

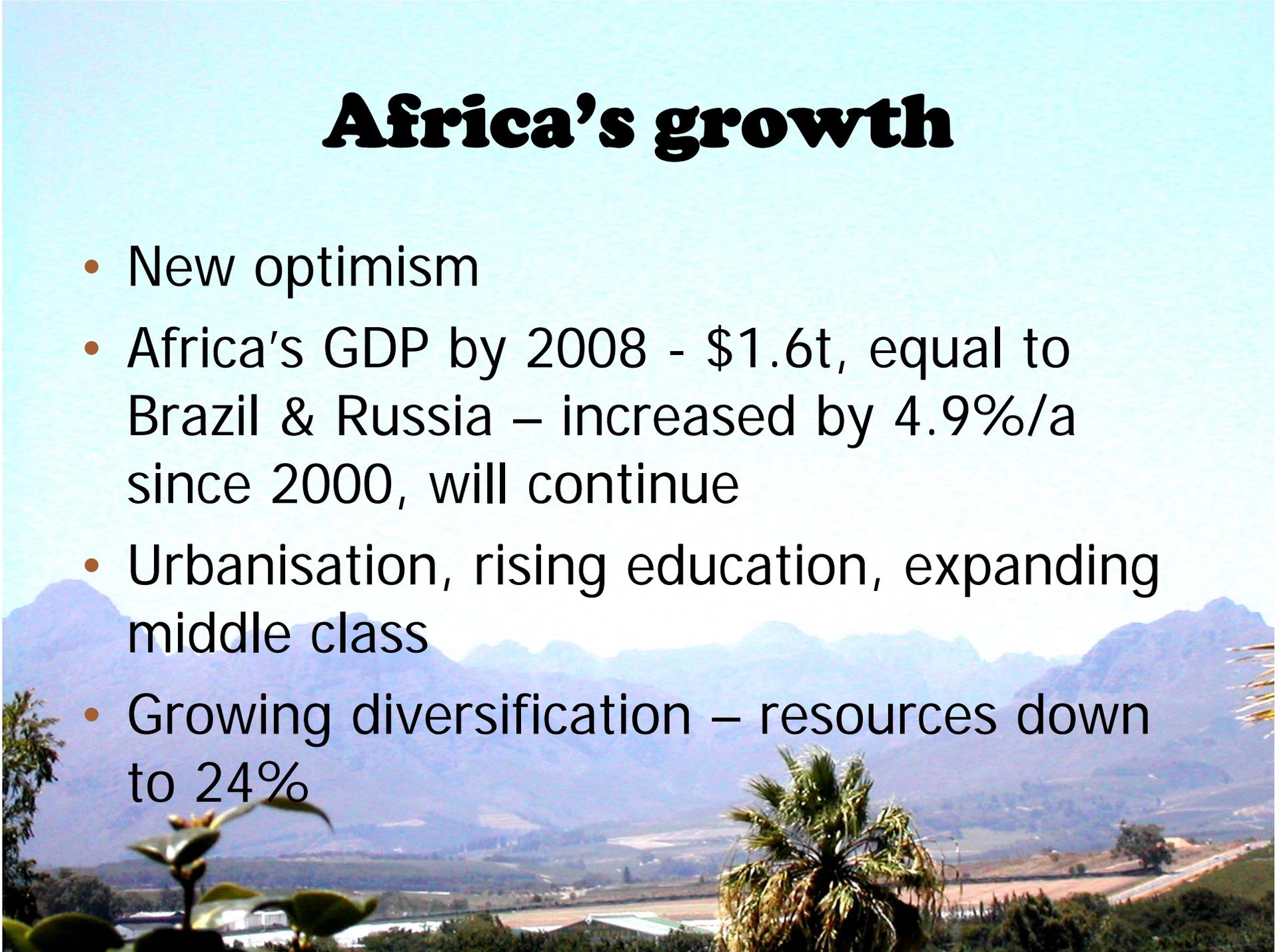
Africa 2050: Growth, Resource Productivity and Decoupling

