URBANISATION & IMPACT ON BASIC SERVICE DELIVERY

Presentation to PP&DF

4 August 2016
Urbanisation & what it means for basic service delivery in the Western Cape?

Urbanisation = increase in the urban population of a country or area due to the following components of urban population growth:

• urban natural increase,
• urban net migration, and
• the reclassification of parts of the rural population into the category ‘urban’ (due to the sprawl of existing urban areas into their rural surroundings or the development of new towns in former rural areas)
Demographic Forecasts – Western Cape

Population is expected to increase by just over 32% over the next 25 years (from 6.2 million in 2015 to 8.2 million in 2040)

The urban population is expected to increase from 4.2 to 6.2 million (an increase of 47.6% over the next 25 years)
An even larger portion of the Western Cape population will be living in urban areas (nearly 76% of the population by 2040*).

In 2015 approximately 62% of the South African population were living in urban areas**.

* Source: FuturesCape, 2016
** Source: Gapminder, data source
Youth and Pensioners – Western Cape

The number of individuals over 65 is forecast to more than double, from 389 000 to 949 000, by 2040.

The number of school aged kids (6-19) is forecast to increase by 12% by 2040 (from 1.5 million to 1.65 million).

In 2040 pensioners will make up 11% of the total population, while school aged youth will make up 20 percent.

![Graph showing the percentage of the total population in 2015 and 2040 for ages 6-19 and over 65.]
Western Cape population growth @ 19.0% [Drives need for health, education, recreational, social, etc. facilities]

Western Cape household growth @ 33.6% [Drives the need for access to basic services]
The period 2007 to 2011 saw a remarkable increase in the percentage of households living in informal type of dwellings in the Western Cape – an increase of 3.9 percentage points. All other Provinces experienced a decrease in percentage of households living in informal type dwellings (Northern Cape the exception with a 2.2% movement).
Context

Receiving Environment

- By 2030 → 750 Global Cities
- Majority of growth within Cape Metro / City Region & Southern Cape (George, Mossel Bay, Bitou)
- Informality, basic services backlog & poverty = remains a reality
- Socio-economic current truths & Ecological Services Endowment
URBANISATION ASPECTS

NEW DEVELOPMENTS

INFORMAL SETTLEMENTS

INFILL

INFRASTRUCTURE & AMENITIES

LIVE
WORK
PLAY

NATURAL GROWTH & CITY-MAKING

CITY-MAKING

RECLASSIFICATION – FORMAL
URBANISATION = SOCIAL-ECOLOGICAL SYSTEM

SOCIAL – ECOLOGICAL SYSTEM (SES)

Integrated system of ecosystems and human society

⇒ reciprocal feedback and interdependence
“Sustainable development, then, is about recognizing and accepting our responsibilities not just for where we live, but more widely for the environment at a global scale. In order to do this we need to look beyond the environment itself, to the broader economic, social, and political systems within which human decisions are made. Fundamentally, sustainable development requires not just altering behaviour patterns in relation to the environment, but about changing the broader systems that shape human behaviour.”

Haughton 1999: 234
SOCIAL ECOLOGICAL SYSTEMS are COMPLEX ADAPTIVE SYSTEMS

COMPLEX ADAPTIVE SYSTEMS REQUIRE ADAPTIVE MANAGEMENT APPROACHES

- Simple Rules : Complex Behaviour
- Self-organising : Different times and geographic scales
- Feedback loops requires constant adaptation
- Non-linear
- Cannot know it all

SUSTAINABLE DEVELOPMENT:

- normative (what we *ought* to do
- to achieve *desired* outcomes
- No 1 size fits all – innovation response to urbanisation

Equity / social & procedural justice

Environment

Economy/livelihoods/prosperity
Spatial Manifestation of Growth

- Spatial Performance Monitoring & Management -

- New SPLUM dispensation
- Point of access to immense opportunities
- How we use it will determine how history will view our legacy

Never before has the need for delivery of empirical and scientific evidence been more important!

- DPIM&R + Collective -
What is SPLUMA about?

