and in informing the spatial allocation of budgets in the city to address the needs apparent in the Wards throughout the city. Although there still is a lack of institutional capacity in GIS in the city (Epstein, 31/8/2012), systems are being put in place to increase the institutional capacity for spatial knowledge creation (Breetzke, 19/4/2013) within specific sectors. As presented in the introduction, the role of local state in South Africa is mandated to provide „developmental local government" and spatial knowledge production plays an increasingly important role in allowing the eThekwini Municipality to meet this mandate.

With the production of the Spatial Development Frameworks and Plans of the post-apartheid city since 2002, the finalization of the post-apartheid municipal boundaries and the introduction of the Integrated Development Plan (IDP) (advocating the twin imperatives of facilitating pro-poor and pro-growth urban development), the importance of spatial discourse has declined in strategic planning processes, but the importance of spatial knowledge and spatial tools have increased in importance in Durban as a means of delivering on the mandates of the IDP with regard to addressing pro-poor issues.

Harrison et al (2009) propose that the spatial discourse developed by UCT academics, consisting of nodes, corridors and urban edges related to the production of compact city. This discourse has continued to dominate planning in post-apartheid South African cities including Durban (see SDFs in Figures 6, 7, 8 and 9). This discourse shifted in the 1990s to include the influence of the neoliberal discourse of competitive, managed cities through the implementation of the GEAR policy in 1996 in South Africa. Here the influence of the market in determining the spatial form began to emerge. An example of this is the "private-sector-driven, upmarket, commercial and residential" gated developments, such as Gateway in Durban. Lured by the promise of income from the large rates derived from these developments, many municipalities have allowed these developments to go ahead, irrespective of whether they conformed to local development plans or not. (The influence of the market in the development of megaprojects in Durban is presented in WP2 above). The role of spatial discourse in driving development has been diluted since the early 2000s with the introduction of the IDP as the dominant planning tool in municipalities today and the subsequent discourse of „integration". "Integration is the leitmotif of post-apartheid planning…and is used to refer to social integration, spatial integration, institutional integration, policy coherence and the integration of planning and other governance processes" (Harrison et al, 2009, 139). However, the development of separate ITC-GIS systems in the different Units of the Municipality has militated against integrated planning and service delivery.

The main use of the municipal ICT-GIS-based knowledge is to provide strategic information to policymakers as well as providing information to citizens. For the policymakers, ICT-GIS is used for

are strategic planning (visioning); municipal boundary maintenance; increasing the effectiveness of the knowledge base for urban development decision-making; and the forward planning and delivery of infrastructure, housing, services and facilities, including interim services delivery - the delivery of physical infrastructure being the most important ITC-GIS use.

Through needs assessments in the city Wards, the priority areas and location of development projects are mapped. Further GIS analysis makes it then possible for the budget allocations from line departments to be mapped to show the spatial spread of the budget in the city. The units for this mapping are Wards which have been clustered into Zones. This process of needs assessment and providing spatial knowledge for targeting the areas of greatest poverty and need are concentrated in the Engineering, Housing and Framework Planning units. ITC-

GIS is viewed here an „objective" knowledge base for development decision-making.

As outlined in the introduction, the redrawing of the eThekwini municipal boundaries was completed in 2002 and included a large portion of peri-urban land which is under communal tenure. The municipal area had increased by 931 km2 and 36 388 households and it was evident that the 2002 budget did not cover the provision of services to the newly incorporated, economically deprived peri-urban areas (Giraut and Maharaj, 2002). Although undertaken by the Municipal Demarcation Board, the final boundary decisions were then transferred to the eThekwini Municipality and used as its spatial limits. However, the use of GIS was criticised by the public for using nationally generated statistical data as a basis upon which the municipal boundaries were drawn. Communities complained that the use of GIS was a „top-down approach" which was unable to integrate the local conditions into it calculations and hence the boundaries that were drawn (Cameron, 2004). Within the boundaries, the city has 103 Wards which have been clustered into 17 Zones (this has recently changed to 23 zones) (see Figure 17). Years of work have gone into the development of the Ward and Zone boundaries, and when Zone boundaries are changed, much of this is negated (Magill, 12/4/2013). The councillors in each Ward provide the political mechanism for feeding the needs of the Ward upward into the development decision-making processes to allow for non-electoral democratic decision-making.

The Zones are the spatial units used for analysing the needs of the citizens, by planning infrastructure and housing in accordance with areas of greatest need and allocating budgets more effectively. The Infrastructure cluster is responsible for the spatial analysis undertaken to determine the geography of needs and backlogs. The argument is that the Zones allow for planning at the sub-regional level rather than having to deal with the politics at the Ward level. Breetzke (19/4/2013) proposes that the zones provide a vehicle to „budget spatially and localise the IDP". Once delineated, it was then possible to aggregate the ward data and create Zone profiles, particularly profiles of need. The Zones are currently the spatial unit through which the abolition of apartheid spatial planning, social backlogs, economic programmes, employment and poverty reduction are being tackled. Planning and budgeting in the city is now geared to meeting the developmental priorities of each Zone. This is undertaken by a GIS analysis of the need in each Zone in relation to the current budget allocation. Figure 17 portrays the 17 Zones in the eThekwini Municipality.

The GIS analysis of population, service and socio-economic data has enabled the Municipality to provide a

Figure 17: The 17 Zones of the eThekwini Municipality
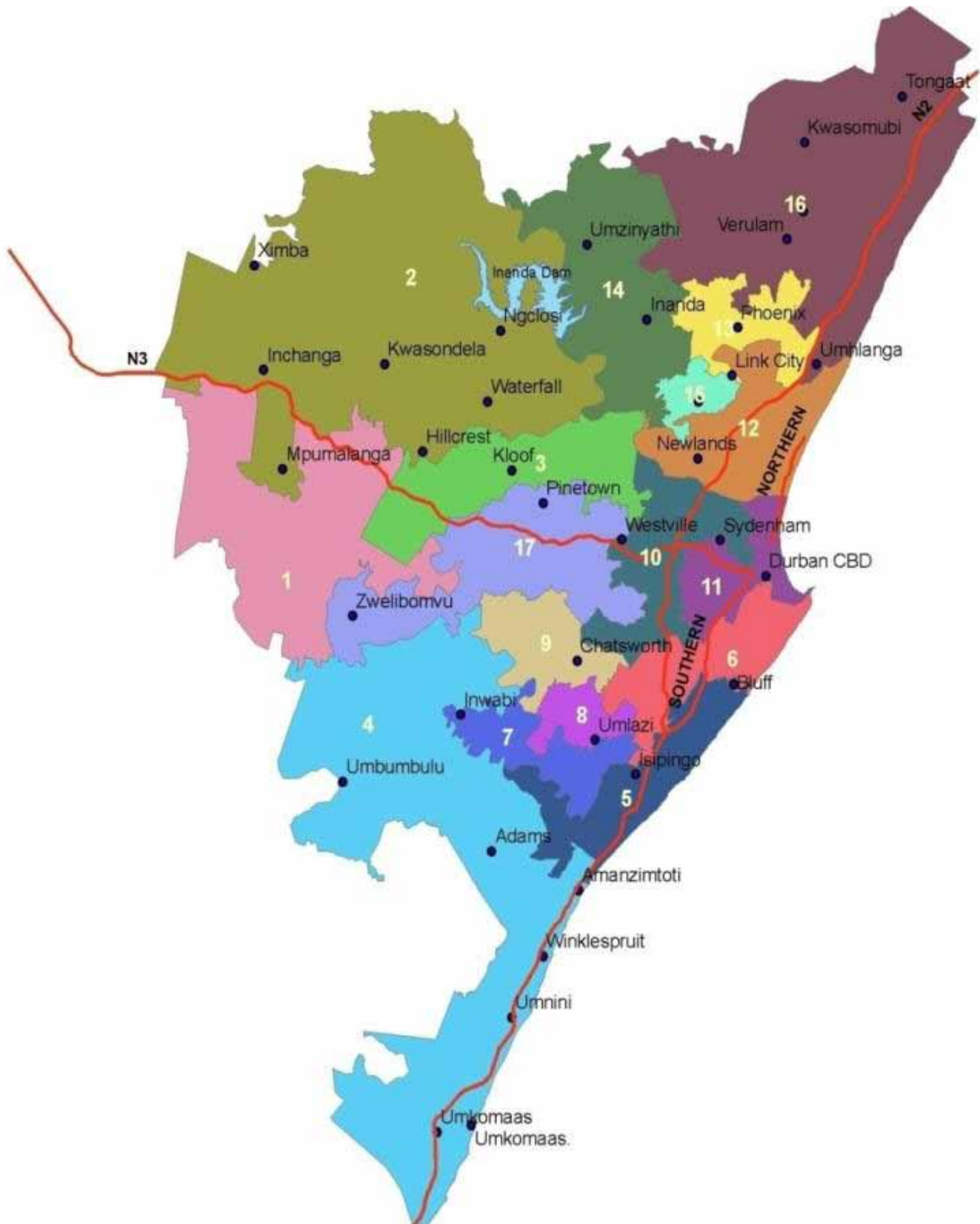
Source: eThekwini Municipality

graphic portrayal of the deprivation existing in the city by Zone. The maps provide clear signals of where needy communities and service backlogs are located and this provides the basis of strategic decision-making regarding the infrastructure interventions made by the Municipality and where it invests its budget. Breetzke (19/4/2013) notes that the use of „hard data" provided by the GIS analysis reduces the politics associated with the allocation of the budget across the Municipality with its 103 Wards and 700 informal settlements – "we like evidence-based planning". Historically the Engineering Services have a stronger data base logic or approach than other sectors in the municipality- and I think this is one of the reasons why GIS has a preponderance of more „hard infrastructure" than „soft or social" applications. In this way scarce resources can be more efficiently targeted to areas of need. However, it is believed that the Municipality cannot do this without „local community engagement" and a social compact with the communities.