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%



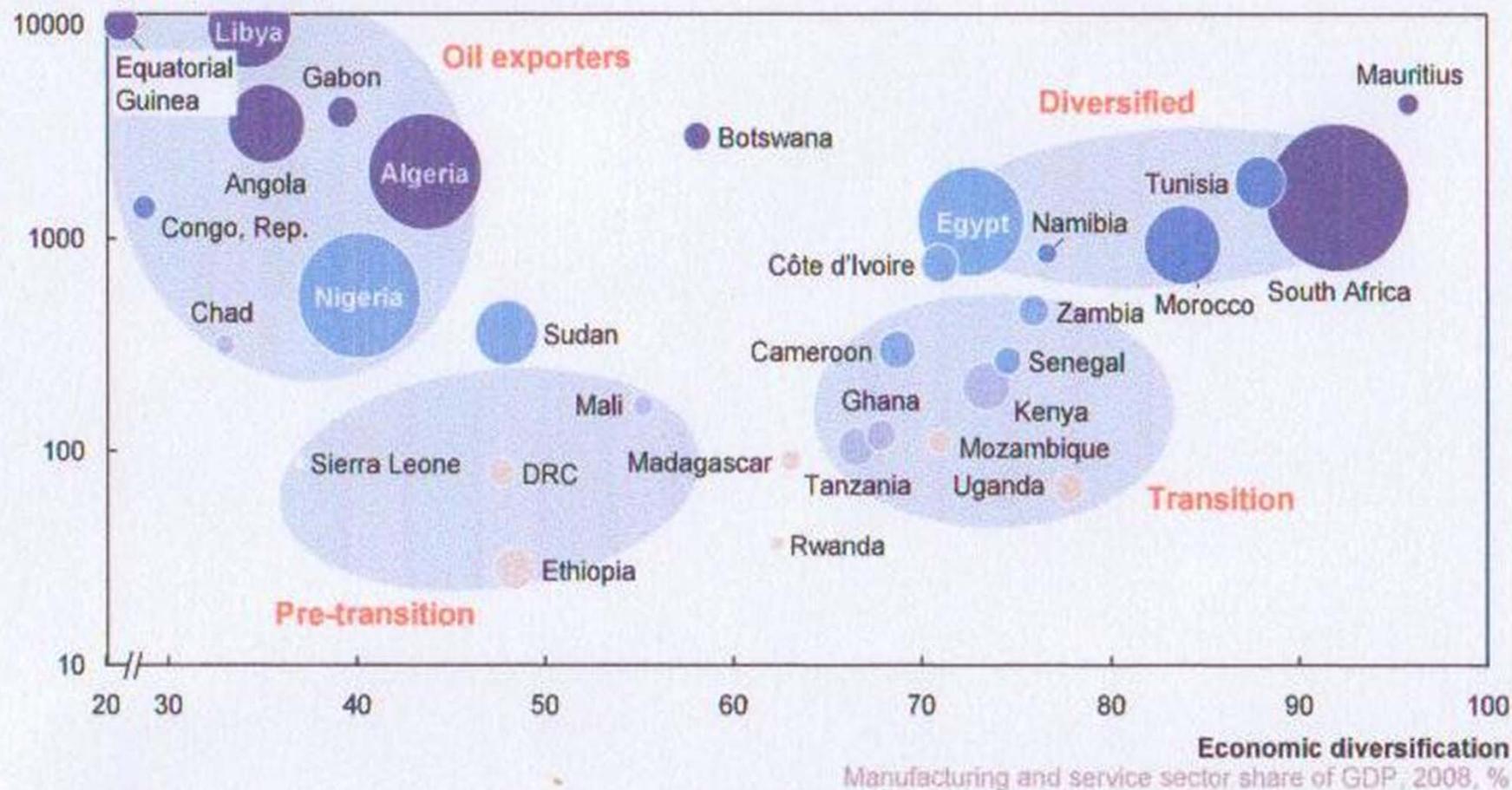
Segmenting Africa in this framework yields four groups of countries

○ Size of bubble proportional to GDP

GDP per capita

<\$500	\$2,000–5,000
\$500–1,000	>\$5,000
\$1,000–2,000	

Exports per capita, 2008, \$



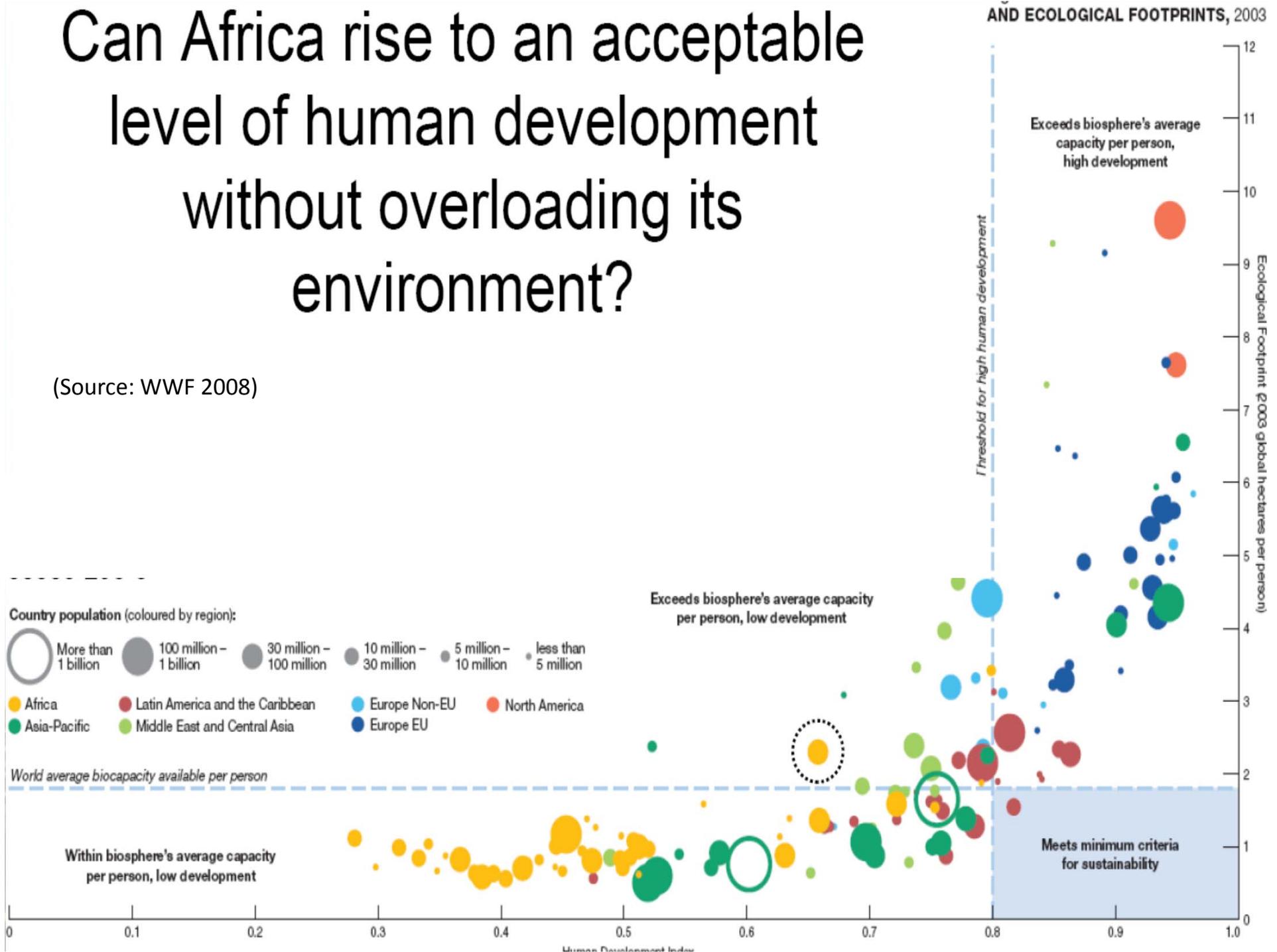
NOTE: We include countries whose 2008 GDP was approximately \$10 billion or greater, or whose real GDP growth rate exceeded 7% over 2000–08. We exclude 22 countries that accounted for 3% of African GDP in 2008.

