

Analysis of Early Childhood Development (ECD) Facilities within the City of Cape Town

GIS-Based Service Access Planning

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Outline

- Introduction
- Contribution to service delivery
- Methodology
- Case study of accessibility analysis for ECD Facilities

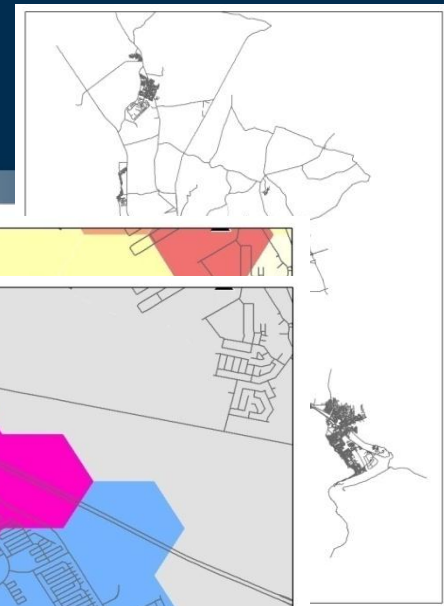
Introduction – Service Access Planning

- **Who** has access to **what**, **where** and **how**?
- Geographical Information System (GIS) strategic level accessibility analysis.
- Service access planning tools and inputs:
 - facility provision norms.
 - customized GIS software -Flowmap- to spatially match supply (facilities) and demand (population).

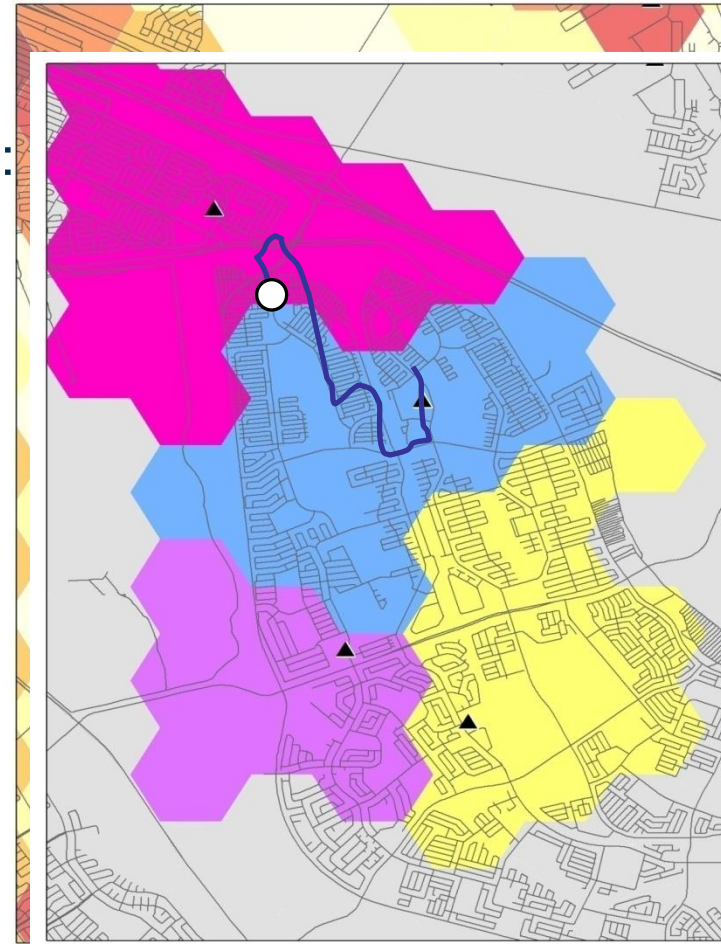
Contribution to Service Delivery

- Develop well provisioned cities with well located services.
- Improve access to social facilities.
- Equity in social investment.
- Minimizing investment in 'white elephants'.
- Evidence for investment decisions versus political choices.
- Education as a key service
 - Promote ECD facilities to improve school readiness.

Methodology



- Data layers used for accessibility analysis:
 - Road network
 - Facility locations with capacity
 - Population distribution
- All three layers interact based on **standards** to determine **what population** travel **how far** to a **facility** with **capacity**.
- Indicate potential catchments.
- Map well and poorly served areas.