Budgets are allocated across the city based on the GIS needs analysis, and are graphically portrayed by zone. Figure 18 illustrates the allocation of budgets per spatial unit (2012/2013), graded from pale red to dark red with the dark red representing the highest investments.

6.2. Knowledge Management in Urban Planning in the City: Actors and Networks

The main actors involved in knowledge management in urban planning are the eThekwini Municipality and the consultants they commission to produce plans and maps. The Municipality has produced the main spatial databases which are maintained and analysed by a range of Units in the Municipality. The main data base manager is the Corporate GIS which has the primary role of maintaining the basic data layers, e.g. the cadastral and streets layers. GIS was first introduced into the city in the early 1990s when the main activity was building the spatial data bases. In the 1990s, a number of Units relied on CAD for spatially representing elements in the city, but today these have mostly been converted to GIS systems (Magill, 12/4/2013). The Hardware used in ArcMap v 10.2.

GIS is used across all the clusters of the municipal administration, shown in the organogram of the Municipality in Figure 19 below. Units in the first two clusters of Sustainable Development and City Enterprises and Human Settlements and Infrastructure have the most developed ITC-GIS systems. The Engineering, Water and

Sanitation and to a lesser extent Housing Units are the strongest in terms of analysing and adapting the databases to serve their developmental goals. The Transport Authority has also developed its own GIS system.

The Water and Sanitation Unit adopted GIS early on, during 2000/2001, and are very confident in their data. This department is responsible for bulk water and sewerage infrastructure; for making projections for the infrastructure system (identifying the demands for new infrastructure); planning comprehensively from city-wide water delivery plans to detailed level (very detailed drawings). eThekwini Municipality has won numerous awards for its pioneering work in the Water and Sanitation Department where it has analysed service provision using GIS analysis. GIS is used intensively in these efforts (Gounden et al, 2006).

The Water and Sanitation Unit has delivered water and 90 000 waterless Urine Diversion toilets in the peri-urban areas of the city through the use of spatially based zones delineated according to local community clusters and naming conventions. The use of GIS has been critical in the efficient delivery of these toilets, selecting local community members to deliver education programmes and undertaking opinion surveys, and for the management of maintenance programmes. Water and Sanitation is a key player in the city"s development decision-making along with planning as together they are able to create scenarios for future development using GIS to determine a phased delivery of land for development and investment (Magill, 12/4/2013). The spatial boundary of the UDL (see earlier discussion) is an important factor in determining the direction and location of future growth and shows the waterborne sewerage edge. Planning of bulk infrastructure through GIS analysis therefore plays a critical role in determining future development.

While the tendency has been for these Units to work in „silos", there is more recently emerging a more integrated way of working together in decision-making processes. There exists a dominance in knowledge management in the city via ICT-GIS based knowledge systems in the technical units since their mandate is to make interventions into the physical space of the city which is amenable to GIS analysis (Magill,12/4/2013).

Private consultants are also important actors in producing spatial knowledge for the Municipality. Municipal Units commission the private sector (GIS analysts) to undertake analysis of the municipal databases, adding value to the products. A large and growing number of GIS professionals are also being employed within the Municipality. Furthermore, a range of consultants, including town and regional planners, urban design, engineering and

Figure 18: The 17 Zones of the eThekwini Municipality
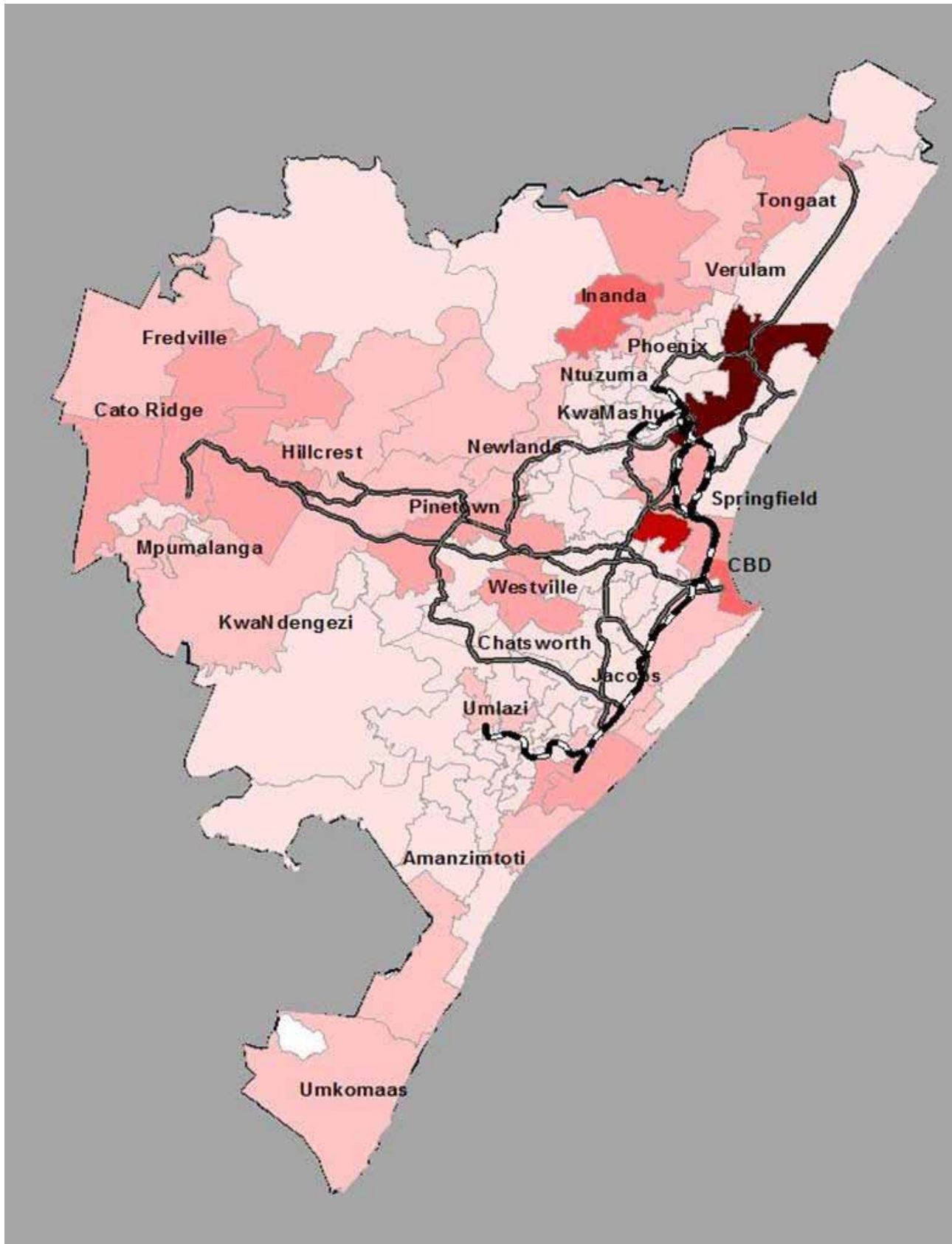
Source: eThekwini Municipality

environmental consultants who conduct work for the city make use of GIS in their assessments. For example, the company SSI that was commissioned to develop the Verulam-Cornubia Local Area Plan, made extensive use of GIS data for spatial and infrastructure planning for the northern area of the city. Data is provided to consultants via DVDs as the data layers are too large to send electronically. Magill (12/4/2013) notes that there is scope for further analysis of the available spatial data especially by linking across the Units in the Municipality. Basic background spatially referenced data and maps can be sent between Units via the Intranet. In addition to consultants, knowledge institutions (universities) are increasingly networking with the municipal units.

There is minimal feedback from civil society into the ITC-GIS knowledge system via the needs assessment at zone level (through the councillors and ward committees). The only known community GIS is that of the South Durban Community Environmental Alliance (SDCEA) which has a simple GIS system and produces maps of the South Durban Basin which describe the localised impacts of air pollution in the form of complaints and incidence maps (see Ranta, 2012; Scott, 2011). This system does not exchange data with the Municipality. However, e-Governance is playing an increasing role in feeding ad hoc information from civil society into the databases via complaints lines etc. which then become data in the system (Geesink, 2012). In this way responses from the everyday lives of citizens in the city are captured into the system, e.g. the Water and Sanitation Unit.

Spatial knowledge in the city is mainly produced in the form of maps and associated reports, e.g. Spatial Development Plans, poverty maps, facility and service maps etc. Infrastructure units have all the main infrastructural assets of the city captured in the GIS, e.g. roads, electricity, sewers etc. The GIS is also extremely important in managing property ownership via the cadastral maps which are The Water and Sanitation Unit adopted GIS early on, during 2000/2001, and are very confident in their data. This department is responsible for bulk water and sewerage infrastructure; for making projections for the infrastructure system (identifying the demands for new infrastructure); planning comprehensively from city-wide water delivery plans to detailed level (very detailed drawings). eThekwini Municipality has won numerous awards for its pioneering work in the Water and Sanitation Department where it has analysed service provision using GIS analysis. GIS is used intensively in these efforts (Gounden et al, 2006).