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?

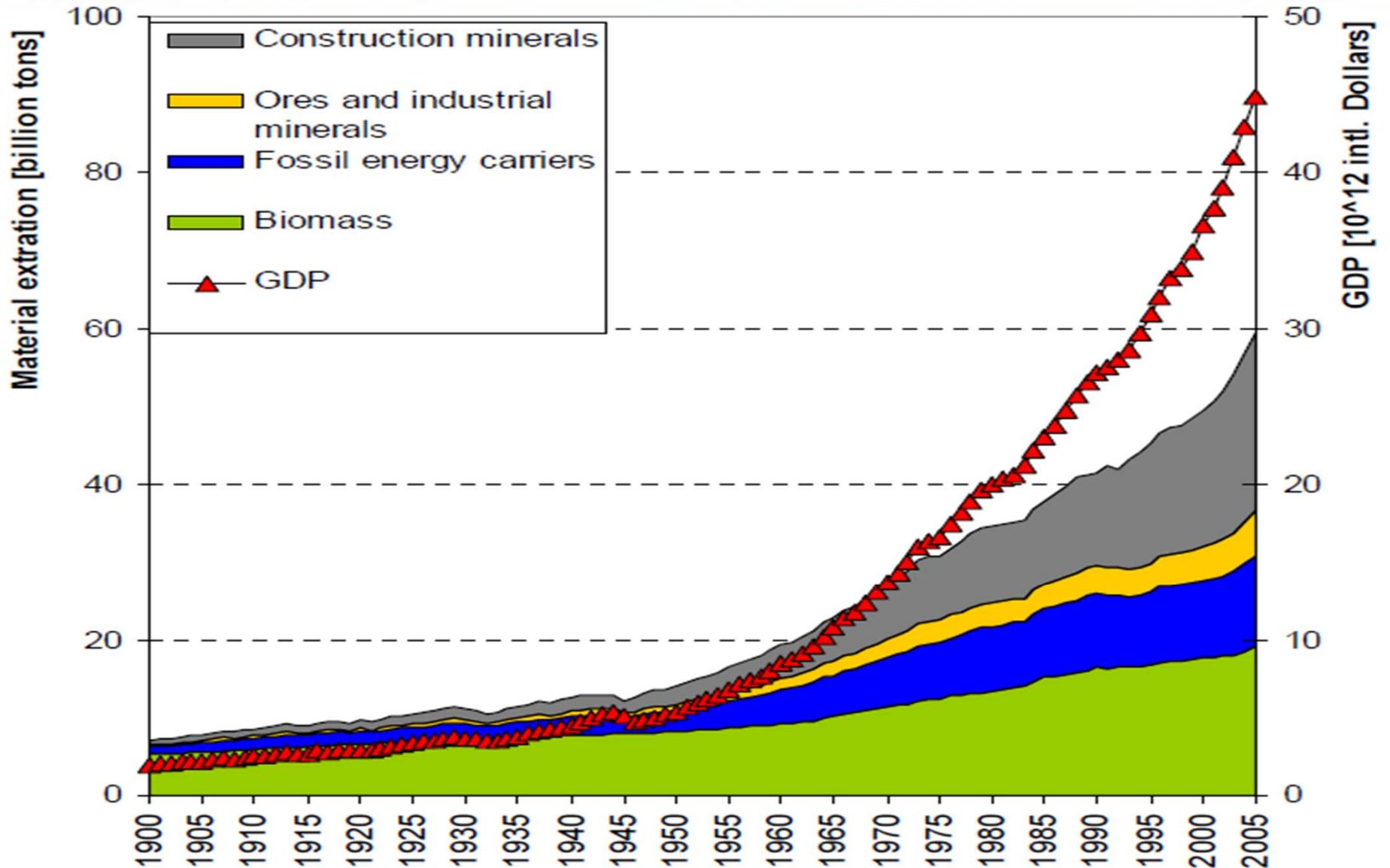
(Source: WWF 2008)