Case Study: Accessibility analysis of ECD facilities

ECD facility: *any centre providing a programme for the care of more than six young children (0-6 years), e.g. day-care centre, crèche, nursery school, play school, after care and Grade R class.*

Aim and Objectives

- **Aims**

- To identify areas where the supply and demand for ECD facilities is not balanced.

- **Objectives**

- Audit the current situation of accessibility:
 - Travel distance
 - Sufficiency
- Quantify backlog.
- Model locations of new facilities to eradicate backlog which also supports future growth.

Provision norms for ECD centres

- Demographic profile
- Provincial policy
 - 40% under 5 years in care
 - 100% 5-6 in Grade R

Crèche — Small (Capacity 35 children younger than 5 years)

Population threshold - 1:1 000 people

Maximum access distance- 2 km

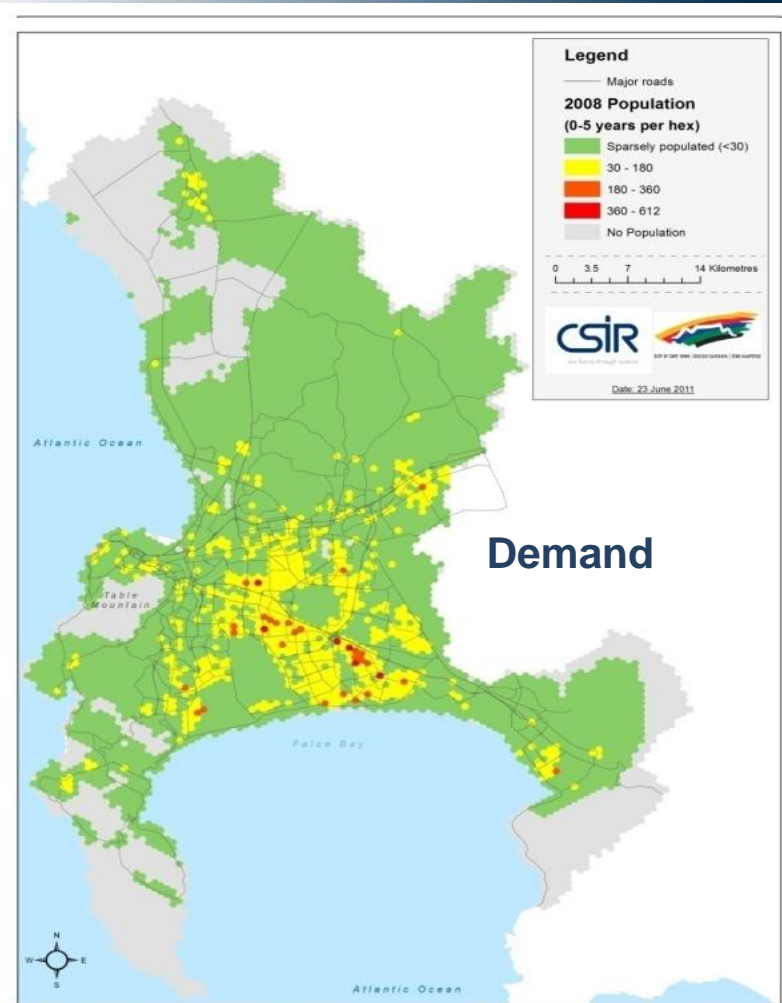
Grade R— Class of 20 children (5-6 years old)