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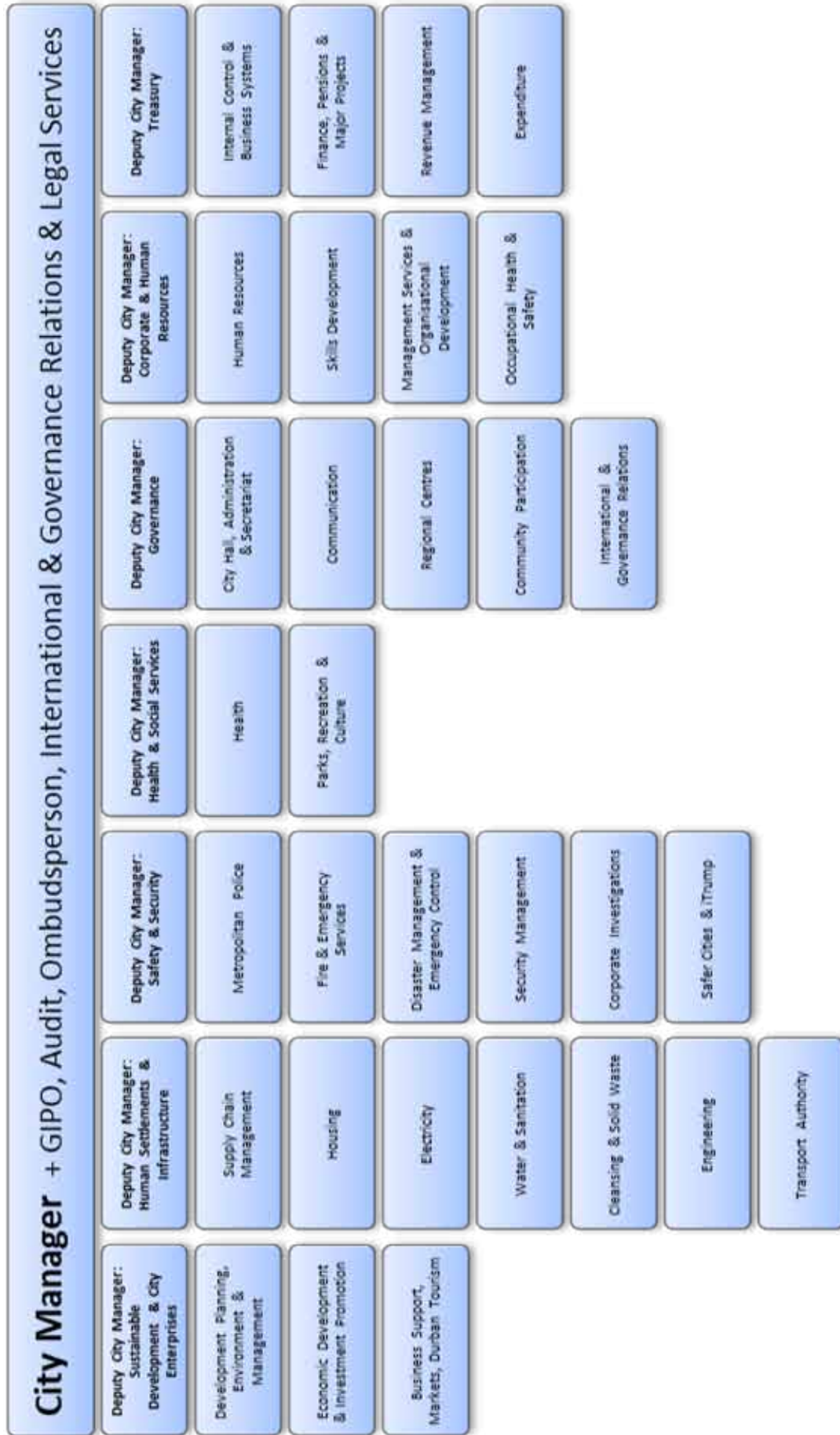
Source: Redrafted from eThekwini Municipality, 2013: 244

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Thus the ITC-GIS based knowledge system for development decision making is a very powerful tool in the Municipality and has contributed to the successful delivery of housing and services and to achieve the goals of redistribution and financial stability.

6.3. Knowledge Building, Use and Contestation

Since the introduction of ITC-GIS knowledge management systems in the Municipality in the early 1990s, there has been a steady increase in the use of these systems, with all units, particularly the technical delivery units in the city, using these tools. There is increasing exchange and integration between Units dominated by the technical units and planning. The importance of champions is evident with certain managers driving the application of the ITC-GIS knowledge and its use for more equitable decision-making due to the perceived „objectivity" of ITC-GIS knowledge systems. The Water and Sanitation Unit has arguably the most powerful ITC-GIS system in the city with its own specially adapted data base which is relevant to water and sanitation provision in the city. The politicians have been increasingly accepting of the ITC-GIS production of spatial knowledge and this has allowed for high levels of service delivery in the city. It must be recognised that spatial knowledge that is produced by officials in the various units is presented to the councillors and the ultimate use of the information is for political decision making (Magill, 12/04/2013). The success of ITC-GIS in the efficient delivery

of services and infrastructure has led to more political support for this knowledge system.

One of the main bodies of knowledge produced via GIS is the municipality"s hierarchy of plans (see Figure 5), including the city-wide Spatial Development Framework (SDF), the four sub-regional Spatial Development Plans and Local Area Plans. The SDF and Spatial Development Plans are developed in-house by the Municipality (at times with planning consultant support) and then anchored in the Development Planning Unit in their GIS system. They are developed iteratively through deliberation by a Committee with representatives from all units in the Municipality and then sent to Council for approval (Epstein, 31/8/2012). Local Area Plans and Functional Area Plans are generally produced by consultants commissioned by the Municipality. Apart from scrutiny during the annual review of the IDP, the SDF is not subject to any form of public consultation. There has been limited public engagement towards the end of the SDP and LAP processes, more on the level of information-sharing. Consequently, most of these plans can be considered to be the outcome of predominantly technical rather than participatory processes.

The SDF is the Municipality"s key strategic spatial plan and a core component of the Integrated Development Plan. Section 2 provides a detailed discussion of the development and evolution of the SDF over the past decade since the first (GIS-based) SDF to reflect the expanded municipal boundary was prepared in 2002. The SDF provides a spatial image of how the municipal area should be developed as envisaged by the IDP over the long term (20+ years). The first SDF, which remained unchanged for five years) showed a much smaller central urban core surround by an urban edge (Figure 6). Then from 2008 the SDF started to reflect the city"s expansion trend to the north (Figure 7). The national government approval for the development of the new airport and Dube Tradeport to the north of the city reflected a „leap-frogging" of development beyond the urban edge. This northern growth trajectory was entrenched in the 2010 SDF with the new concept of the Urban Development Line (UDL), clearly indicating a shift in city policy to expand development in the north (Figure 8). The urban core has also expanded westwards around the Outer West suburbs and around the Cato Ridge/Hammarsdale/ Mpumalanga nodes.

The purpose of the UDL, as expressed in the city"s SDF report (eThekwini Municipality, 2012a), is to promote a more compact, efficient and sustainable urban form in line with compact city thinking, and more recently, the low carbon city discourse. The line also corresponds to the outer limit at which the city can provide waterborne sewage, i.e. the edge of the bulk infrastructure delivery, and

corresponds more or less with the former Durban Metropolitan Area boundary (see Figure 2 and Figure 15). The UDL assists the Municipality in managing the growth of the city, containing urban sprawl and achieving its „density targets". At the same time it protects critical environmental services and the agricultural resources in the urban periphery upon which many households rely (eThekwini Municipality, 2012a).

The main components of the current GIS version of the SDF are represented in the simplified spatial development concept map in Figure 3. The SDF map indicates that the city"s main area of major investment is focused on the CBD of Durban and the port. Other areas of major investment include the South Durban Industrial Basin in the south, the Cato Ridge area to the west and Dube Tradeport in the north. The thick blue line shows the UDL, within which all the urban investment nodes lie. As discussed above, the UDL has expanded the urban development area contained by the original urban edge to include extensive areas to the north and west of the city. Figure 3 also indicates the extensive „rural development area" (the area inland of the most developed part of the city to the north, west and south), that includes a number of planned rural development nodes and many areas of environmental sensitivity. The rural development area is predominantly peri-urban in nature and mostly under traditional leadership. Because of the largely informal nature of these areas, and the fact that they lie outside the UDL, the Municipality has applied a policy of alternative methods of service delivery to these areas. Consequently, the UDL, as a key component of the GIS-generated SDF has become a powerful tool in the city"s policy and practice around levels of service provision in the city. Refer to Section 4 for a more detailed discussion on the impact of the UDL on water governance in the city.