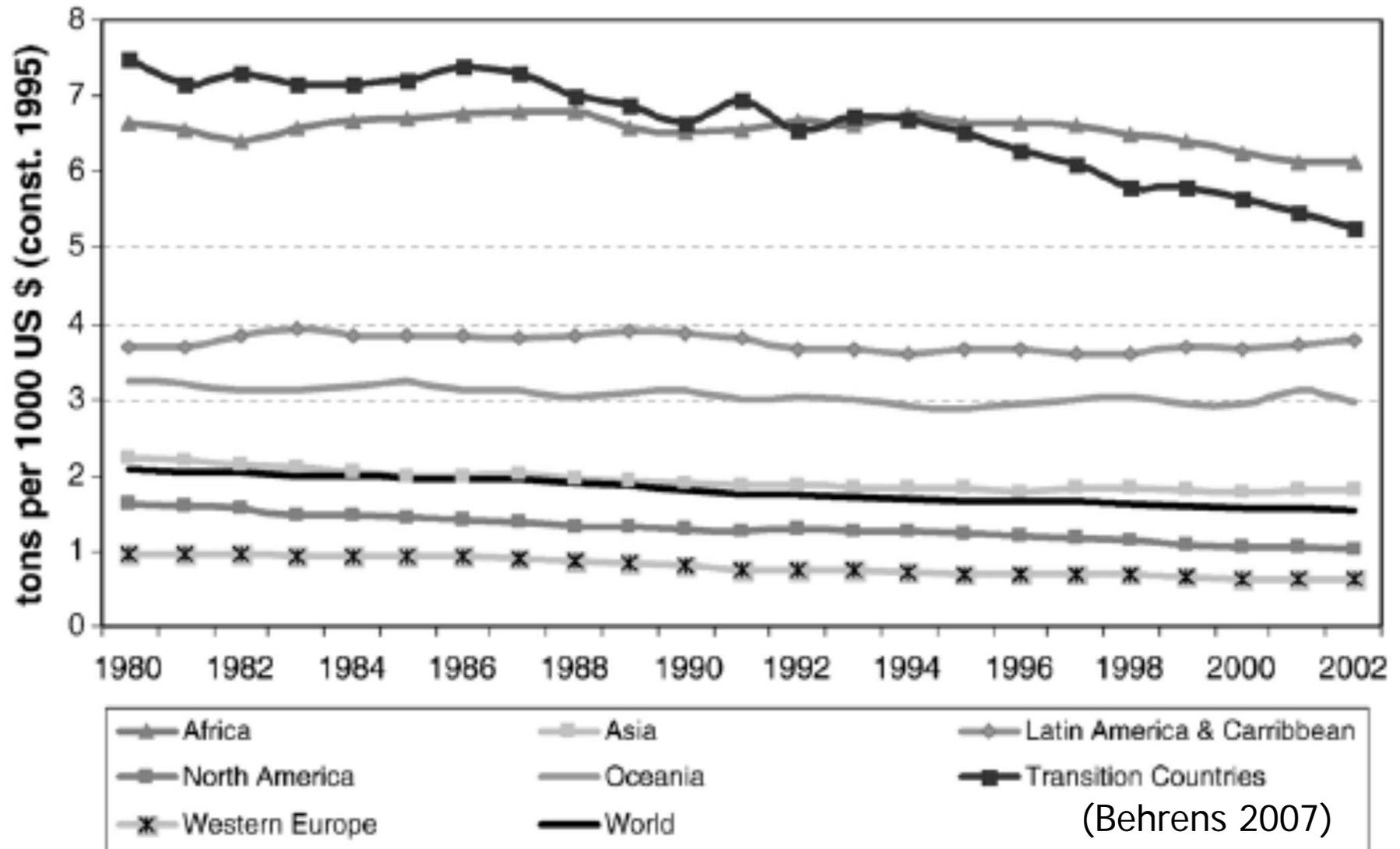
Africa in global context

- 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)

