

Doing business in South Africa: Green Building



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The logo for Urban-Econ Development Economists, featuring the letters 'U' and 'E' in a stylized, overlapping blue and white font.
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South Africa: Salient Features

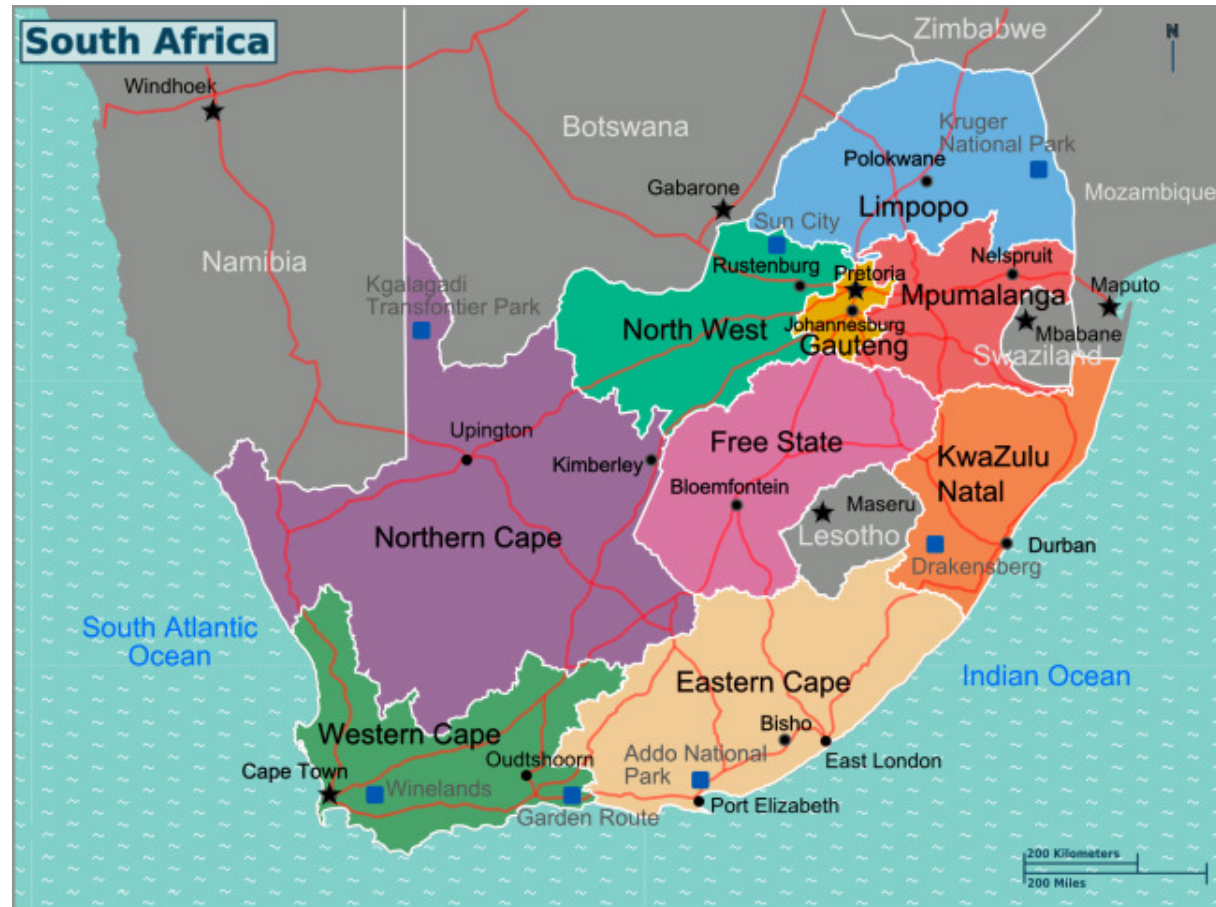


ADMINISTRATION AND BOUNDARIES

GENERAL INFORMATION

Administration and boundaries

- Constitutional multiparty democracy
- Nine provinces
 - 52 districts
 - 226 local municipalities
- Three capitals:
 - Pretoria (administrative)
 - Cape Town (legislative)
 - Bloemfontein (judicial)