The UDL has also had a significant impact on the city"s approach to services infrastructure within the UDL in the urban growth areas of the city, particularly in the north due to the new international airport and the Dube Tradeport development. By entrenching the northern growth trajectory of the city through the UDL, the Municipality has had to significantly expand its services infrastructure to serve these new developments (see WP2 discussion in Section 3 and WP4 discussion in Section 5). It is therefore important to note that the GIS-produced strategic framing Spatial Development Frameworks, representing the future physical space of the city, have been reactive to developments taking place through a network of actors outside the ambit of the Municipality – the private sector, provincial and national government. In the northern corridor of Durban, a wide range of actors (the state, private sector, NGOs, CSOs and civil society) are actively shaping development in this zone through the discourses they

construct and the spatial knowledge they produce. Hence, the municipal spatial knowledge frameworks for strategic future planning do not entirely lead future development and in many cases follow the lead of these other agents.

As part of the city"s hierarchy of plans, four Spatial Development Plans (SDPs) have been produced for the city: the North, South, West and Central (refer to the plan of these four sub-regions at Figure 1). The SDPs provide more detailed spatial planning that informs the SDF from below as part of an iterative process. Many of the key components of the current SDF, including the UDL, emerged from the SDP development processes. The SDPs indicate the city"s development priorities over the next 20 years for each of the sub-regions, and indicate development opportunities. In so doing, they direct future development and investment in a particular path. The SDPs also inform local level planning, and are in turn informed by local level planning when more detailed assessments at local level require fine-tuning of the SDPs in certain areas.

A review of all levels of spatial plans within the Municipality"s hierarchy of plans indicates that the node and corridor discourse remains a powerful structuring discourse in framework planning. Figure 20 shows the use of the node and corridor concepts in the development corridors on the North Zone: the coastal, urban and rural corridor.

Figure 20: Development corridors in the North Zone

Source: SSI, 2011

At Local Area Plan (LAP) level, an assessment was undertaken as part of this research to uncover the discourses and associated actors involved in the development of two spatial plans relating to the Cornubia mixed use mega-project development situated in the Northern Urban Development Corridor (Sutherland, et al, 2011; Sim, 2012). Firstly, planning consultants SSI produced the Verulam-Cornubia Local Area Plan (SSI, 2011a, 2011b) on behalf of the Municipality and as part of broader strategic planning for the Northern Urban Development Corridor. Concurrently, another planning consultant Iyer Urban Design Studio was commissioned by Tongaat Hulett Developments and the Municipality to produce the Cornubia Framework Plan (Iyer & Associates, 2011; Iyer, 23/1/2012) as a land use plan for the development of the Cornubia new town on this site.

A comparison between the land use maps contained in these two plans (which were produced using GIS by two different consultants on behalf of the Municipality) exhibit considerable areas of misalignment (compare Figure 21 with Figure 22). Nonetheless, despite this misalignment, both were approved on the same day by the Municipality at its Economic Development Committee meeting in March 2011. The processes of developing these plans, which were dominated by the relative power of key stakeholders over different issues, reflects the different spatial knowledge tools used by the planning consultants, the range of discourses of the key stakeholders, and the shifts in these discourses and their relative power over time. The spatial concepts embedded in these plans will have an impact on the everyday space of the lived world, once these spatial plans are translated into the „bricks and mortar" Cornubia new town development. Of interest is to what extent each of the plans will inform the final outcome, i.e. which plan will exert the most power to be translated into reality. The research illustrates the tensions and conflicts that exist between different spatial knowledge producers, each using GIS and a range of concepts and discourses to represent the future of the physical reality of the north zone of the city. Politicians, officials, the private sector and consultants all contributed to the decision to approve these plans that emerged from an extended political and technical process (Sutherland, et al, 2011; Sim, 2012).

Further important applications of ITC-GIS by the Municipality are the two GIS-based models for strategic decision-making: the „Accessibility Model" and the „Cost Surface Model". Both tools provide the basic spatial information for decision-making regarding the location of infrastructure. The Infrastructure Cluster has been responsible for these two spatial models.
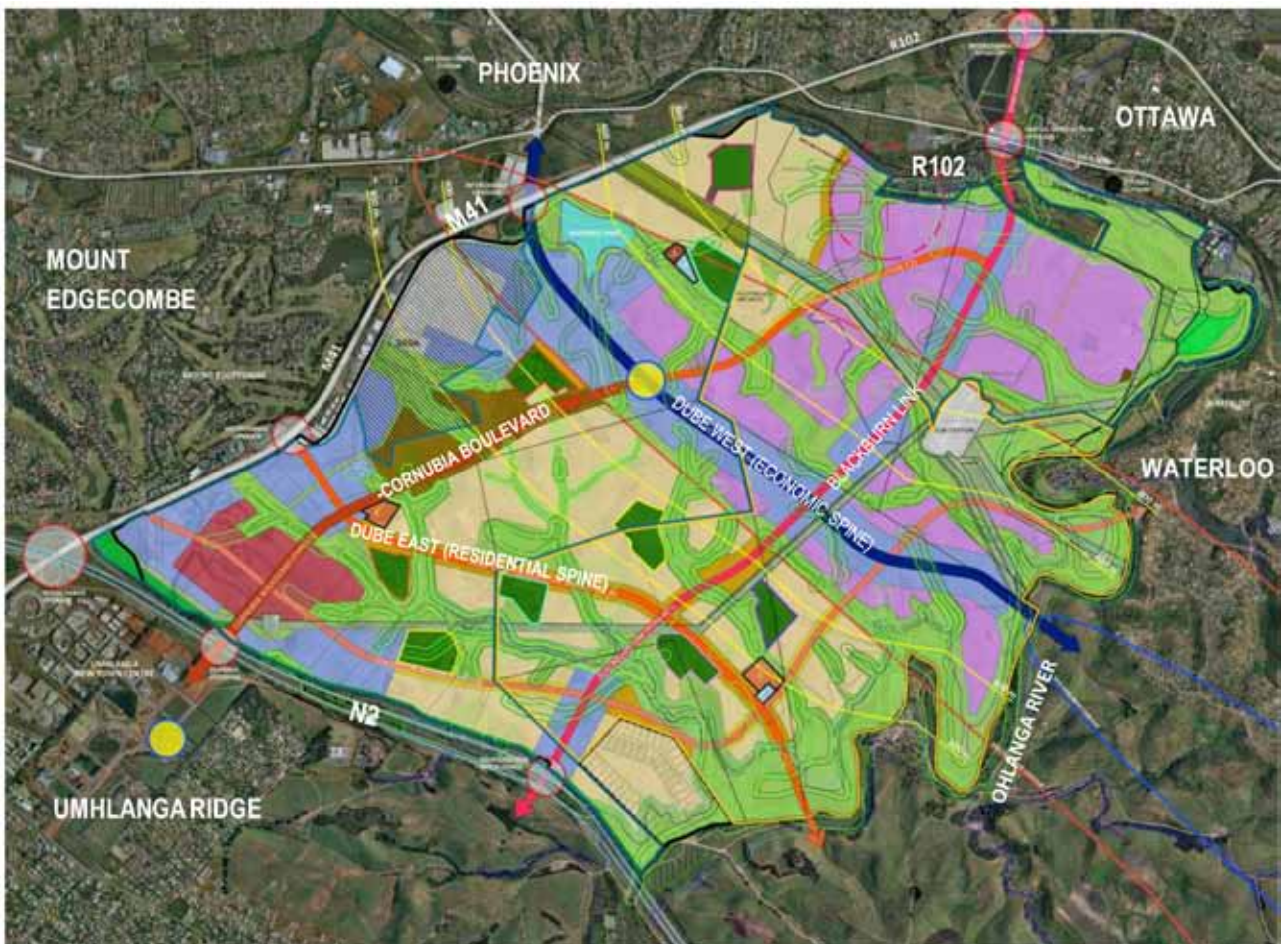
Figure 21: Detail of the Verulam-Cornubia Local Area Plan

Source: SSI, 2011

Figure 22: The Cornubia Framework Plan

Source: Iyer Urban Design Studio, 2011

The „Accessibility Model"

The Infrastructure Cluster has developed, with the assistance of the CSIR24, a hierarchy of 27 nodes for the city ranging from the CBD to sub-metropolitan nodes to the rural nodes, each classified according to their dominant function. The hierarchy of nodes is based on „catchments of people" derived through the analysis of population density data. Figure 23 shows the depiction of the higher level investment nodes within the denser urban area lying within the UDL25. This analysis forms the basis of the eThekwini Urban Spatial Agenda. It is proposed that gap and affordable housing be located near these nodes which have a concentration of social services and facilities. When social facilities are planned for the city, the hierarchy of nodes is employed to determine the location of the facility using GIS with inputs from all units. Furthermore, the purpose of identifying Social Facility Nodes was to identify those locations where local, national and provincial levels of government must concentrate their investments in social facilities. These nodes must be points of high accessibility in order to serve as many residents as possible thereby improving the access to social services in the EMA.

The aim of the „Accessibility Model" is to "direct and spatially locate the city"s investment in social services and facilities" in a „transparent" manner. Green et al (2009) state that:

"Advanced computing technologies which support GIS-based analysis, together with the application of the Service Access Planning approach developed by the CSIR, have been significant contributors to an effective and integrated means of identifying and eradicating facility backlogs, and developing equitable and defensible facility investment plans in post-apartheid South Africa".