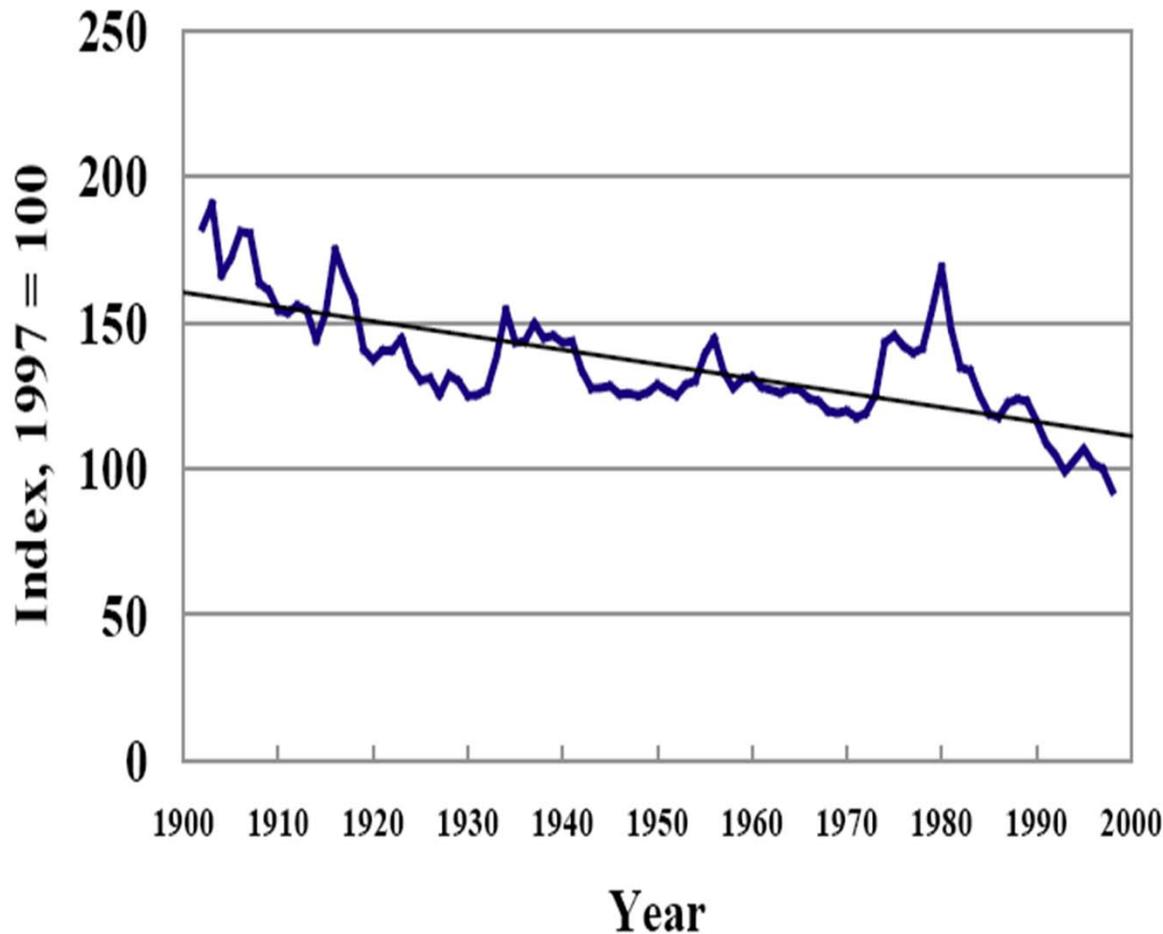
Global Material Flows



Resource use per \$1000



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?**



Resource and Impact Decoupling

Resource decoupling

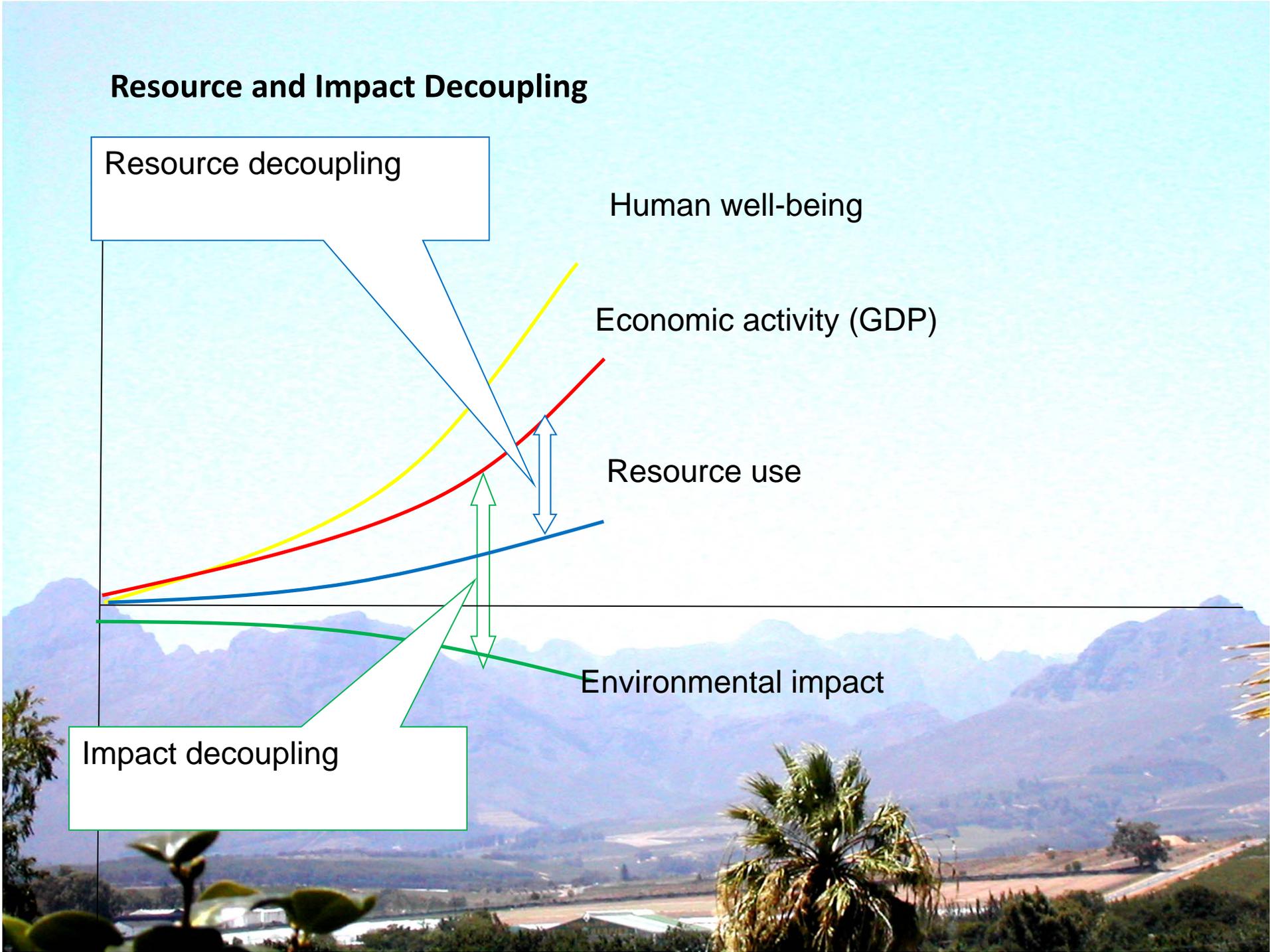
Human well-being

Economic activity (GDP)