A single Spatial Planning System for the country

- Principles
- Policies and legislation
- Spatial development planning & frameworks
- Land use management through schemes
- Land development (applications)
- Some other provisions

80+ years
What is SPLUMA about?

≠ Procedural compliance (the case historically).

✓ Substantive compliance

A normative approach to spatial planning and land use management

Achieved through “giving effect to” the SPLUMA principles

Depends → Relationships
SPLUMA PRINCIPLES

• The principle of spatial justice
• The principle of spatial sustainability
• The principle of efficiency
• The principle of spatial resilience
• The principle of good administration

[Encapsulates the entire system of government]
MUNICIPAL FINANCIAL SUSTAINABILITY OF SPATIAL GROWTH PATTERNS

- Financial and economic evidence to support the spatial policies of compaction, integration and densification
- Comparing the up-front and on-going costs of dispersed vs compact urban development
- Comparing the non-financial costs associated with two growth models (loss of productive, cultural, scenic and/or biodiversity landscapes)

- **R24 billion** additional capital required over the next 10 years with funding shortfalls
- To break even some municipalities would have to increase rates and tariffs by **up to 4% above** inflation every year to keep up with rising costs
- Low income households will have to spend up to **18% more** for transport
- **33%** average increase in carbon emissions from transport

NSDF Framework Presentation – 19 April 2016
...spatial and resource inefficiencies have serious negative consequences for the environment, but also for government finances (particular municipal finances) and for household livelihoods.
Mossel Bay Growth Scenarios - Comparisons

...spatial and resource inefficiencies have serious negative consequences for the environment, but also for government finances (particularly municipal finances) and for household livelihoods.
SOUTH AFRICA

URBANISATION IN SPATIAL CONTEXT

- Global
- National
- Provincial
GLOBAL GROWTH TRENDS:- BY REGION


1. 2015, world population reached 7.3 billion → 11 billion In 2016, 83 million people+
2. Continued population growth until 2050 → Rest of World and Africa
3. Africa population growth continues to experience very high rates → 2015-2050 populations of 28 African countries projected to more than double – vast majority of people on Continent will stay in settlements and medium sized cities.
4. 2015 - ‘PINCODE’ of the world = 1114 | 2050 - ‘PINCODE’ of the world = 1125
   THEN 2100 – ‘PINCODE’ of the world = 1145
5. Growth will be in Sub-Saharan!

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South(ern) African Context

South Africa in African Context*

<table>
<thead>
<tr>
<th></th>
<th>2015 [%]</th>
<th>2050 [%]</th>
<th>2100 [%]</th>
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<tbody>
<tr>
<td>Africa</td>
<td>81.1%</td>
<td>85.7%</td>
<td>89.7%</td>
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<tr>
<td>Sub-Saharan</td>
<td>6.5%</td>
<td>3.7%</td>
<td>2.1%</td>
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<tr>
<td>Southern Africa</td>
<td>87.0%</td>
<td>84.0%</td>
<td>81.4%</td>
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<td>2 477 536</td>
<td>4 386 591</td>
</tr>
<tr>
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<td>962 287</td>
<td>2 123 232</td>
<td>3 934 828</td>
</tr>
<tr>
<td>Southern Africa</td>
<td>62 634</td>
<td>78 029</td>
<td>80 737</td>
</tr>
<tr>
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<td>54 490</td>
<td>65 540</td>
<td>65 696</td>
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Density = 45 Persons/He

© Western Cape Government 2013 | MinMay June 2016
# South African Cities’ Growth Prospects