General information



- Currency: South African Rand
 - Exchange rate: € 1 = R13.40 (18.06.2013)
- 11 official languages; English - business language
- Infrastructure:
 - Good transportation networks and private health care
 - World class telecommunications infrastructure
- Socio-economic characteristics:
 - Area: 30 times that of the Netherlands
 - Population: More than three that of Netherlands
 - The size of economy: 82% of the Netherland's economy
 - 2012 growth rate: 2.5%
 - Unemployment is 25.2%

Green Building Development Framework



APPLICABLE GENERAL GOVERNMENT POLICIES

GREEN BUILDING INDUSTRY REGULATIONS

GREEN BUILDING TOOLS AND SCHEMES

Background



1. South Africa is ranked 14th in the world for GHG emissions
 - Economy is very energy intensive
 - High dependency on coal as primary energy source
2. As a party to the UNFCCC, SA has committed to reduce GHG emissions
 - Subject to developed countries meeting their commitments
3. The energy crises in 2008 created the need to
 - Expand and diversify the energy supply in SA
 - Implement demand side management measures
4. SA objective: transform into a low-carbon economy
 - Should lead to new sources of growth
 - Should compliment economic reforms

Renewable energy policy framework

Policies and frameworks

- White Paper on Renewable Energy, 2003
- Integrated Resource Plan (IRP) 2010
- Renewable Energy Independent Power Producer Procurement Programme (RE IPPP) based on RE-BID process
 - Price (70 points)
 - Economic development (30 points)



Targets/achievements

- Generation of 10 000 GWH of electricity by 2013
- By 2030, the following capacities to be installed:
 - Total capacity to double (to 89 GW)
 - Solar PV: 8 400 MW
 - Wind: 9 200 MW
 - CSP: 1 200 MW
- Currently:
 - Two bid rounds have closed
 - ✦ Solar PV: 1 048.6MW
 - ✦ Wind: 1 196.5MW
 - ✦ CSP: 200 MW
 - Plans to make one bid round each year

Applicable general policies

Policies and frameworks

- Energy Efficiency Strategy, 2008
- New Growth Path Framework, 2010
- New Growth Path Framework – Green Economy Accord, 2011
- National Strategy for Sustainable Development, 2011-2014
- National Development Plan 2030, 2011



Targets/objectives

- Targets for energy demand reduction:
 - Industry and mining – 12% by 2015
 - Non-residential – 20% by 2015
 - Residential – 10% by 2015
- Install one million SWH by 2020
- Phase out in incandescent lighting (incentives/customs duties)
- Need for new heating and insulation systems in commercial buildings
- Promotion of green cities and towns
- Zero emissions building standards by 2030

Building regulations



Policy and regulatory framework is established, but has gaps

1. Primarily focuses on energy efficiency targets and provides strategic directions
2. Regulations are applicable only to new buildings (after 11 November 2011)
 - Not applicable to low-cost housing units
 - No set standards for retrofits (biggest market)
3. Regulations are relatively new - a few years in implementation
4. Limited financial incentives (primarily from Eskom)

Green Building tools and schemes

- A number of tools are available
- Most are initiated by the private sector and are voluntary
- Government plans to implement the approach to design all new buildings for 4-Star Green SA rating by 2015

Tool	Launched	Initiator	Application
Green Star SA Rating Tools (adapted from Australia)	2008	Private sector	Voluntary
Green Lease Toolkit	2012	Private sector	Voluntary
South African National Eco-labelling Scheme (SANES)	2011	Public sector	Voluntary
The Sustainable Building Assessment Tool (SBAT©)	2001	Private sector	Voluntary
The Agrément System for Techn.Evaluation of Building Materials and Methods	1969	Public sector	Compulsory
Eco Standard	2012	Private sector	Voluntary