Figure 24 shows the hierarchy of social facility nodes. The „Accessibility Model" models the supply and demand for social facilities across the Metropolitan area and is able to predict the future social services requirements for housing. Based on this it is possible to formulate a plan over the next 5-10 years to provide adequate access for all citizens to the full range of social services (Green et al., 2009). The aim is to cluster services in nodes and along corridors. Towards this goal, the Engineering Cluster and

Figure 23: eThekwini Urban Spatial Agenda: Investment in higher level nodes within UDL

Source: Green et al 2009

Figure 24: Hierarchy of Social Facility Nodes
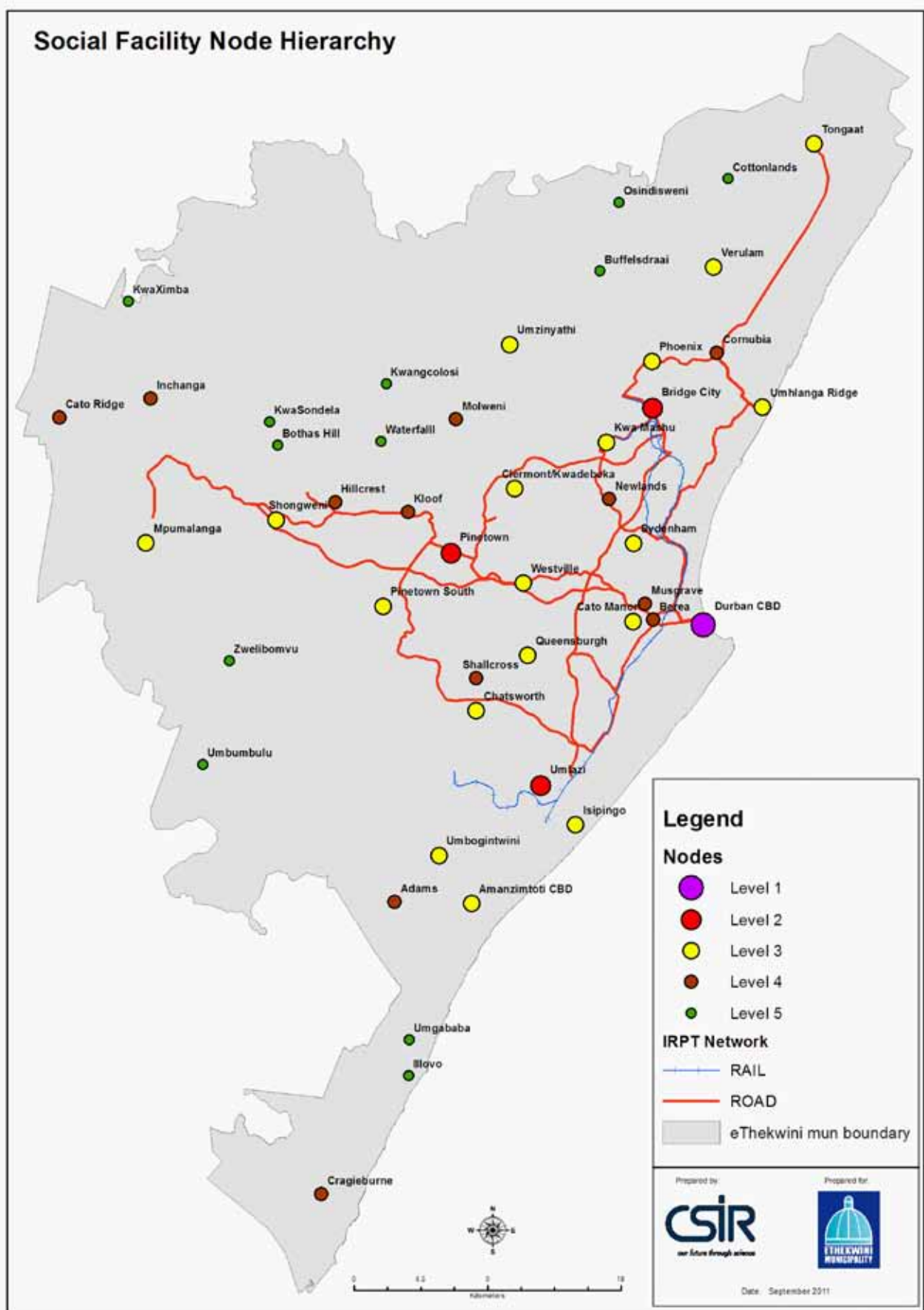
Source: Green et al, 2009

other social service departments have completed a full assessment of social facilities in the city. A model has been developed that matches the demand for facilities based on population density and distribution, with the supply of social services based on spatial location, capacity of service and the levels of accessibility based on public transport travel time. It therefore provides quantitative information to aid decision-making and in so doing moves beyond the conceptual planning of the SDPs.

This modelling provides an „objective" tool for allocating resources in an environment where there any many competing needs and limited resources (Green et al, 2009). The „Accessibility Model" which has been adopted is based on GIS-based accessibility analysis. The data requirements for the analysis are: a detailed population layer to determine need; the transport network to gauge accessibility; and the capacity of each facility to determine supply (Green et al, 2009). Magill notes that „Accessibility Model" gives an „indication" of needs rather than providing „absolute knowledge"– it merely provides an indication of the needs and the human element is important in interpreting this within local conditions (Magill, 12/4/2013).

The Cost Surface Model

The eThekwini Municipality commissioned Brendan Magill in 2004 to develop a „Cost Surface Model" to predict the cost of servicing any piece of land in the city. This model has been refined by the Municipality over the years to ensure that its modelling becomes more accurate as more information becomes available (Breetzke, 2009). The Housing Branch is using the „Cost Surface Model" to make decisions on where to locate formal housing, based on the cost of the services for each location and hence can greatly reduce the cost per unit. In the past, public housing was located all over the city depending on political pressure to deliver housing, and then infrastructure would follow. Many of the sites were in peripheral areas attracting great infrastructure costs. National government pays for the top structure of housing and the Municipality pays for the bulk infrastructure. The Model also serves to promote a compact city as it is much more expensive to service housing on the periphery.

Figure 25 is a spatial representation of the „Cost Surface Model". The darker the shading, the higher the cost of bulk infrastructure delivery per parcel of land. The figure shows that the cost of service delivery is relatively low within the core of the city, but becomes more expensive in the more

Figure 25: The cost surface model for infrastructure provision
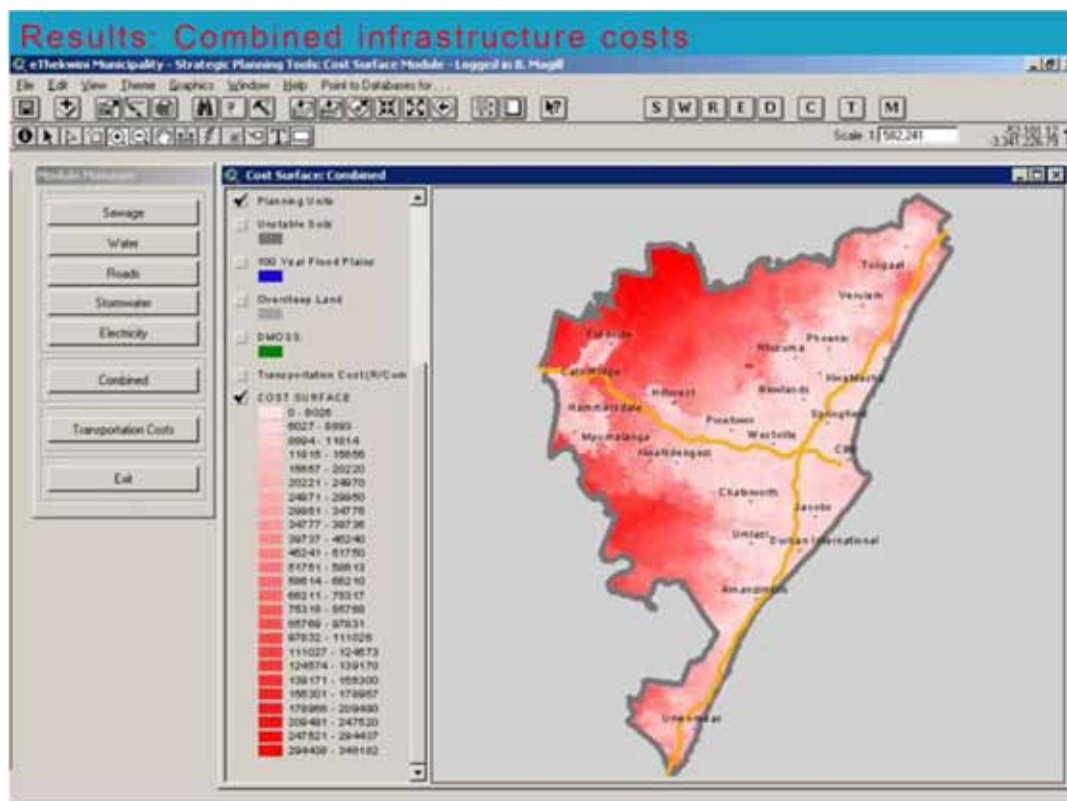
Note: red =relatively higher costs; pink = relatively lower costs

Source: Breetzke, 2009

peripheral areas of the municipality. It is interesting how closely the transition line from low to high cost (i.e. where the red begins to darken) aligns with the more recently constructed UDL concept in the Municipality"s SDF (see Figure 1). As discussed earlier in this section, the UDL is proposed to promote a "more convenient, compact, efficient, equitable and sustainable settlement form" (eThekwini Municipality, 2012a) as it demarcates the spatial limit of development according to infrastructure availability. Although this definition does not expressly mention cost, it is clear from the „Cost Surface Model" that servicing costs play a critical role in defining urban versus rural level of infrastructure services.