Population threshold- 1:1 000

Maximum access distance- 2 km

Demand and supply of Grade Rs in Cape Town

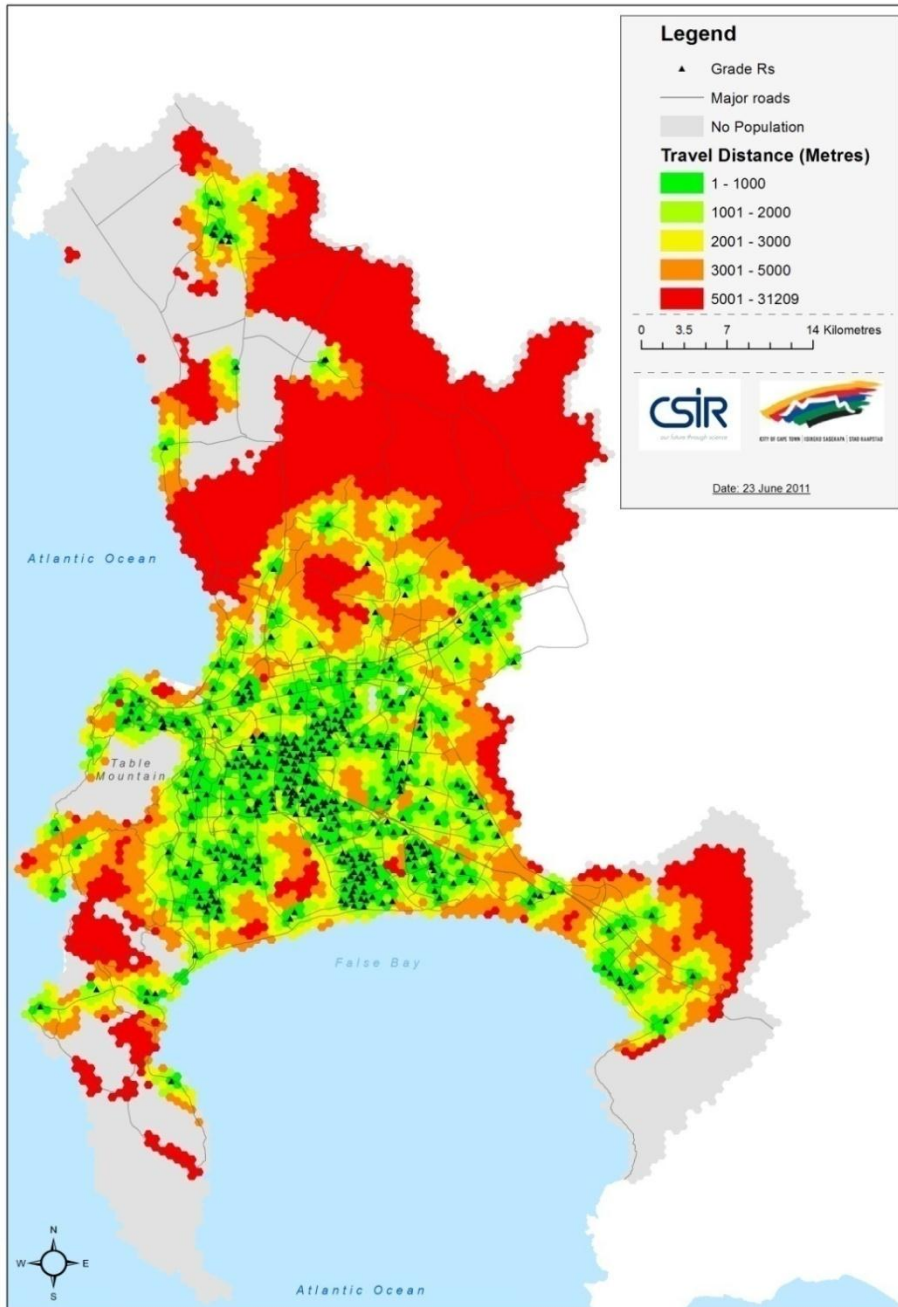
- Demand: all children aged 5-6 years = 67 000.
- 423 schools offering Grade R classes to 30 600 learners (5-6 years).
- Average of 68 children per school.
- Thus, only meet 45% of the total demand required.



