REGIONAL PLANNING & SUSTAINABILITY RESPONSES

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Global, Regional & Local Context

- **Global Context**
  - Rates of change, interconnectivity, urbanisation, global economy & climate change.
  - Oil peak by 2030.
  - Carbon economy.
  - Green economy – US, EU, China.
Regional Context:

- Sub-Saharan and Southern Africa face water shortages & conflicts, high rates of urbanisation, migration,
- National economic growth is minerals, carbon and energy intensive, and is financed by high levels of debt financed consumption and low levels of savings and investment, and lowered trade barriers.
- Growth is not being driven by diversification through innovation and investment, as expected in post-1994 economic policies of SA.
Global, Regional & Local Context

Local Context:
- Energy, Water, Oil, Food Interdependencies.
- Poverty & Inequality.
- Unemployment.
- Basic Services.
Limits to Growth

- **Energy:**
  - Energy (and water) intensive economic growth.

- **Water:**
  - Reliable water yield will decrease with stream flow and prices may increase up to 40% in the medium to long terms (Muller, 2007).
  - Agriculture – sector growth despite decrease in contribution to GDP.
  - Minerals-based, energy intensive growth.
Limits to Growth

- Oil:
  - Low reserves – high dependence on imports and coal to liquid technology i.e. Sasol but contributes to 1/5th of total energy consumption.
  - Transport sector – highest consumption, petroleum intensive.

- Carbon:
  - Fossil fuel (coal) and oil dependent growth path.
  - Carbon economy opportunities remain unexploited (BEET is high).
Sustainability Challenges

- Sustainability challenges are not just environmental, they are developmental:
  - Informed by concerns over socio-economic inequality and fragmentation, and infrastructure development.

- Wide scale behavioural change required – potential stimuli:
  - Normative Change (Stern, 2000, Ehrlich & Levin) e.g. Mainstreaming.
  - Resource Rents (Sinner & Scherner, 2007)- auctions, royalties, taxes.
  - Infrastructure Leapfrogging (Muller, 2007).
  - Innovation & Diversification.
Sustainability & Green Opportunities

- **Green Jobs:**

  - **Renewable Industries**
    - 39.7 jobs: Reforestation, Land Restoration
    - 21,738 jobs: Mass transit & freight rail construction
    - 20,317 jobs: Road & bridge repairs
    - 20.3 jobs: Conservation (parks)
  
  - **Building retrofits**
    - 17.36 jobs
  
  - **Biomass**
    - 17.36 jobs
  
  - **Solar**
    - 13.72 jobs
  
  - **Wind**
    - 13.3 jobs
  
  - **Smart Grid**
    - 12.46 jobs
  
  - **Non-Renewable Industries**
    - 14,512 jobs: Electricity, transmission, distribution
    - 6.86 jobs: Coal
    - 4.2 jobs: Nuclear

*Source: Heidi Garrett-Peltier, Political Economy Research Institute, University of Massachusetts at Amherst.*
Sustainability & Green Opportunities

- **Energy:**
  - Energy (and water) intensive economic growth.
  - High solar potential for CSP & solar water heater geysers.
  - Decentralized renewable energy production and consumption.
  - Retrofitting.

- **Water:**
  - Agriculture, minerals and energy sector efficiencies.
  - Recycling and grey-water use.
**Sustainability & Green Opportunities**

- **Waste:**
  - Recycling infrastructure for waste:
    - Source separation management systems.
    - Waste to energy, and waste to fertilizer.
  - Mining waste.

- **Oil:**
  - Transport sector — switch to public transport, fuel switching and rail.

- **Carbon:**
  - Energy measures — previous slide.
  - Transport.
Sustainability & Green Opportunities

- Biodiversity & Conservation – Working with communities:
  - Conservation:
    - Working for water
    - Wetland protection
    - Alien clearance
  - Innovation:
    - Bio-prospecting.
    - Bio-mimicry.
  - Eco-tourism:
    - Low footprint tourism.
Sustainability Enablers

- Resource rents — revising system of property rights used to govern access and management of natural capital.
- Improved mitigation and adaptation.
- Infrastructure leapfrogging:
  - Public transport and rail.
  - De-centralised energy production and consumption.
  - Residential, and other building efficiencies.
- Innovation.
## Benefits: Green Economic Development

**Table: courtesy - Peet du Plooy**

<table>
<thead>
<tr>
<th>Investment</th>
<th>Competitiveness</th>
<th>Jobs</th>
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</thead>
<tbody>
<tr>
<td>Renewable energy: solar, wind, bio-energy [R10bn’s]</td>
<td>Solar, coastal wind electricity and water treatment</td>
<td>White collar: [5 000+] in planning, engineering, enviro-management...</td>
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<tr>
<td>Transport: EV (batteries) and public transport [R10bn’s]</td>
<td>Water savings and waste water treatment</td>
<td>Blue collar: [20 000+] energy supply and savings component manufacture and installation</td>
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<tr>
<td>Energy savings: SWH, smart meter [R1bn’s] (+ deferred power station investment)</td>
<td>Public transport (rail, BRT): displace imports, working cities</td>
<td>Job opportunities: [100 000+] in “Working for...”, land-based industries (eg. bio-energy) and recycling</td>
</tr>
<tr>
<td>ICT: Smart grids, buildings</td>
<td>Motor industry: move to EV and redeploy skills + mnf. capacity in clean energy</td>
<td>Livelihoods: bio-energy, PV, PES [500 000+]</td>
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