Green Building Construction Industry Overview



BUILDING CONSTRUCTION INDUSTRY

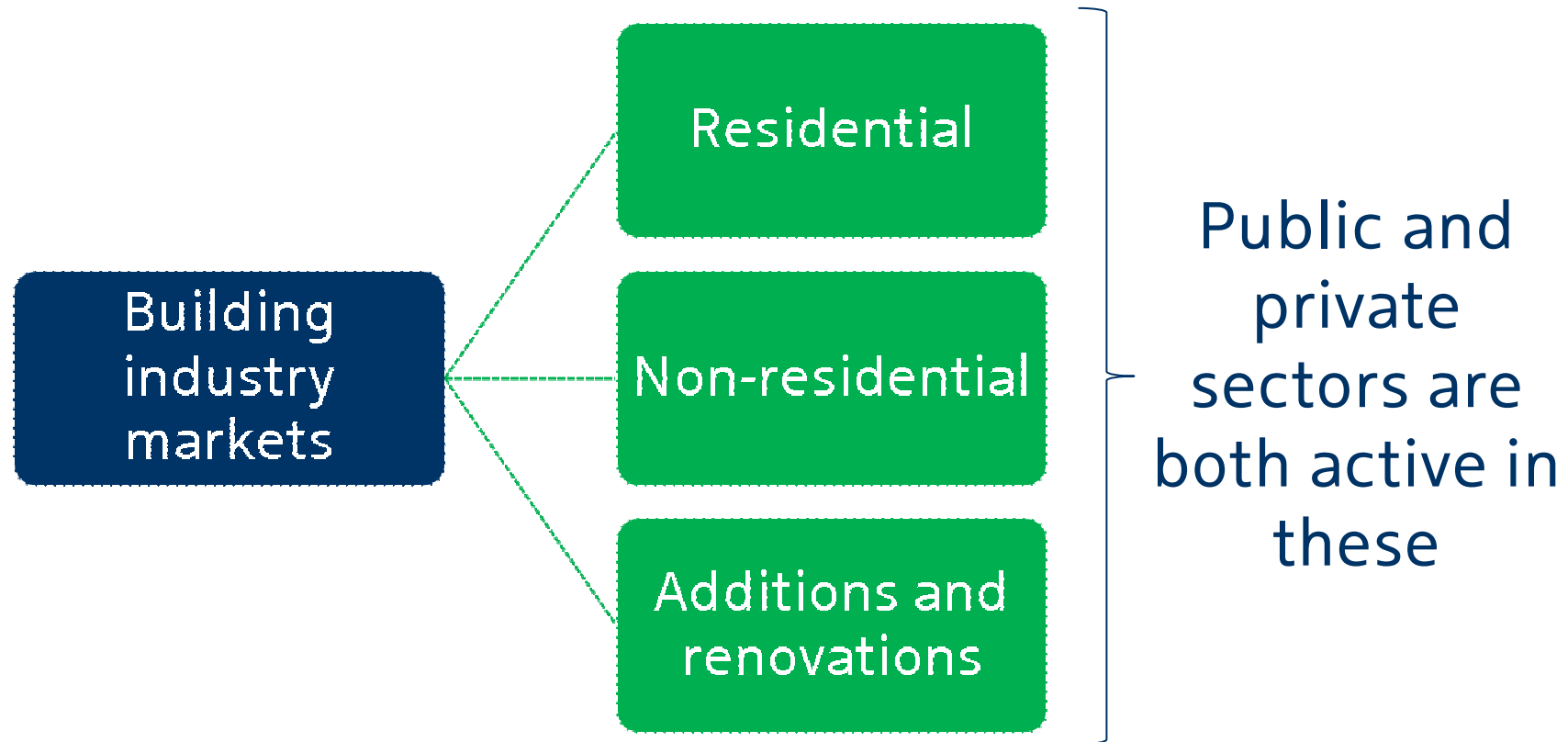
GREEN BUILDING STATE OF DEVELOPMENT AND TRENDS

Construction sector



- Construction sector contributed 3% to SA economy in 2011
- Key characteristics:
 - Formal and informal sector with dominant low skills base
 - Largely small and medium enterprises
 - Sub-contracting (labour and trade) very common
 - Project's duration is generally less than three months
- Building construction
 - 2nd largest sub-sector
 - Profit margins (3.2%) slightly higher than the sector's average
 - Negative growth since 2008
 - Industry is slowly recovering
 - ✦ Demand for retrofits and affordable housing is increasing

