Africa 2050: Growth, Resource Productivity and Decoupling

Prof. Mark Swilling
Sustainability Institute, School of Public Leadership
Stellenbosch University
Africa’s growth

- New optimism
- Africa’s GDP by 2008 - $1.6t, equal to Brazil & Russia – increased by 4.9%/a since 2000, will continue
- Urbanisation, rising education, expanding middle class
- Growing diversification – resources down to 24%
Segmenting Africa in this framework yields four groups of countries

Exports per capita, 2008, $:

- Oil exporters: Libya, Equatorial Guinea, Gabon, Angola, Congo, Rep., Chad, Nigeria, Sudan, Mali, DRC, Madagascar, Sierra Leone
- Diversified: Egypt, Tunisia, Namibia, Côte d'Ivoire, Senegal, Morocco, South Africa
- Transition: Côte d'Ivoire, Senegal, Ghana, Kenya, Mozambique, Uganda
- Pre-transition: Ethiopia, Rwanda

Size of bubble proportional to GDP:
- <$500
- $500–$1,000
- $1,000–$2,000
- $2,000–$5,000
- >$5,000

Economic diversification:
- Manufacturing and service sector share of GDP, 2008, %

NOTE: We include countries whose 2008 GDP was approximately $10 billion or greater, or whose real GDP growth rate exceeded 7% over 2000–08. We exclude 22 countries that accounted for 3% of African GDP in 2008.

SOURCE: Organisation for Economic Co-operation and Development; World Bank World Development Indicators; McKinsey Global Institute

(Source: McKinsey Global Institute 2010:4)
Can Africa rise to an acceptable level of human development without overloading its environment?

(Source: WWF 2008)
Africa’s core challenge

Given that 80% of exports are primary resources, future development depends on re-investment of resource rents in:

- human capital development
- infrastructure
- sustainability-oriented technological innovation
- restoration of renewable resources - water, soils, biomass (incl biodiversity)
Africa in global context

- global economic recession: investment/jobs
- climate change & impacts: agric/water/sea levels
- ‘end of cheap oil’ (IEA 2008): rising input costs
- ecosystem degradation: livelihoods/soils/water
- Soil degradation
- population growth: 6 – 9 b
- 2nd urbanisation wave: 3.9b urbanised 1950-2030 (Africa’s cities: 375m – 2010; 1.2b - 2050)
Africa’s real wealth? (World Bank, 2006)

- ‘Genuine savings’ (GS) = gross national savings (GNI) – resource depletion – pollution + education expenditure
- If GS > population growth, wealth/cap grows
- SA is on break even point
- Real wealth/cap growing in Botswana, Mauritius, Namibia, Seychelles & Swaziland
- Positive savings but per cap wealth declining due to high pop growth in Benin, Burkino Faso, Cape Verde, Ghana, Kenya, Senegal, Rwanda
- Resource exporters, pop growth, huge wealth gaps: Congo, Gabon, Nigeria
Global Material Flows

- Construction minerals
- Ores and industrial minerals
- Fossil energy carriers
- Biomass
- GDP

Material extraction [billion tons] vs. GDP [10^12 int'l. Dollars]
Resource use per $1000

(Behrens 2007)
Resource constraints to growth: SA case

- Water: 98% of available water allocated, yet growth rates coupled to water use rates.
- Coal use for energy estimated to grow by 60% by 2020, yet estimates of peak production are 2007 (Patzek & Croft 2010), 2012 (Mohr & Evans 2009), 2020 (Hartnady 2010).
- Govt estimate of reserves: from 50 bt – 28 bt (2003), possibly only 10bt (Hartnady).
- Soils: 14 Mha arable, 5Mha degraded.
Resource and Impact Decoupling

Resource decoupling

Human well-being

Economic activity (GDP)

Resource use

Environmental impact

Impact decoupling
Three forced future scenarios for 2050

Global metabolic scales in billion tonnes

Global metabolic rates in t/cap
Materials: 8t/c
CO$_2$: 4.5 t/cap

Materials: 6t/c
CO$_2$: 2.2 t/cap
A Global Green New Deal

Edward B Barbier
Department of Economics & Finance,
University of Wyoming, Laramie, WY 82071 USA
ebarbier@uwyo.edu

Report prepared for the Economics and Trade Branch, Division of Technology, Industry and Economics, United Nations Environment Programme
GGND – Business as usual

- Global energy demand rises by 45% by 2030, oil price rises to $180/barrel
- GHG increase by 45% by 2030, leading to ave temp increase by 6 degrees
- Global GDP reduced by 5-10%, poor countries by 10% plus
- Ecological degradation & severe water scarcities
- 3 billion live below $2/day by 2015
Goals of a GGND

$2 - $3 trillion economic recovery package over next 2-3 years must be guided by the following 3 objectives:

- Revive world economy, create employment & protect vulnerable groups
- Reduce carbon dependence, ecosystem degradation and water scarcity
- Further MDG of ending extreme world poverty by 2025
What green shoots?

Eco-friendly spending as % of total fiscal stimulus
March 31st 2009 estimates

<table>
<thead>
<tr>
<th>Country</th>
<th>% of Total Fiscal Stimulus</th>
</tr>
</thead>
<tbody>
<tr>
<td>South Korea</td>
<td>30.7%</td>
</tr>
<tr>
<td>China</td>
<td>200.8%</td>
</tr>
<tr>
<td>France</td>
<td>7.1%</td>
</tr>
<tr>
<td>Germany</td>
<td>13.8%</td>
</tr>
<tr>
<td>United States</td>
<td>94.1%</td>
</tr>
<tr>
<td>Australia</td>
<td>2.5%</td>
</tr>
<tr>
<td>Canada</td>
<td>2.6%</td>
</tr>
<tr>
<td>Britain</td>
<td>2.1%</td>
</tr>
<tr>
<td>Spain</td>
<td>0.8%</td>
</tr>
<tr>
<td>Japan</td>
<td>12.4%</td>
</tr>
</tbody>
</table>

Source: HSBC
Resource prices and Africa?

China and EU effort to keep resource prices down (EU communiqué 2008) has 2 consequences: reduces incentives for resource efficiency, reduced income for some African countries.

Opposite may be true? higher resource prices = higher incomes for Africa, incentives for resource efficiency. Governance?
Pan-African Infrastructure Development Fund (PAIDF)

- AU Heads of State Summit July 2007
- Additional annual capital investment: $22b
- Additional annual O&M spend: $17
- Focus: energy, telecomms, transport, water & sanitation
- But what kind of infrastructures will be designed and built?
Africa’s choices

- Continue with resource & energy intensive growth paths, only change if funded by developed world, hit thresholds, fall behind technologically (under-invest in cities)

- Re-define development, see constraints as opportunities for decoupling, see these opportunities as drivers of innovation, accept scale of ‘new build’ as a strategic opportunity for new investments in sustainable socio-technical systems (balanced rural-urban investments)