Resource use

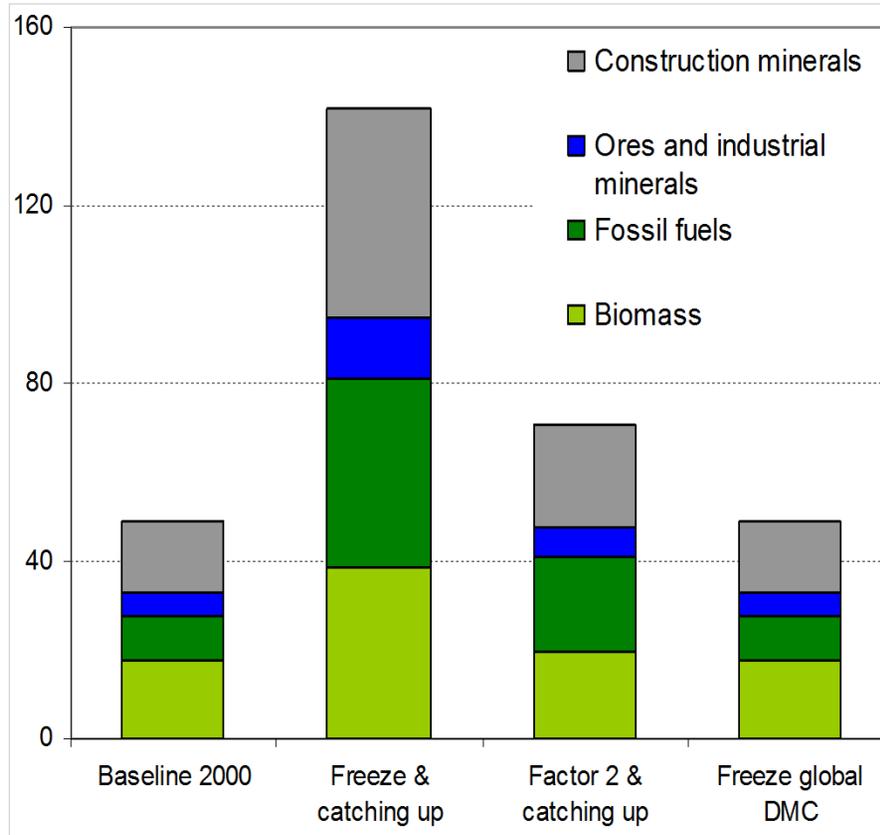
Environmental impact

Impact decoupling

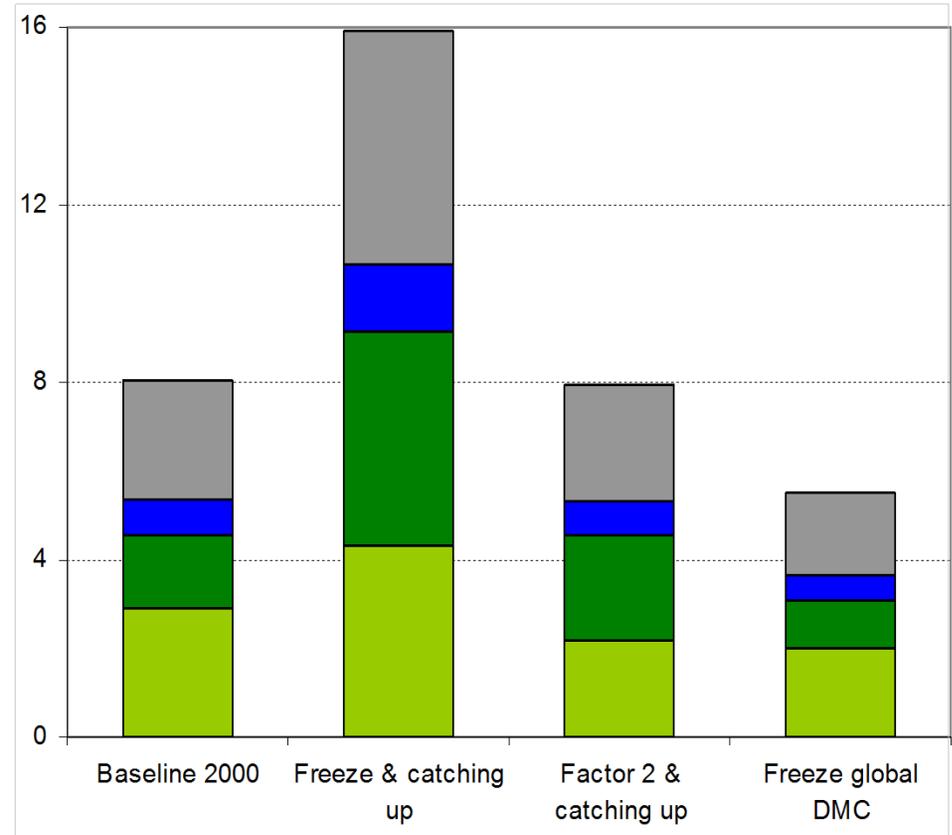


Three forced future scenarios for 2050

Global metabolic scales in billion tonnes



Global metabolic rates in t/cap

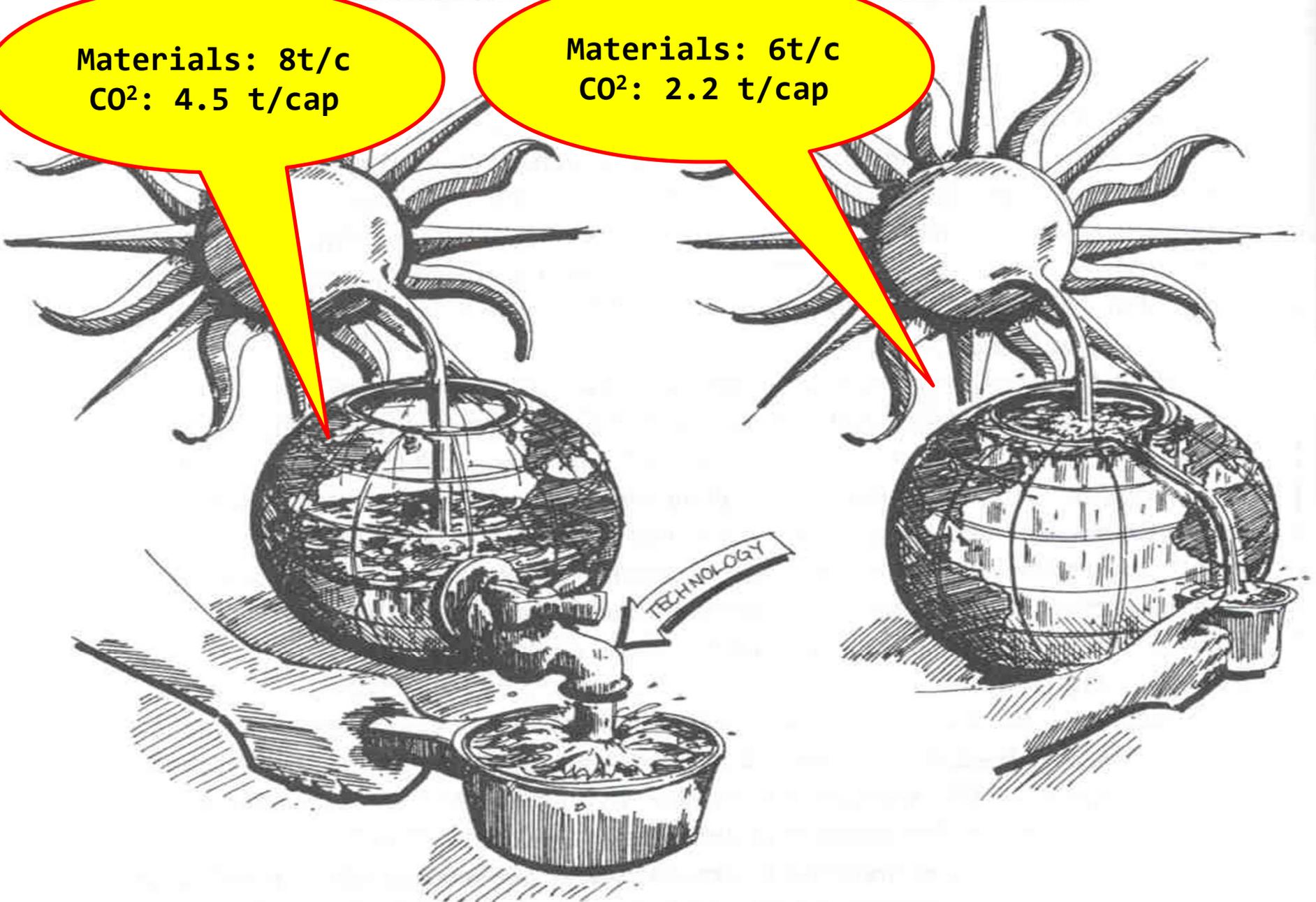


TECHNOLOGICALLY ACCELERATED
RESOURCE USE

Materials: 8t/c
CO²: 4.5 t/cap

SUSTAINABLE
RESOURCE USE

Materials: 6t/c
CO²: 2.2 t/cap



Africa's core challenge

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