Building construction industry: Markets



Building construction industry: Markets

- Residential building examples

Dwelling unit > 80 m²



Townhouse



Dwelling < 80 m² (low-cost housing unit)



Flat



Rural/traditional dwelling



Informal dwelling (shack)



Building construction industry: Markets



- Non-residential building examples

Retail



Sandton Centre

Office



Aurecon offices

Government buildings



the dti

Hotels



V&A Hotel, Cape town

Hospitals



Chris Hani Baragwanath

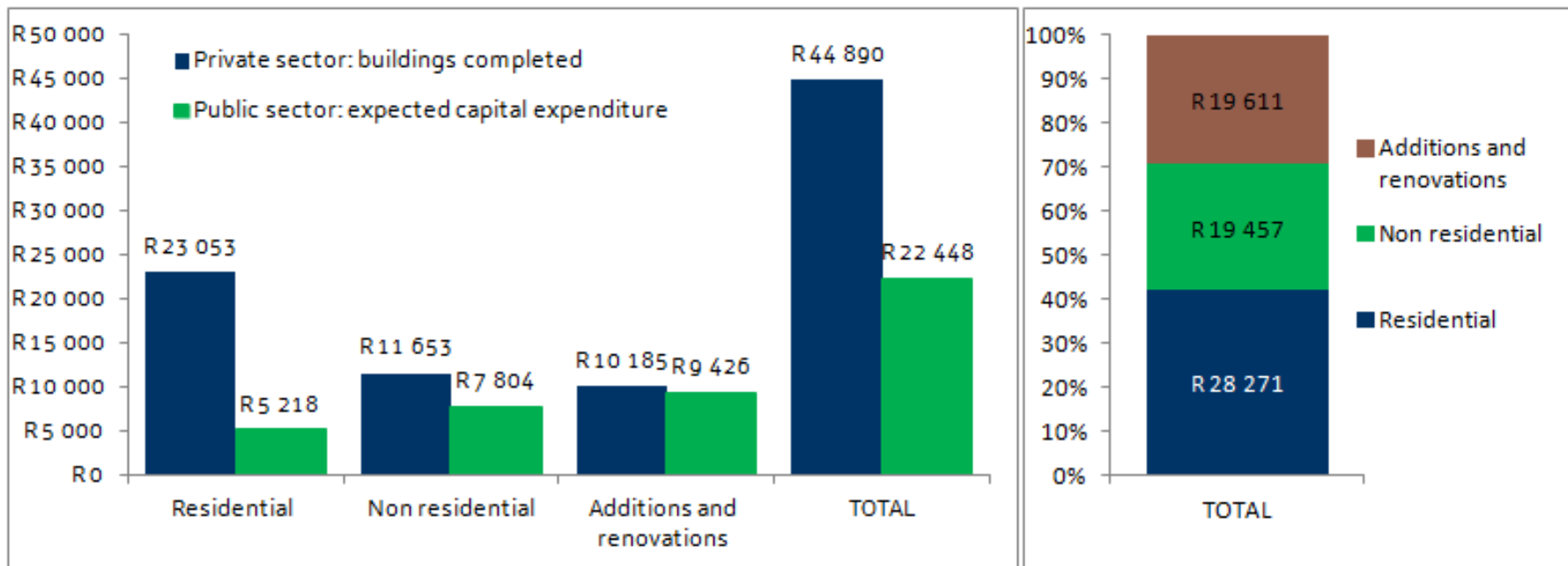
Education



Cape Town University

Building construction industry: Market

- Private sector is the biggest player in the building industry
 - For every R1 spent by the public sector, private sector spends two times more
- Residential market segment – the largest in terms of investment
 - Dominated by the private sector
- Non-residential segment slightly bigger than additions and renovations