Analysis performed for Grade Rs

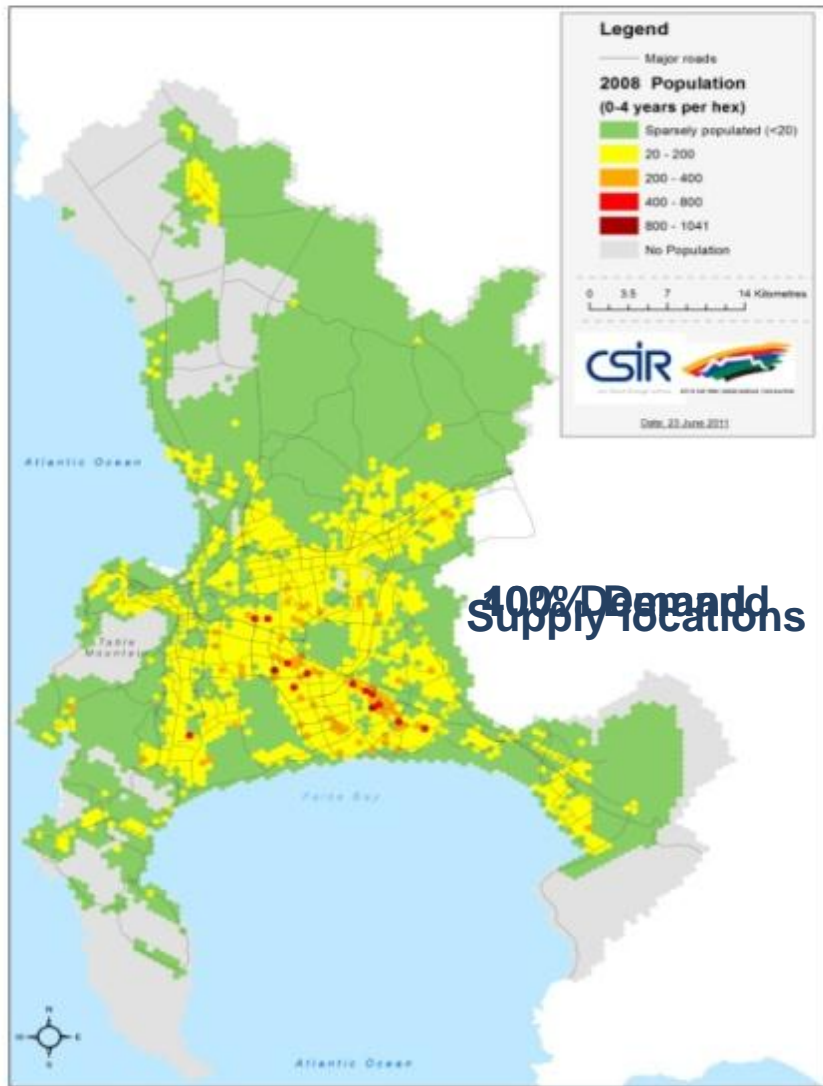
Facilities analysed	All operational Grade Rs (totalling 423).
Demand	<ul style="list-style-type: none">• 100% of city's 2008 projected population figures- children aged 5 to 6 years old.
Travel mode and access distance	<ul style="list-style-type: none">• Maximum 2 km walking distance on a road network.
Analyses undertaken	<ul style="list-style-type: none">• Unconstrained travel distance analysis to establish distance to their nearest Grade R.• Constrained catchment area analysis (limit facility size and maximum travel distance).

Results: Travel distance to closest Grade R



Distance band	Population percentage
0 - 1 km	53.47
1 - 2 km	82.26
2 - 3 km	92.93
3 - 5 km	98.04
5+ km	100