## Size and Spatial Distribution of Urban Centres of Growth

<table>
<thead>
<tr>
<th>Urban agglomeration</th>
<th>Country</th>
<th>Population (millions)</th>
<th>Rank*</th>
<th>Average annual rate of change (percentage)</th>
<th>2014 population residing in agglomeration, as percentage of Total population</th>
</tr>
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<tbody>
<tr>
<td>Johannesburg</td>
<td>South Africa</td>
<td>3.7</td>
<td>9.2</td>
<td>11.6</td>
<td>48</td>
</tr>
<tr>
<td>Cape Town</td>
<td>South Africa</td>
<td>2.2</td>
<td>3.6</td>
<td>4.3</td>
<td>103</td>
</tr>
<tr>
<td>Durban</td>
<td>South Africa</td>
<td>1.7</td>
<td>2.9</td>
<td>3.3</td>
<td>136</td>
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<tr>
<td>Pretoria</td>
<td>South Africa</td>
<td>0.9</td>
<td>2.0</td>
<td>2.7</td>
<td>290</td>
</tr>
<tr>
<td>Port Elizabeth</td>
<td>South Africa</td>
<td>0.8</td>
<td>1.2</td>
<td>1.4</td>
<td>311</td>
</tr>
<tr>
<td>Vereeniging</td>
<td>South Africa</td>
<td>0.7</td>
<td>1.1</td>
<td>1.4</td>
<td>338</td>
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Cape Town is Expected to grow from 3.74 million individuals in 2011 to 4.63 million individuals in 2040.

6.97 million people in 2030

7.36 million in 2040

The population in the Western Cape Province is expected to grow from 5.83 million individuals in 2011 to 7.36 million individuals in 2040.
Big City Blow-Out

PWC Population Estimates

STEPSA – main trends

Change Detection – Hotspot Analysis

GPS2013

- By 2030 CoCT population = 4.42mil
- By 2030 WC Province population = 6.9mil
- 3 Lead Growth Districts Account for 30% of future growth. CoCT account for 58% of future growth
- West Coast / Winelands and Overberg = 3 lead growth districts
- Keep close watch on Overstrand
Average annual population growth rate and total absolute population growth by area: 2011 to 2040

Census 2011:
WCDM: 391,773
CWDM: 787,486
ODM: 258,178
EDM: 574,266
CKDM: 71,003
CoCT: 3,740,037
WCP: 5,822,742

3 Lead Growth Districts Account for 30% of future growth. CoCT account for 58% of future growth.

Absolute Growth: 2011-2040

139,372 248,586 88,188 147,101 17,758 894,165 1,535,170

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## PWC POPULATION GROWTH & PROJECTIONS: 2011-2040

### Highest Actual Growth outside CoCT:
1. Drakenstein
2. Stellenbosch
3. George

### Highest % Growth outside CoCT:
1. Bitou
2. Saldanha Bay
3. Overstrand

<table>
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<tr>
<th>District</th>
<th>#1 [Actual Growth] % Growth</th>
<th>#2 [Actual Growth] % Growth</th>
<th>#3 [Actual Growth] % Growth</th>
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<td>Saldanha Bay ② [48,449] 1.38%</td>
<td>Swartland [35,650] 0.94%</td>
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*Note: Oudtshoorn [-5538]*
## POPULATION GROWTH & PROJECTIONS: 2011-2040

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Source: PWC Population Projections 2011-2040
Change detection

Main aim

Detecting hot spots of building growth changes in development within the Western Cape Province

Objectives

- To detect areas of change and rate of change
- To indicate spatial patterns of change versus high density unchanged areas
- To indicate building growth trends
- Trend analysis for City of Cape Town municipality

- **Y axis**: North to South
  - Direction: West to East
  - Change: Low value buildings on West and Higher to East

- **X axis**: East to west
  - Direction: North to South trend
  - Change: Central Low values buildings and high value on the South

Spot 5 building count point classification

**Building growth trends**

Data fluctuation changes indicating years of change and differenced amount of change

Spatial classification of change areas
Covariance modelling

- Covariance parameters
  - Input data: SBC - base year
  - Surface output: prediction
  - Kriging type: Simple
  - Search direction: true
  - Show all points: Binned and averaged

- Search neighbourhood
  - Maximum: 5 points
  - Minimum: 2 points
  - Sectors: 4 sectors
  - Neighbourhood type: smooth factor = 0.2

- Accuracy assessment of output results
  - Root mean square observed: 1.03
- Building density
- SBC point density

**Density** = number of buildings / area

Point density of a given area over mapping scale in km²
Hotspots Emerging
Spatial Distribution of SBC: 2006 = green / 2007 = red

Change Detection Settlement Patterns
Spatial Distribution of SBC: - 2008 = green / 2009 = red
Change detection green = 2010 / red = 2011
Change detection green = 2012 / red = 2013