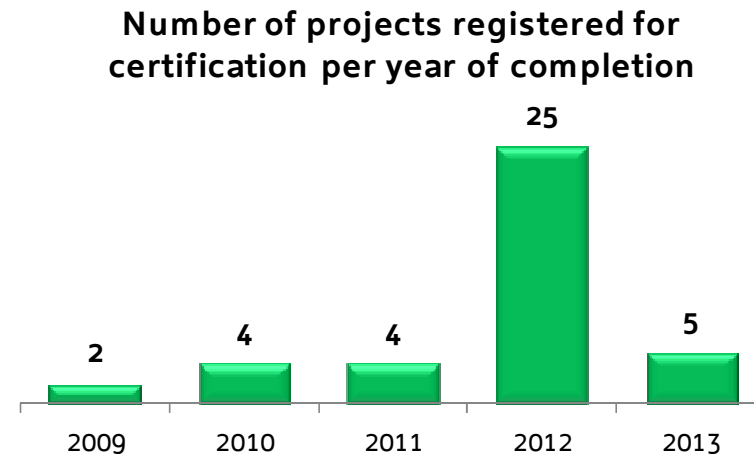
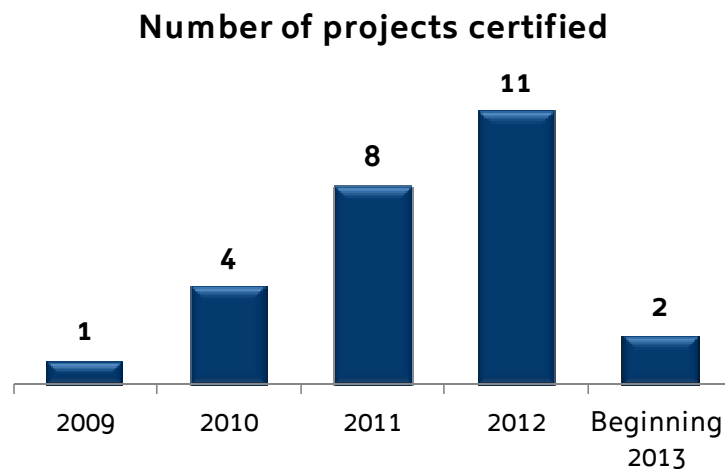
Building construction industry: Sectors



- Private sector
 - Under strain (affordability and limited access to funding)
 - Dominant type: residential (particularly affordable housing)
 - Most common: industrial and warehousing
 - Office and banking space: growing
 - Retail space: decline
- Public sector
 - Development objectives drive the demand for social infrastructure
 - Plans to significantly increase spending
 - ✦ Additions and renovations - largest planned expenditure
 - ✦ Non-residential buildings segment - focus on hospitals
 - ✦ Residential buildings segment – low cost housing

Green Building: State of Development

- Green Building is an emerging industry but steadily growing
- Largely driven by big property groups and building owners
- Beginning 2013: 26 certified projects and 40 registered for certification



- Key characteristics:
 - Primarily 4-Star rated
 - Mainly offices; more public building and multi-residential units are registered
 - Mainly in Gauteng, Western Cape and Kwazulu-Natal

Green Building: Trends and Dynamics



- South Africa is expected to be among the fastest adopters in the near future
 - In 2012, about 16% of firms had high level of green activity
 - By 2015, >50% of firms will be heavily involved in green activity
- Building types:
 - Most common type: Non-residential buildings
 - ✦ New builds - driving force so far
 - ✦ Focus is slowly shifting towards retrofits
 - Uncommon: low-cost housing
- Product types:
 - Most common products: Electrical green products (SWH, heat pumps, lighting) and technologies making use of solar power
 - Fast emerging: mechanical, thermal and moisture protection, furnishings, waste management

Green Building: Prominent SWOT

Opportunities/strengths

- Enormous potential
- Increasing awareness
- Established policy framework
- Private sector initiatives (Green Star SA rating, Green Lease toolkit, etc.)
- Introduction of rebates and incentives by Eskom
- Green – marketing strategy and pressure from international partners
- Declining capital costs