Demand and supply of Crèches in Cape Town

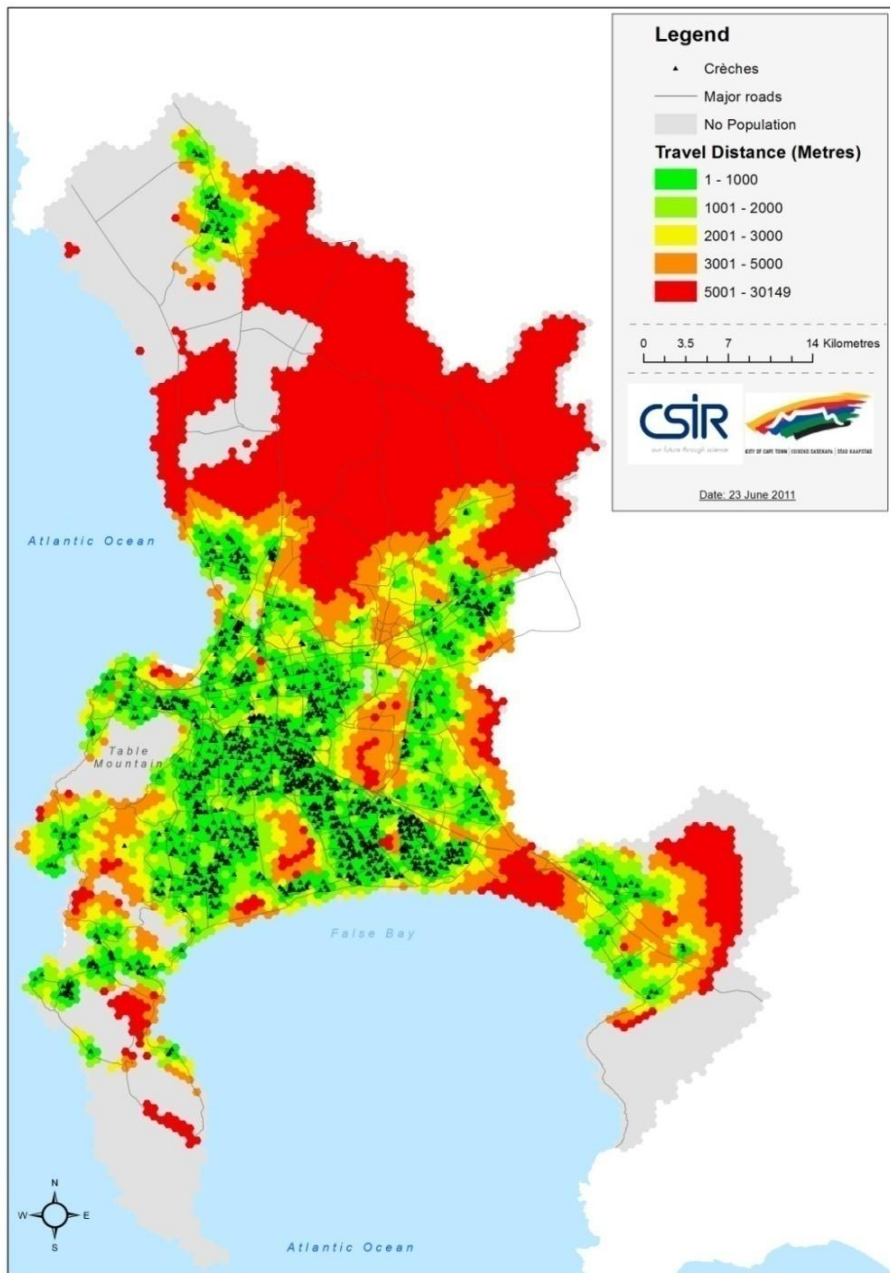


- Demand: Total children under 5 years = 283 000.
- 1 414 crèches serving 73 838 children (0-4 years and 11 months).
- An average of 52 children per facility.
- Thus, only 26% capacity of the 100% demand, and
- If assuming 40% demand = 65%.