The Municipality"s housing provision is supplemented by a programme to provide interim services to those informal settlements which are not likely to be rehoused in the near future (see discussion under WP3). The Engineering cluster is responsible for the delivery of infrastructure to informal settlements in the metropolitan area. Figure 26 shows the location of clusters of interim service delivery sites (green).

GIS-based analysis is undertaken to prioritise and locate the settlements that will receive interim services delivery in each coming year (see discussion in WP3). The overriding concern in the Infrastructure Cluster is being able to more efficiently locate and make decisions regarding investment into interim service delivery. It is felt that the decisions are more „objective" and less political with the advent of the use of the spatial models for decision-making. GIS has thus been termed the „anti-politics machine" (Lupton and Mather, 1996). In the case of eThekwini Municipality it is lauded for being „objective and rational".

6.4. Spatial Knowledge Produced through Citizen Participation Processes

There are minimal citizen initiatives providing spatial data for the ITC-GIS system of the Municipality, with most of the data from civil society entering the system via broad needs assessments per Zone. These are a very simple list of needs prioritized by residents in the Zone. Budget allocation is made according to needs analysis. There is current debate about where each Zone should get an equal amount to spend or whether priority needs are targeted.

Historically, with the production of the first IDP in 2002, the boundaries of the city were established and the 103 Ward boundaries finalized. The Municipality set up what were known as the „Big Mama" workshops through the

Corporate Policy Unit, which were attended by representatives of the geographically based councillors and Ward committees for each Ward in the city. There were also sectorally based participation processes whereby workshops were held with NGOs and business (eThekwini Municipality, 2004, 85). The „needs" of the ward would be presented mainly by the councillor who provided a very parochial set of needs.

The city acknowledges that "active citizen participation is time-consuming, costly and demanding" "erratic and event-dependent" (eThekwini Municipality, 2004, 83, 86) and in the subsequent IDP reviews much lower levels of participation have occurred. Breetzke (19/4/2013) notes that these original workshops in 2002 used a „blue sky" approach which was an open ended way of asking residents and groups what they needed with little consideration of the technical implications (eThekwini Municipality, 2004, 87). These processes therefore provided few useful outputs and have been replaced by the Infrastructure Cluster"s more strategic approach which they implemented during the IDP (2007/2008) review process. The main ward issues, identified per ward by the councillors in the earlier process, were re-presented to the Ward Committee and then „interrogated" and „implementable solutions"" proposed. Currently, Ward profiles are being re-worked to be "more palatable, less technical and more socially acceptable". Summarised versions of the Ward Profile and a map of its location are available online[24] and are frequently updated. See Figure 27 for the map of Ward 58 which is available online[25]. The profile also reveals that the interventions necessary in Ward 58 are: income generation; skills development; poverty reduction; health services and job opportunities.

With regard to public participation in planning, the consultants drawing up Local Area and other Plans are mandated to record the outcomes of public participation as part of the planning process. (See SSI, 2011, as an example of a Stakeholder Engagement Report). It is generally accepted that these are very shallow forms of consultation rather than authentic participation.

Spatial data does also get included in the ITC-GIS data bases in an ad hoc manner via e-governance platforms. This is increasingly playing an important role in keeping the Units in touch with realities experienced by citizens on the ground and represents a managerial approach to citizen engagement.

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24   The profile includes: demographic data; housing services & facilities; social backlogs; capital spend in the Ward and the ward priorities.

25   http://www.ethekwini.co.za/Online_Tools/Pages/ Community_Profiles.aspx

Figure 26: Location of the clusters of interim services sites
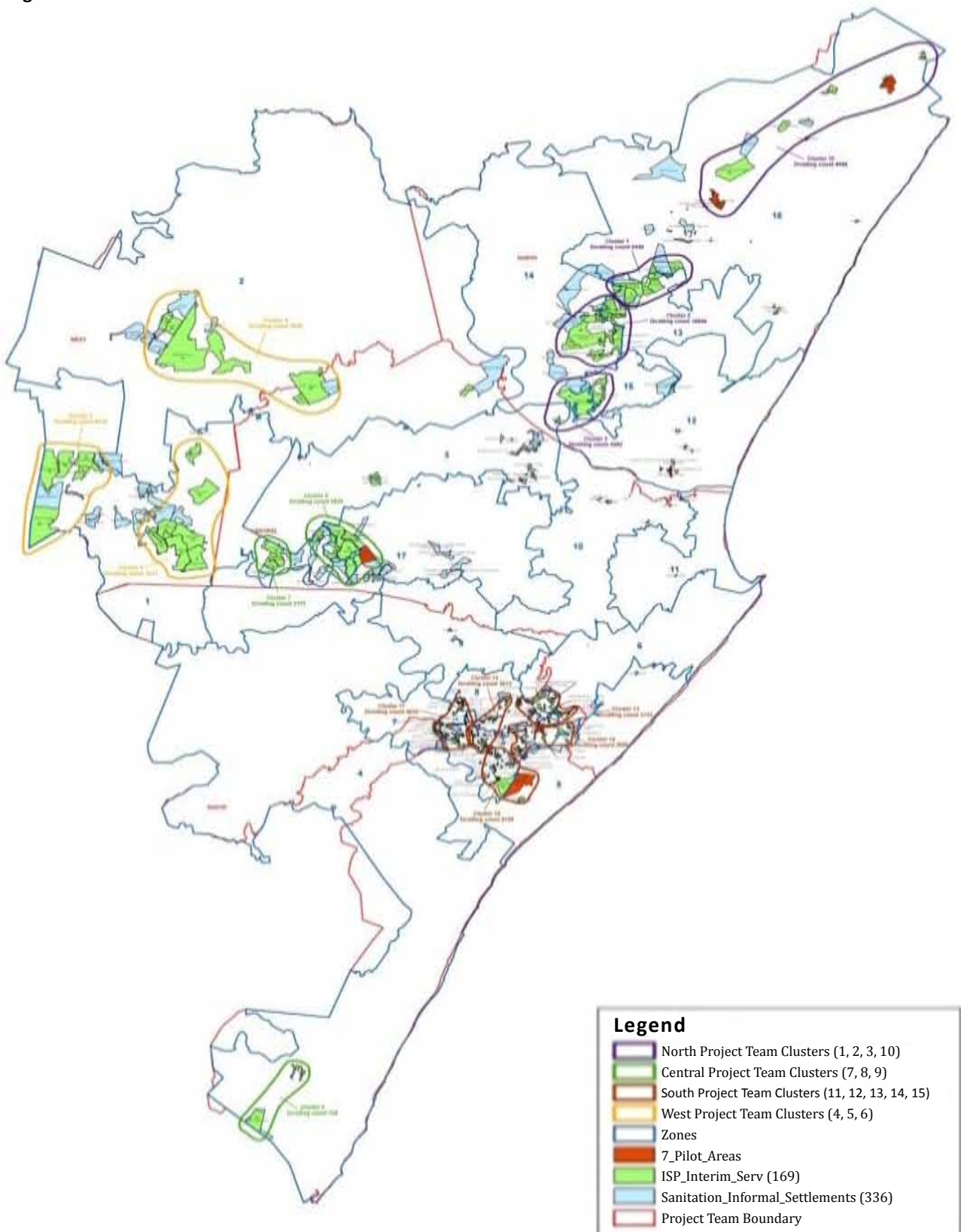
Source: eThekwini Municipality, 2012b

Figure 27: Map from the online Ward Profile of Ward 58

Source: http://www.ethekwini.co.za/Online_Tools/Pages/Community_Profiles.aspx

6.5. Reflections

The dominant knowledge base for urban decision-making is the ITC-GIS knowledge management system. Durban has a sophisticated spatial knowledge system via ITC-GIS platforms. This is growing in sophistication and outreach to citizens. With climate change and need to reduce travel, e-governance has become an important priority and is leading to innovative government to citizen interactions around service delivery using a managerial approach. This is also a product of the growing applications of information technology that are becoming available.

Because the GIS system maps physical space it is predominantly used in those Units whose mandate is to collect, manage and analyse data on the physical attributes of the city, i.e. spatial planning, housing and infrastructure delivery. These Units historically have a "stronger data base logic or approach than other sectors in the municipality" (Breetzke, 27/4/2013). It is also stronger in Units with champions. It is therefore important to note that knowledge based on „softer" data, e.g. quality of life, is not as easily captured in such a system.

The technical Units actively build their own databases by collecting, storing, managing and analysing data related to their mandates, e.g. water and housing. Increasing use is made of outside consultants who play a very important role in analysing data for the various Units. It is these actors which derive the assumptions that lie behind the analysis and mapping process. There is potential for greater depth of analysis of the comprehensive databases and the Municipality is undertaking institutional restructuring to include more sector-based GIS and ITC specialists in its Units.

The visual portrayal of the dimensions of the Municipality in graphic format of maps plays an increasingly powerful role in development decision-making. GIS here is used for visioning and forward thinking. In the Framework Planning unit, however, although the SDPs portray the future of the city in broad terms, due to the power of the private sector and political interventions, developments on the ground often tend to „create" the city, with the SDPs reacting to these changes in a form of reactive planning.