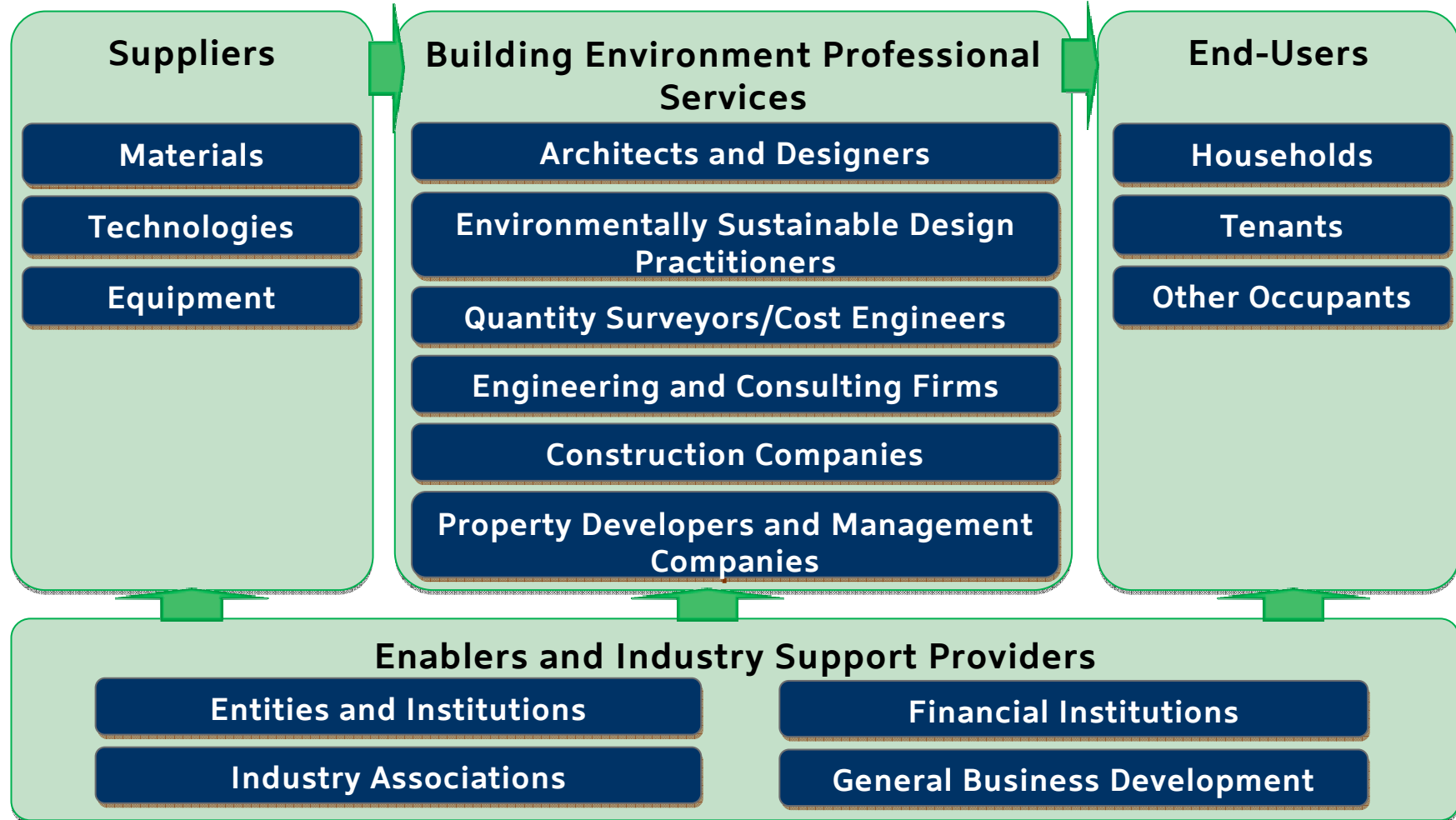
Impediments/ challenges

- Regulatory system gaps
- High cost of technologies
- Limited competition on the market
- Shortage of skills
- Poor knowledge of technologies/solutions
- Limited HH purchasing power
- Building construction industry slow recovery
- Limited incentives and lack of net-metering schemes (only in CT)

Opportunities



Key role-players



Built environment professional services

State of development

- Over 450 firms registered with the GBCSA:
 - Architects and designers (151)
 - Engineers and consultants (141)
 - ESD practitioners (75)
- Companies are increasingly involved in green building
 - Every 2nd to be heavily invested in green by 2015
- Skills shortages are expected