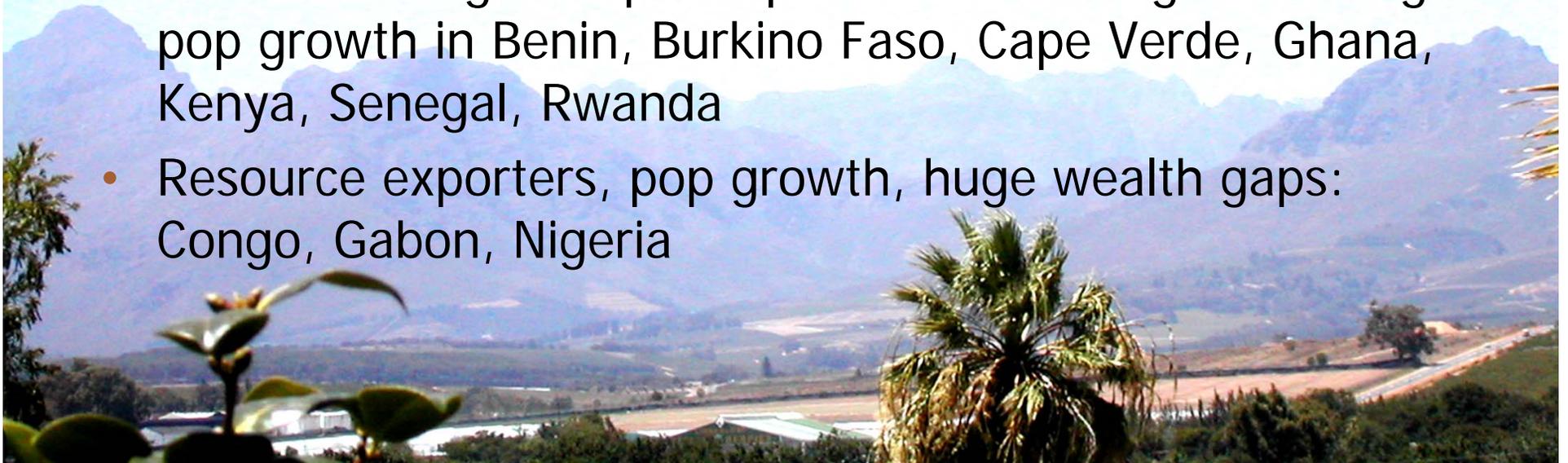
- human capital development
- infrastructure
- sustainability-oriented technological innovation
- restoration of renewable resources - water, soils, biomass (incl biodiversity)



Africa's real wealth?

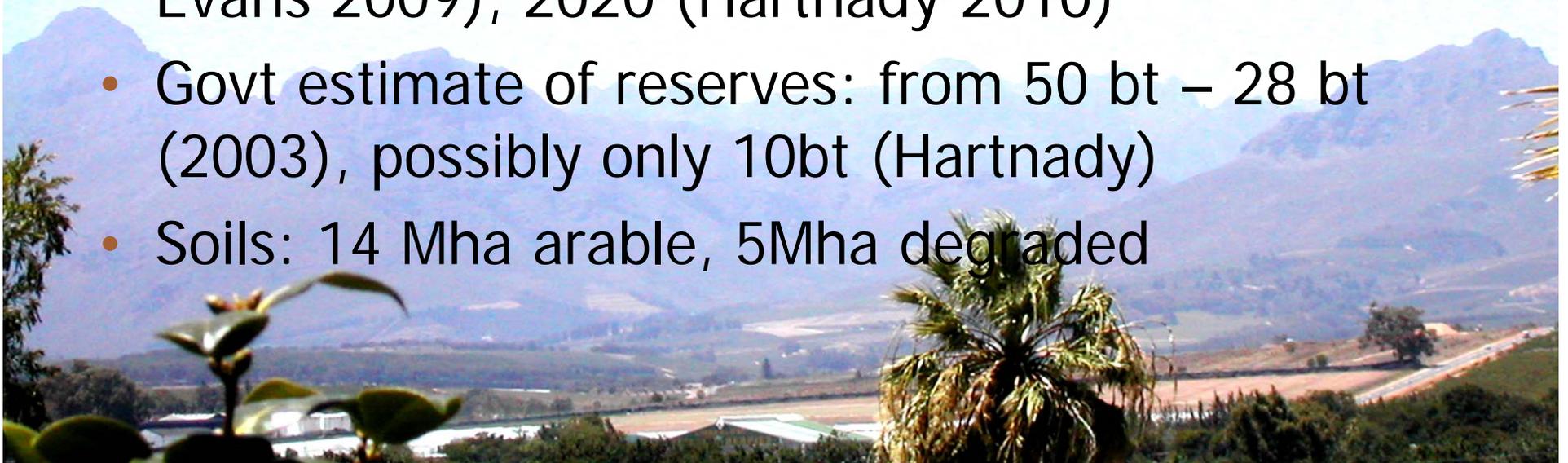
(World Bank, 2006)

- '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



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



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?