It is argued that the housing and infrastructure decision making based on GIS analysis is more equitable as it is objective rather than determined by political influence. Greater public participation would also lead to more equitable urban development planning.

ITC-GIS is accepted as a powerful, effective and reliable form of knowledge production across the city. However, increased capacity in the city would enable this spatial knowledge base to be used more effectively by political actors. Building capacity around ITC-GIS across the Municipality over time is critical to sustain the value of this tool in the city. Some officials argue that the city"s ITC-GIS knowledge system is being used widely to fulfil the „pro-poor" mandate of the city. However, it is also used extensively to enable land use decision making which is fundamentally driven in response to private development interests. ITC-GIS therefore plays a critical role in both negotiating and undermining pro-poor and pro-growth processes, as it is used to capture issues critical to both agendas.

Knowledge produced through the ITC-GIS knowledge system is tailor made into presentations which are then presented to Council or various Committees in TM as well as provincial and national forums.

Megaprojects in Durban are conceived of as a form of „exceptional" development as they do not fit in with the accepted and mandated forward planning tool of the SDF. The SDPs reveal how the planning of the city has been driven by these large „pro-growth" projects and contributed to the shape of the future city. Megaprojects need to fit into a sub-region of Municipality and thus have undertaken their own sub-regional planning using consultants. The ITC-GIS knowledge produced by consultants is often at odds with the city"s development of its own hierarchy of plans, e.g. Tongaat-Hulett Developments" planning of Cornubia differing from the municipal Local Area Plan. Social and environmental provision is neglected in mega-project planning which produces a neo-liberal „hyperreality". A decline in spatial discourse in urban development also reduces the power of the framework planning knowledge base.

ITC-GIS knowledge is very important knowledge base for determining the location of water and sanitation provision. It is the dominant ITC-GIS knowledge system in the city and allows for rapid provision of services and meeting of service delivery mandates. There are innovative uses of e-governance tools to engage with civil society and add knowledge to the system from below. The Water and Sanitation Unit makes use of consultants, undertakes experimentation to fulfil delivery mandates, and is nationally and internationally recognised for its efforts. Academic and international NGO networks play an important role in building the analytical knowledge base through research. Strong link with clients through field staff adds knowledge into data base. Water and Sanitation are becoming increasingly integrated into decision-making processes with Infrastructure, Housing and Framework Planning. These Units are engaged with the realities on the ground and responding through the building of a responsive ITC-GIS to fulfil mandates.

ITC-GIS knowledge also very important knowledge base for housing and infrastructure provision. With the GIS analysis and mapping of needs and backlogs – the geography of poverty – the location of interventions are prioritised and budgets allocated. Infrastructure, Housing and Framework Planning are increasingly undertaking integrated decision-making in the quest to provide quality living environments for all in the city.

Implications for the future: The ITC-GIS knowledge base in the Municipality is a sophisticated and powerful tool through which it has achieved significant progress in post-apartheid urban transformation in the physical environment. There is excellent knowledge available on a wide range of

dimensions of the physical, economic, spatial, environment and administrative dimensions of the municipality. This is growing in extent and depth, along with the capacity and analytical capabilities the Municipality has at its disposal, and there is potential for further analytical processes. With this in place, there is a need to move towards setting in motion and budgeting for a process for the increased inclusion of participatory community knowledge. This will increase resilience and knowledge about the residents‟ living environments, the dominant issues in each Zone, and risks and vulnerability. The ITC-GIS systems are in place to capture and analyse participatory knowledge. What is needed is political will and the institutional arrangements to put this into place. In South Africa the Intergovernmental

7   Budgetary Context (WP6)

Fiscal Relations Act (Government of South Africa, 1997) prescribes the process for determining the equitable sharing and allocation of revenue raised nationally to all the three levels of government. During the period between 2005 and 2010, the local government‟s share in the national revenue almost doubled (from 4.6% in 2005 to 8.3% in 2010) (National Treasury, 2011: 27). Municipal spending as a share of GDP in 2007 was 6.9% and has been growing compared to 7.3% in Brazil (2008) and 1.5% in India (2008).

The 1996 Constitution (Government of South Africa, 1996) provides for and promotes participatory decision-making, transparency, accountability, and openness. At the national level a series of policy-making steps are specified through National Legislation where „Green Papers‟ (discussion documents on a policy issue) and „White Papers‟ (specific documents approved by the Cabinet) are used to facilitate public debate on important national issues. However, the Constitution does not explicitly state the public participation at the local level government proceedings, except encouraging involvement of local communities in the matters of local government (Section 152) (National Treasury: 2011). The White paper on Local Government in 1998 highlights four types of citizen participation, namely, participation as voters, direct or indirect participation through CSOs, as consumers and end users of services, and as an organised partner.

Chapter 4 of the Municipal Systems Act dwells upon the aspects of community participation in detail, including

participatory budgeting and also in the strategic decision of public service provision (National Treasury, 2011: 32). The Public Finance Management Act of 1999 recognises the importance of good governance for achieving social development in South Africa. It has been argued that, „The democratisation of the South African political environment has created opportunities for increased civic participation in priority setting and decision-making by elected local governments. However, fiscal decentralisation poses a particular challenge for citizen participation in local governance in view of its technical complexity and critical significance for the delivery of public services. Participation is often restricted to select groups and individuals, and tends to exclude the vast majority of citizens who pay local taxes and consume local services provided by local governments" (Yemek, 2005: 21).

7.1. The eThekwini Budget

In 2010-2011 the total budget of eThekwini Municipality was 25.98 billion Rand (eThekwini Municipality, 2012). Its capital component and operating component were R5.4bn and R20.5bn respectively (ibid, 2012). These amounts are significantly larger than the municipal budgets of some of the other case study cities but it is worth noting that the amount in the budget has not increased significantly in real terms over a number of years. It is well understood that if a government depends more on grant transfers it will be less autonomous.

eThekwini is an A class municipality (a metro) and it is evident that its dependence on grants has been considerably low in comparison to other levels of municipalities in South Africa‟s local government classification.

Analyzing the expenditure patterns for eThekwini Municipality, we observe that operational expenditures have remained a priority with a growing trend over the years, whereas, capital; expenditures, whilst having witnessed some considerable growth since 1994 have in more recent years not increased at the rate of operating spending, with the exception of the period leading up to the 2010 FIFA World Cup where Durban was one of the host cities.

7.2. Participation in Budgeting

The Constitution of SA states that local government has an obligation, "(t)o encourage the involvement of communities and community organisations in the matters of local government" (Government of South Africa, 1996: 78). Moreover, "Local governments are committed to working with citizens and groups within community to find sustainable ways to meet their social, economic and material needs and improve their quality of lives" (Department of Provincial and Local Government, 1998: Section B). Therefore, in SA there is broad framework to inform participation in place; but it differs from the common participatory budgeting models in that it doesn‟t provide citizens with direct control over funds.

The political system in South Africa has been designed in a way that local municipalities are to be the engines of growth and development; they also bear the largest part of the responsibility of providing the institutions for community participation. The Municipal Systems Act No. 32 of 2000 gives the way in which information on participation should be communicated. The Municipal Finance Management Act (2003) mandates participation in the municipal budget. Implementation of the mandated participation is contained in the Guidelines for the establishment and operation of municipal ward committees of 2005, and in the eThekwini Municipality‟s Community Participation Policy (eThekwini Municipality, 2006).

There are three ways in which participation is established in the system: information, consultation and active participation. Information-sharing simply involves the Municipality informing citizens about decisions already made by government, and thus citizens have no chance to influence the decision-making process. Secondly, consultation "is a two-way model of participation where government consults citizens" (eThekwini Municipality,

2006: 9). This model operates through large public meetings/discussions and contributions from government researchers or facilitators and responding citizens. Citizens‟ opinions are incorporated selectively in decision-making. The final perspective of participation is that of active participation, which includes "the involvement of stakeholders and all parties affected. All stakeholders participate in processes of planning and decision-making. Citizens through ward committees have full understanding of issues as they are relevant to their situation" (eThekwini Municipality, 2006). The Municipal Structures Act (No. 117 of 1998) states that ward committees define the official form of participation. The Local Government Laws Amendment Act (2008) mandates eThekwini Municipality to financially sustain ward committees. Local government must reimburse ward committees for out of pocket expenses with funds which should be part of the municipal budget.

Participation is an important part in the drafting of the Integrated Development Plan, the performance management system, the budget and the Long Term 2020 Municipality Vision along with strategic decisions relating to services. These are documents that influence and shape the decision making of elected officials and have a direct effect in the budget. It also allows for funds to be directly attributed to wards in order for them to participate directly in the development of their wards. But, wards are not communities, but groups of communities, which in the end have different interests. Moreover, the ward committees have a reputation has largely having been captured by the ruling party (the ANC), which sets the agenda. Most importantly, ward committees are advisory bodies in nature and have no implementation powers. Therefore participation has been brought in place but its effective implementation is yet to take off. It should be noted that for the period 2010 through to mid 2012 the ward committee system was largely not functioning and efforts were being made in late 2012 to re-establish these structures which had lost status after the 2011 local government elections.

In all, eThekwini Municipality exercises devolved authority on service provision and has enough revenue raising capacity to provide for these mandates. With regard to participation we have found that the Municipality‟s strategies prove that participation is sterile and is more close to consultation. Processes adopted in eThekwini Municipality are not conducive to citizen participation and there are technical walls (what can and cannot be discussed), lack of capacity building, no transparency in review of input, highly centralised "block" allocations devoid of space content (apart from large scale projects) and no intra-municipal decentralisation – all of which affect the participatory process. The participatory governance structure is not institutionalised and integrated in to the system despite Constitutional guarantees.