Opportunities

- Green interior design for new buildings and retrofits
- Landscape design for roof gardens and sustainable self-sufficient gardens that integrate rain harvesting and waste water management systems
- Affordable green building solutions for low-cost or social housing (including new buildings and retrofits)

Renewable energy technologies

State of development

- Most common – SWH and PV modules
- SWH industry is established:
 - Both local and imported products available on the market
 - Dominant demand – low pressure SWHs
 - SWH was designated in 2013
- PV industry is emerging
 - Manufacturing capacities exist
 - Cost: biggest constraining factor
 - Both residential and non-residential sectors have huge potential (GWs)

Opportunities

- Local companies manufacturing water collectors and solar tanks
- Introducing products that can capture wind energy in the built environment
- Introducing building-integrated PV material and products that can substitute conventional building materials in parts of the building envelope

Energy storage and exchange

State of development

- Very uncommon compared to Europe
- Primary focus – retain cool air as opposed to heat
- Heat retention is factored into design (post 2011), but not a great necessity
- Technologies applied:
 - Energy wheels: common
 - Geothermal heat sinks, rock store, ice to store cold for day use: limited
- Constraints:
 - Limited knowledge (design and maintenance)
 - Site preparation costs
 - Long payback period

Opportunities

- Professionals with relevant expertise and knowledge
- The inclusion of energy storage technologies in non-residential sector: limited opportunities (for five or six Green Star SA developments)
- Geothermal heating and cooling in clustered up-market residential developments: notable potential, but subject to viability

Smart Urban Waste Management

State of development

- Insignificant uptake
- Most general HH waste – sent to landfill sites
- Waste separation and recycling practices are slowly increasing
- On site waste conversion
 - Practically non-existent
 - Some practices:
 - ✦ Use of processed sewage as compost
 - ✦ Grey water recycling
 - ✦ Worm farming

Opportunities

- Increasing need for efficient use and recycling of water
- Technologies/products needs:
 - Biological aerated filtration and trickling filters
 - Membrane bioreactors
 - Nitrification and denitrification systems
 - Technologies for enhanced biological phosphorous removal
 - UV disinfection
 - Etc.

Energy efficient ventilation and roofing



State of development

- Fast growing industry for the past few years
- Main focus: create a cooler interior environment
- Insulation
 - Variety of materials available
 - Applied in all market segments
- HVAC
 - Widely applied in non-residential segment
 - Most common: Convection-driven turbines
 - Emerging: Solar driven ventilation systems
- Roofing
 - Need for new roof construction methods (to allow for insulation)
 - Low-cost housing: not yet the market

Opportunities

- Introduction of efficient and cost-effective insulation, roofing and HVAC systems
- Introduction of the design methods for complete roofing systems in line with SANS 10400 XA regulations
- “Green” mechanical insulation products and systems

Building intelligence

State of development

- Deployment is only emerging
- Non –residential:
 - BMS primarily for controlling energy usage
 - Other technologies are managed individually
 - Programming and technical skills shortage
 - Difficult to integrate in a multiple tenant building
- Residential:
 - Entertainment and security equipment control
 - High costs
 - Target market: upper high income households

Opportunities

- Expertise and training in BMS
- Introduction of affordable technology solutions for upper middle to high income HH groups

Smart systems

State of development

- Limited application throughout the country
 - Primarily private-public sector projects
 - Feasibility is being investigated
- Significant medium to long-term potential
 - Electricity Regulation Act 2008
 - Establishment of the South African Smart Grid Initiative (SASGI) in 2012
 - Need for grid stability due to deployment of RE IPPPP projects

Opportunities

- Knowledge and expertise in smart grid systems
 - Particularly for application in low-income areas
- Target SASGI and local municipalities

Sustainable lighting

State of development

- Most common initiative to reduce electricity usage
- Increasing deployment:
 - Decreased costs
 - ✦ CFL payback – 2.5 years
 - Eskom incentives
- Street lighting – conversion to solar lighting and HPS
- Market players:
 - Global leaders (Phillips, NTL, Osram)
 - Chinese products
 - Five local manufacturers