Change Detection Settlement Patterns
Western Cape: Density map reflecting areas of high number of buildings

Scale: 1: 2000 000

Compiled by: Nesengani RB
Date: 01/01/2016
Western Cape: Density map reflecting areas of high number of buildings

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Western Cape: Density map reflecting areas of high number of buildings

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Compiled by: Nesengani RB
Date: 01/01/2016
BASIC SERVICES PROVISIONING

CURRENT TRUTH

ACCESS TO BASIC SERVICES
STATE OF SERVICES
CAPACITY / FUNDING GAP
The period 2007 to 2011 saw a remarkable increase in the percentage of households living in informal type of dwellings in the Western Cape – and increased from 1996 base year. All other Provinces experienced a decline in percentage of households living in informal type dwellings (Northern Cape the exception with a 2.2% movement).
Access to Services in Informal Dwellings by service type

Percentage of Households living in informal dwellings by services they accessed, 2014

Natural Resource - 4 Catchments → ¾ Deficits – Breede System
Shortfall in 15 municipalities – including high growth municipalities
75% HH in WC have access to water inside dwelling this increased from 67% in 2001
Only 9.2% of HHs in informal settlements have access to water inside dwelling, and
a further 41.5% have access to water on site or in yard, 47% have access to a public tap
WC 2nd position with Blue Drop Status, but quality is declining
Sanitation

Strategic Overview

WWTWs under capacity in 9 municipalities
Including high growth municipalities

86% HH in WC have access to flush toilet connected to a sewerage system - this increased from 81% in 2001
Only 64% of HHs in informal settlements have flush toilet connected to a sewerage system

WC Green Drop Status improved
84.5% Provincial Green Drop Score
84.2% of plants (133 of 158) in low and medium risk positions.

9 number of Wastewater Systems with <30% score

Significant shortfall – conventional service delivery [1:1 provisioning] for infrastructure only @ R1.45 bn / and for approx. 174000 unserviced dwellings [Relocation and operating budget deficits significant under this scenario]
Refuse Removal / Solid Waste

Strategic Overview

- Landfill sites under severe pressure – cost of compliance R1 bn (excl CoCT)
- Including high growth municipalities – crisis
- 89% HH in WC have access to refuse removal at least once a week - this increased from 87% in 2001
- Waste minimisation statistics fluctuations
- Tariff structure deficits
- No more landfill for sewerage sludge
OUTCOMES

Readiness for Growth = **Complex**

*Brings with it the Opportunities relating to service delivery*

- **Innovation Capital** = Need infrastructure plans, institutional, financial and human capacity – How Urbanisation Happens Matters! We cannot continue to allocate the same space, volume of water, KWh of dirty electricity and volume of landfill air space per person/HH as we have in the past.

- **Differentiated Approach** = Infrastructure demands not just quantitative, also qualities, use-value and affordability of infrastructure, and for whom

- Improvement in the world must be highly **contextualised & Fit for purpose** = Demands change over time: changing economic, social and technical demands and requirements.

- **Whole of Society** = Entire societal response to urbanisation required

- Unlikely that **allocations** to the Province will increase (immediate & short term)

- **Liberate & coordinate data & link** data to design at detailed level
Urbanisation = Key for Basic service delivery challenges to be turned into significant opportunities!

1st next 5 years: Readiness for new IDP Cycle

- Partnership – Joint solutions
- Transversal Management & Joint Planning at different levels / Integrated Management Systems
- Joint Prioritisation & Joint action plan

“So, enabling & responsive 4th Generation IDPs → takes the Province forward during the next five years”

Perceptions Driving Policy Decisions

Different Thinking – Applied Innovation

Socio-economic Transformation

Social – Ecological - Transformation

WE CAN DO IT ‘THE BEST’ - TOGETHER!

Mahalia Jackson, who shouted behind him, "Tell them about the dream!"
Thank You
Contact Us

Helena Jacobs
Development Planning Intelligence Management & Research

Tel:  +27 (0)21 483 5167     Fax:  +27 (0)21 483 4527
Helena.jacobs@westerncape.gov.za
www.westerncape.gov.za