According to Langa and Jerome (2004: 15)

"the challenge of implementing participatory budgeting in South Africa is huge. Within the framework of co-operative governance, the government has already passed several legislations that demand community participation including the Municipal systems Act (Act 32 of 2000) Section 16 (1) and the Municipal Finance Bill 2000. There is need to build on this. South Africa has had a long history of collective, progressive struggle for socioeconomic equality and justice especially under apartheid".

Institutionalising participatory budgeting could serve to enhance this continued trend of collective efforts to fight against socio-economic inequality and poverty but also comes with risks of creating new forms of exclusion. In the fieldwork done in Durban it was noted that both councillors and civil society representatives indicated that they did not have a strong technical grasp of budgeting issues and processes. In fact a number of municipal officials also expressed a lack of in-depth understanding around what might be informing strategic choices. This might have been aggravated by the recent local government elections and further by the fact that Ward Committees had been inactive for almost two years and longer in some cases. It was also noted that there was very little in the way of strategic engagement on municipal financing matters pertaining that would influence budget matters over a period for a decade or more. For example discussions about revenue generating models, gearing and development funding, balancing choices between operations and capital (for example staffing) pricing as well as systems for transparency and citizen overview were largely absent.

Civil society interests indicated some of the following as being important to them: A meaningful form of decentralised budget allocations and expenditure choices informed by participation and matched by localised municipal capacity dedicated to communities; Processes for effective participation with regard to strategic choice making within MTEF and even beyond (relating to matters such as revenue management etc) including the possibility of a citizens budget forum reflecting civil society and business interests; Improved education and training of stakeholders around the budget and budget processes; Forms of engagement around municipal planning and budgeting that seek to institutionalise relationships with a variety of "sectoral" interests such as those related to the economy, the environment, neighbourhood associations and the like. These could be informed by both expert and representative interests; Significantly enhanced accountability processes at the local, sectoral and strategic level where budget matters

are reported alongside improved transparency and post expenditure impact reviews.

7.3. Some Additional Reflections

The case of Durban provides considerable evidence that processes of decentralisation have been wide-ranging in their effects in South Africa. This process of decentralisation has been accompanied by significant devolution of authority to plan and spend funds and in the case of larger cities is accompanied by significant revenue raising capacity. Extensive constitutional, legislative and policy provisions encourage public participation in the process of setting municipal budgets and in the broader planning and regulatory processes of municipalities. This has evolved over time with a tendency, also shown in the case, for these processes to become institutionalised in IDP consultation forums and in Ward Committee structures. Many respondents argue that the consultation processes that have been followed have been rather shallow and no structured processes have been followed to harness deeper engagement with communities both on budget planning and critically in expenditure accountability (with the latter being almost absent). Efforts by various civil society groups to engage on budget processes have tended to be brushed off with technical walls, although some indications are that this is being reconsidered with the 2013/14 draft budget being shared in an earlier draft form with the local chamber of business. It should also be noted that civil society groups admitted that they had found it difficult to mobilise their constituencies around the budget – in part because the over all budget remains strongly pro-poor in its orientation, despite shortcomings in terms of public engagement.

In the period since the initial research some efforts have been made by Municipal officials to integrate some of the community needs information gathered in the IDP process with spatial planning information via the Municipal GIS system. This is geared to enabling the officials and politicians to make better informed decisions in order that expenditure can be matched with needs that are not only expressed in community meetings but also in terms of technical data on service backlogs and the like. This system remains in its infancy but a number of officials expressed the intention to explore if it could aid more effective community participation in the future. This point illustrates, that despite the relatively weak public participation culture in Durban"s official local government processes there remains a relatively high degree of willingness to experiment and explore, even if this is driven more by a technical agenda of wanting to get better and more accurate data as is so well illustrated in the C2S work package 4 material on water.

8 Conclusion

The five themes (work packages) for the Chance2Sustain project have provided a lens through which to view participatory spatial knowledge and practice in a large fast growing metropolitan municipality in South Africa. These themes cannot provide a comprehensive picture of all that is happening within the Municipality. However, they do provide useful insight into a complex and fast changing city. The research has had to reflect on a dynamic Municipal system that is still evolving as it transforms from its apartheid past. The city is under pressure to address the challenges of poverty and inequality (pro-poor agenda), while at the same time striving to be a globally competitive city (pro-growth agenda) as mandated in the IDP. The city currently experiences relative political stability as the ANC has been in power at both local and provincial level for over a decade. However, the system remains unsettled as a result of tensions both within the municipal administration (technical versus political), and between the city, civil society and other political organisations. The challenge of balancing the pro-poor and pro-growth agendas drives the city in competing directions at different times, shifting its focus.

Durban is a „unique" large city in South Africa in that it contains both rural and urban zones within its municipal boundary, as a result of the Municipal Demarcation process which was finalised in 2000. Therefore, rural and urban development zones are now identified in the spatial plans of the city. The research has revealed the emergence and stabilisation of a dominant discourse around the urban-rural divide, which is reflected spatially in the concept of the Urban Development Line. This line continues to evolve as it is constructed through debates over the compact city and densification, service provision, cost efficiencies, environmental services protection, lifestyle choices, private development pressures, livelihood opportunities and poverty reduction, all of which form part of a broader sustainability discourse. The future sustainable development of the Municipality critically depends on how this rural-urban dichotomy continues to be constructed and managed through city policy, practice and investment.

As a metropolitan municipality, eThekwini has operated quite independently of national and provincial government in most spheres. While national government has provided a sound legislative and policy environment, it is often out of touch with the reality of governing in practice at local level. Provincial government has tended to focus on weaker municipalities in the province and so it has not played a dominant role in the city, except perhaps in relation to the promotion of mega projects like the new international airport/Dube Tradeport, and housing projects. Province's key role as a source of funding to the city for housing and infrastructure tends to focus its relationship with the local state on the city budget and the IDP. Recently, there has been a shift in the Municipality towards engaging more with Province around the Provincial Growth and Development Strategy. There has also been some communication with neighbouring municipalities in recent years to foster better alignment between spatial policies (see the SDF), which is promising for improved cooperative governance at a local level. As a relatively independent and powerful Metropolitan Municipality, eThekwini has sought to be innovative in the way it responds to the challenges it faces in meeting the needs of its citizens. As such, the city is leading national and provincial government in practice and policy especially in the areas of water governance and environmental management.

Durban is a strong „technical city" which shows considerable innovation and incremental learning within the previous Engineering Services Cluster, as well as some sectors within development and planning and housing. These innovative sectors are now located within the Sustainable Development and City Enterprises cluster and within Human Settlements and Infrastructure under the new institutional structure of the Municipality (see Figure 19). The research reveals that the technical management of the challenges of the city, as well as the technical and scientific knowledge that has been collected about the city through ITC-GIS, has been a necessary and important phase in the transformation of the city post 1994. The „technical city" has been able to provide a basic level of services and both a basic and sophisticated level of infrastructure which is an important base for the future development of the city. However, the rapid growth of the city, poverty, the increasing densification of the rural periphery, the location of mega-projects, the lack of economic growth and spatial integration of the city and the politicisation of development, is placing increasing pressure on the resources and technical capacity of the Municipality. It is now time for the Municipality to open up debates about the „technical spaces" and „technical practices" that have been created in the city in a manner which allows for greater participation and which moves beyond the political interests of the party, which has, thus far, controlled the nature and form of civil society engagement with the state.

The Municipality does not have a strong culture of public participation. In general, engagement with the public tends to be quite distant in public meeting settings, through consultative „invited spaces" that do not encourage real engagement or through managerial urbanism. The impact of the ward committee system and the way in which this defines the relationship between the state and its citizens has been significant. The politics of decision making needs to be opened up to create meaningful „deliberative engagement between citizens and the state", rather than the current situation where party politics is so dominantly influencing decision making at all levels in the city and curtailing citizen participation.

The Municipality is however, moving towards being more innovative in certain areas (e.g. water governance and climate change) in terms of how it engages with the public to develop solutions to difficult challenges. The relationship between the state and its citizens in the eThekwini Municipality is critical to its future, as are the debates about the future development of the urban core and the rural periphery. Strong leadership, greater participation and well developed spatial knowledge systems with up-to-date data, including community knowledge, are the key to Durban"s future and are three elements of city governance that need to be cultivated and valued.

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Chance2Sustain examines how governments and citizens in cities with differing patterns of urban economic growth make use of participatory (or integrated) spatial knowledge management to direct urban governance towards more sustainable development. **Consortium partners:** European Association of Development Research and Training Institutes (EADI, Germany), Governance for Inclusive Development (GID) at the Amsterdam Institute for Social Science Research (AISSR-UvA, Netherlands), French National Center for Scientific Research (CNRS, France), School of Planning and Architecture (SPA, India), Cities for Life Forum (FORO, Peru), Centro Brasileiro de Análise e Planejamento (CEBRAP, Brazil), Norwegian Institute for Urban and Regional Research (NIBR, Norway), University of KwaZulu-Natal (UKZN, South Africa)

SEVENTH FRAMEWORK
PROGRAMME