Opportunities

- Increasing demand for services:
 - Energy use analysis and audits
 - Project design
 - Installation services
 - Expertise in equipment maintenance and operation
 - Measure and evaluation of savings
- Greater diversity of CFLs and LEDs
- Lighting control systems
- Electronic ballasts in fluorescent tube systems
- Waste disposal services for CFLs
- HPS streetlights

Energy metering for energy use awareness and education



State of development

- Fast growing industry in SA; not new
- Local capabilities are present
 - Industry is competitive
 - About 20 companies
 - Most small and medium sized
- Most meters – imported but need to satisfy SABS
- Demand is growing
 - Municipalities
 - Retail and commercial groups
 - Gated communities

Opportunities

- Experts in advanced metering
- Products for water and electricity consumption measurement
- Services to municipalities re: on-going data collection and monitoring of energy usage

Building with nature



State of development

- SA does not have a programme similar to the Dutch Building with Nature Programme
- Industry is slowly adopting “Building with Nature” design principles
 - Green Star SA rating
 - Building guidelines (national and local government)
 - Green Infrastructure Council was established in 2012
- Fundamental approach followed – passive solar design

Opportunities

- Initiate pilot projects in co-operation with local public sector
- Passive House expertise
 - Focus on middle to high income segment

Tendering for projects



GENERAL INFORMATION

PRIVATE AND PUBLIC SECTOR

B-BBEE REQUIREMENTS

General information



- Construction industry - two types of tenders
 - By open invitation
 - Selected invitation of pre-qualification
- Bidders conference is usually set up, followed by a meeting
- Information on procurement and construction contracts:
 - Joint Building Contracts Committee Inc. www.jbcc.co.za
 - CIBD website www.cidb.org.za/procurement/default.aspx
 - Master Builders website www.masterbuilders.co.za

Tendering process

Private sector

- Not obliged to follow a tendering process, but some businesses are emulating government processes
- No single standard procedure applied
- Projects are rarely advertised in open media
- Best approach – directly engage with the engineering, construction, property developers, and property management companies

Public sector

- Process governed by the legislative environment
- Tenders are made public through media
 - Newspapers
 - Tender bulletin from government
 - Public entity's website
 - Online tender notification systems (e.g. www.12b.co.za; www.sa-tenders.co.za; etc.)
- Can be time consuming
- Evaluation :
 - Functionality and B-BBEE
 - Price

B-BBEE requirements

- Any company to deal with the public sector needs to have B-BBEE certificate
- No exemptions for foreign companies
 - <R5 ml turnover – automatically have 4 B-BBEE rating
 - R5-R35 ml turnover – may rate using four out of seven criteria
 - >35 ml turnover – all seven criteria applied
 - ✦ Allow for "equity equivalent" contributions wrt "ownership"

Sector	Code of Good Practice - General	Construction sector charter
Ownership	20%	25%
Management/control	10%	10%
Employment equity	15%	10%
Skills development	15%	15%
Preferential procurement	20%	20%
Enterprise development	15%	15%
Socio-economic development	5%	5%

Funding options



Support from local funds

- A few programmes are available, but in most cases only SA entities can apply

Fund	Description
Green Technology and Resource Efficiency Improvement	Production incentive grant www.investmentincentives.co.za
KwaZulu-Natal Growth Fund	A debt-fund www.kzngrowthfund.co.za
SA Green Fund	Support green initiatives
Green Energy Efficiency Fund	Supports introduction of energy efficient and self-use renewable energy technologies www.idc.co.za/development-funds/geef
Central Energy Fund	Financing for appropriate energy solutions www.cef.org.za

To conclude...



1. **South Africa is emerging as a prime destination for introduction and deployment of green building technologies and practices**
2. **The supporting environment and regulations have gaps, but the framework is established and will require some time to disseminate and improve**
3. **The industry has certain capabilities, it still requires greater knowledge, capacities and competition to support the dissemination of green building practices envisaged**
4. **Many opportunities exist, but they require taking cognisance of the local climatic conditions and local business environment**

Questions?



THANK YOU

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