Analysis performed for Crèches

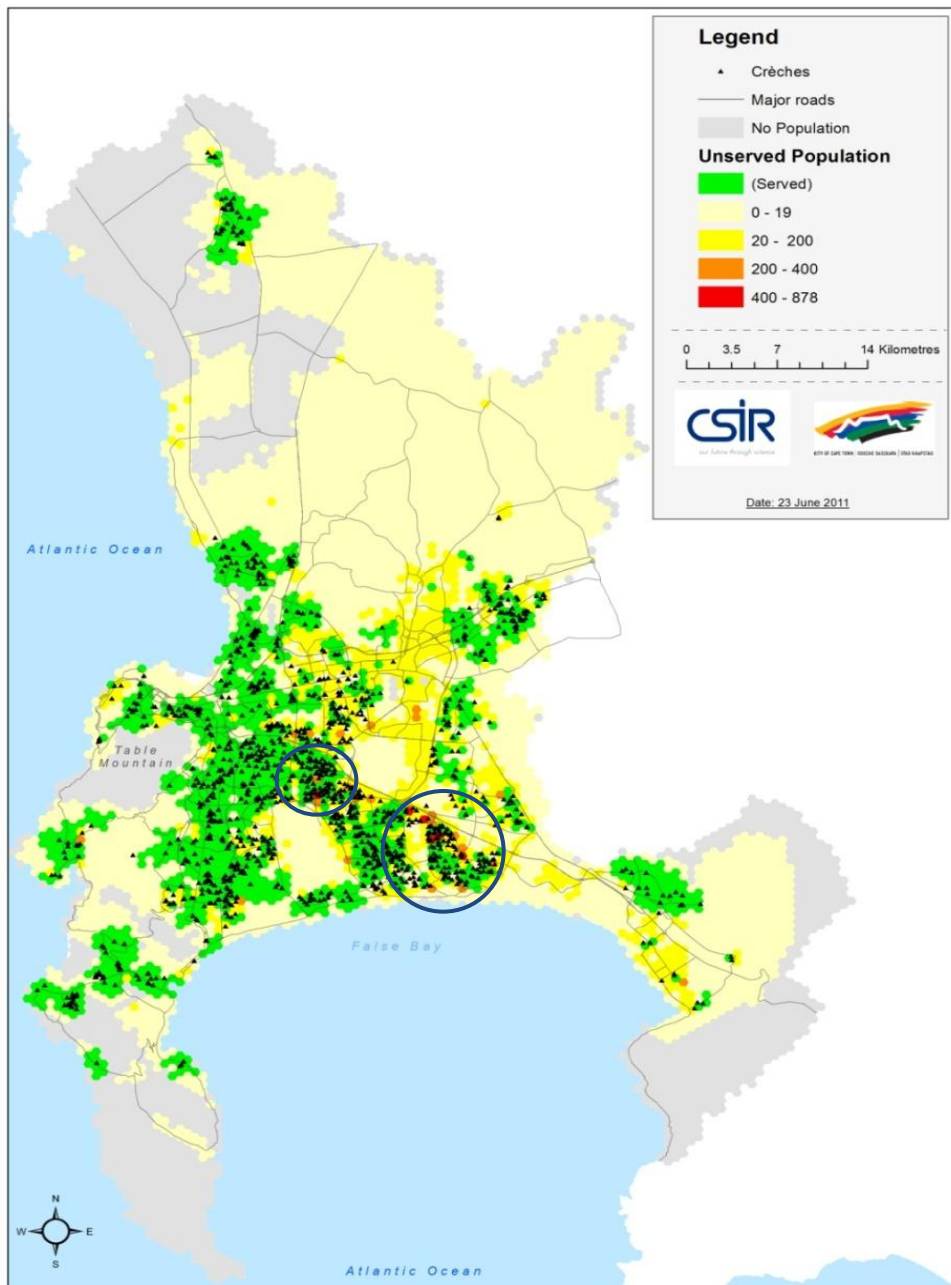
Facilities analysed	All operational crèches (totalling 1 432).
Demand	Two Scenarios: <ul style="list-style-type: none">• 100% demand and• 40% demand for City's 2008 children under 5 years.
Travel mode and access distance	<ul style="list-style-type: none">• 2 km maximum walking distance to the nearest crèche along existing road network/sidewalks.
Analyses undertaken	<ul style="list-style-type: none">• Unconstrained travel distance analysis to establish distance to their nearest Grade R.• Constrained catchment area analysis (limit facility size and maximum travel distance).

Results: Travel distance to closest Crèche



Distance Band	Population percentage
0 - 1 km	68.77
1 - 2 km	84.50
2 - 3 km	90.86
3 - 5 km	97.65
5+ km	100

Served and unserved areas - 40% scenario



Total population demand	113 169
Served population	62 021
Percentage of population served	54.80

Intervention Plan: ECD Centres of Excellence

ECD Centre of Excellence: *a mega early childhood development facility that provides outreach services, resources and support to small crèches within the surrounding areas.*

Proposed provision norm

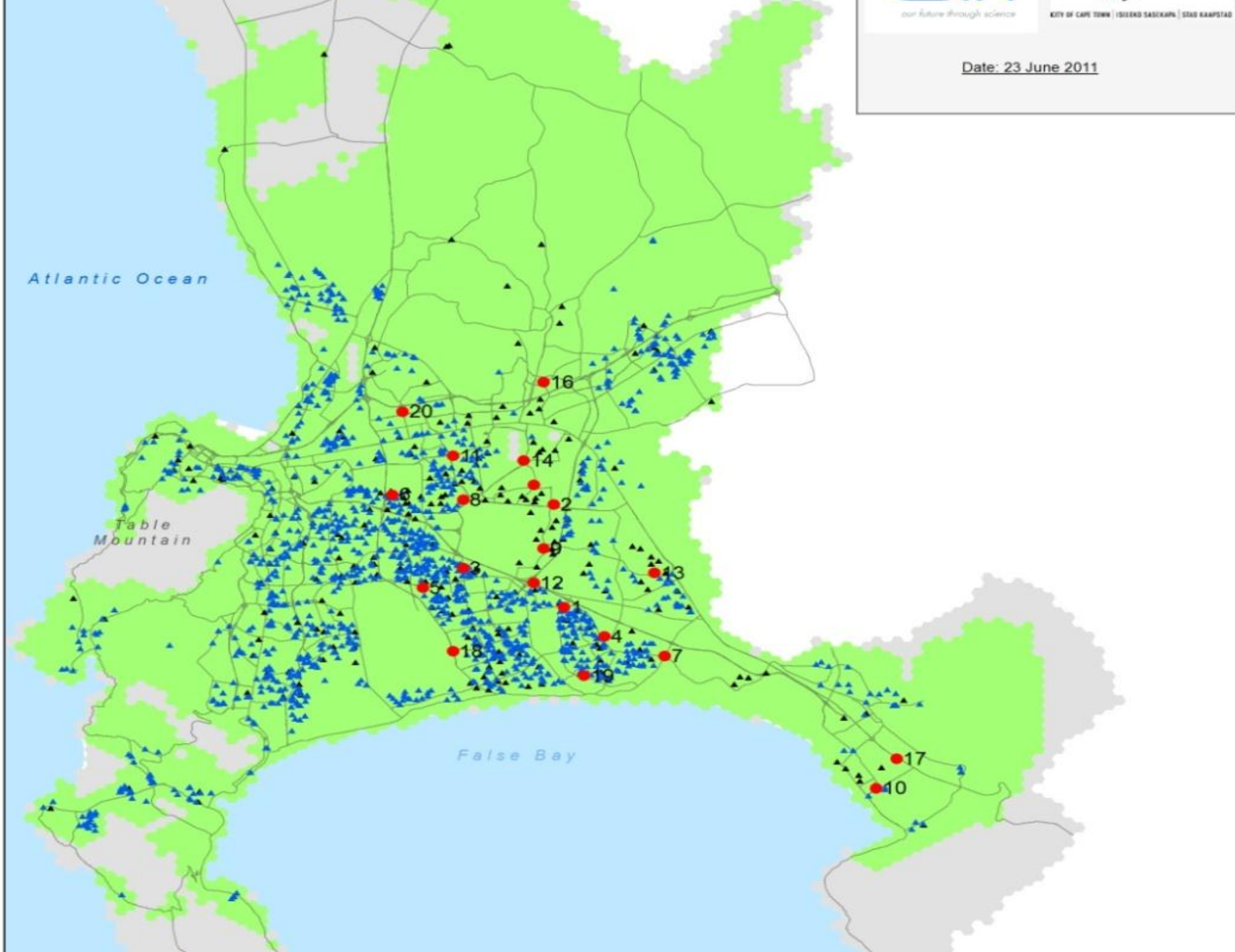
Population threshold -1: 20 000 people.

Capacity A centre of 400 children with resource centre

Access distance: 5 km

In addition to a Centre of Excellence, 6 – 8 smaller crèches are required to optimally provide for 20 000 residents (approx 5000 households) at 40% demand.

Date: 23 June 2011



Investment recommendations

- Investment in ECD Centres of Excellence at optimal locations to serve worst off areas.
- Prioritize location based on access to other education facilities to ensure follow through.
- Support registration of, or promote licensing of facilities in poorly served areas.
- Support/negotiate with Dept. of Education to expand Grade R facilities in identified areas.

Optimal Location	Place Name (StatsSA)	Grades 1-7	Grade R	Primary Schools
1	Khavelitsha	3	3	11
2	Belhar 16	11	1	12
3	Crossroads SP	18	1	29
4	Khavelitsha	11	2	12
5	Philippi	7	1	43
6	Belhar 16	12	6	32
7	Somerset West SP	34	9	30
8	Bishop Lavis	28	7	56
9	Cape Town International A	0	0	1
10	Rusthof	6	4	11
11	Beaconvale	34	12	46
12	Drift Sands	0	7	23
13	Perm Gardens	0	4	23
14	Transnet Marshalling Yard	9	7	59
15	Belhar 23	19	12	58
16	Ridgeworth	0	3	18
17	Nomzano	1	2	30
18	Weltevreden Valley	22	9	51
19	Harare	3	0	22
20	N1 City	0	1	13

Thank You

**Planning Support Systems
Built Environment, CSIR**

Supervisors

Cheri Green

Gerbrand Mans