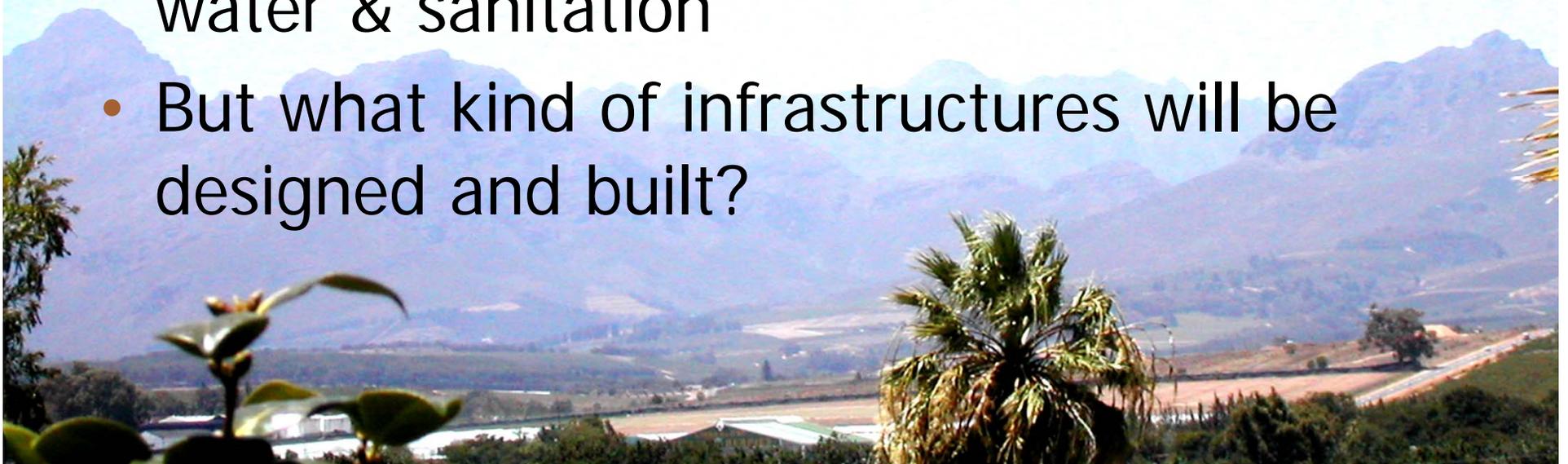


Table 1—Annual cereal crop yield growth rates, 1970s -1990s

Crop	Region	1970s	1980s	1990s
			(percent)	
Wheat	Asia	4.33	3.71	0.72
	Latin America	0.60	3.40	2.36
	Sub-Saharan Africa	3.54	0.92	-0.81
	World	2.10	2.78	0.42
Rice	Asia	1.61	2.42	1.55
	Latin America	0.70	2.97	3.71
	Sub-Saharan Africa	0.02	2.51	-0.56
	World	1.49	2.37	1.54
Maize	Asia	3.43	2.75	1.55
	Latin America	1.49	0.61	3.82
	Sub-Saharan Africa	2.26	1.72	2.09
	World	3.19	0.60	1.76
Cereals	Asia	2.90	2.79	1.46
	Latin America	1.69	1.28	3.12
	Sub-Saharan Africa	1.90	0.56	0.66
	World	2.18	1.79	1.12

Source: Computed by the authors using data from FAO 1998.

Note: The 1990s refer to the period 1990-97.

Table 5 —Global estimates of soil degradation, by region and land use

Region	Agricultural land			Permanent pasture			Forests and woodland			All used land				
	Total	Degraded	Per- cent	Total	Degraded	Per- cent	Total	Degraded	Per- cent	Total	Degraded	Per- cent	Seriously degraded	Per- cent
	(million hectares)			(million hectares)			(million hectares)			(million hectares)				
Africa	187	121	65	793	243	31	683	130	19	1,663	494	30	321	19
Asia	536	206	38	978	197	20	1,273	344	27	2,787	747	27	453	16
South America	142	64	45	478	68	14	896	112	13	1,516	244	16	139	9
Central America	38	28	74	94	10	11	66	25	38	198	63	32	61	31
North America	236	63	26	274	29	11	621	4	1	1,131	96	9	79	7
Europe	287	72	25	156	54	35	353	92	26	796	218	27	158	20
Oceania	49	8	16	439	84	19	156	12	8	644	104	17	6	1
World	1,475	562	38	3,212	685	21	4,048	719	18	8,735	1,966	23	1,216	14

Sources: For all totals, FAO 1990, and for others, Oldeman, Hakkeling, and Sombroek 1991.

Contest Agri-Solutions

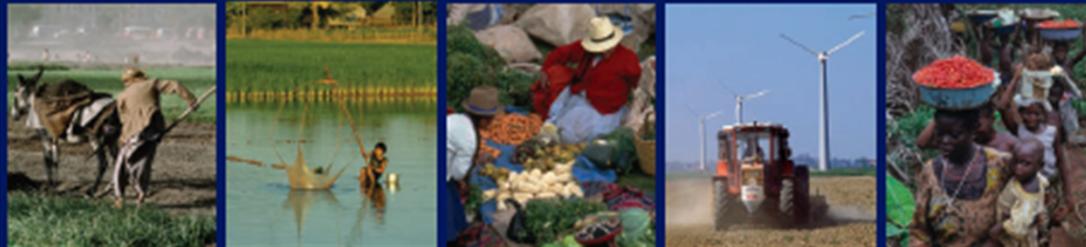
- AGRA – fertilizers, and ‘GMOs-by-stealth’
- Land grabbing
- the agro-ecological alternative – towards ‘restorative agriculture’?



Agriculture at a Crossroads



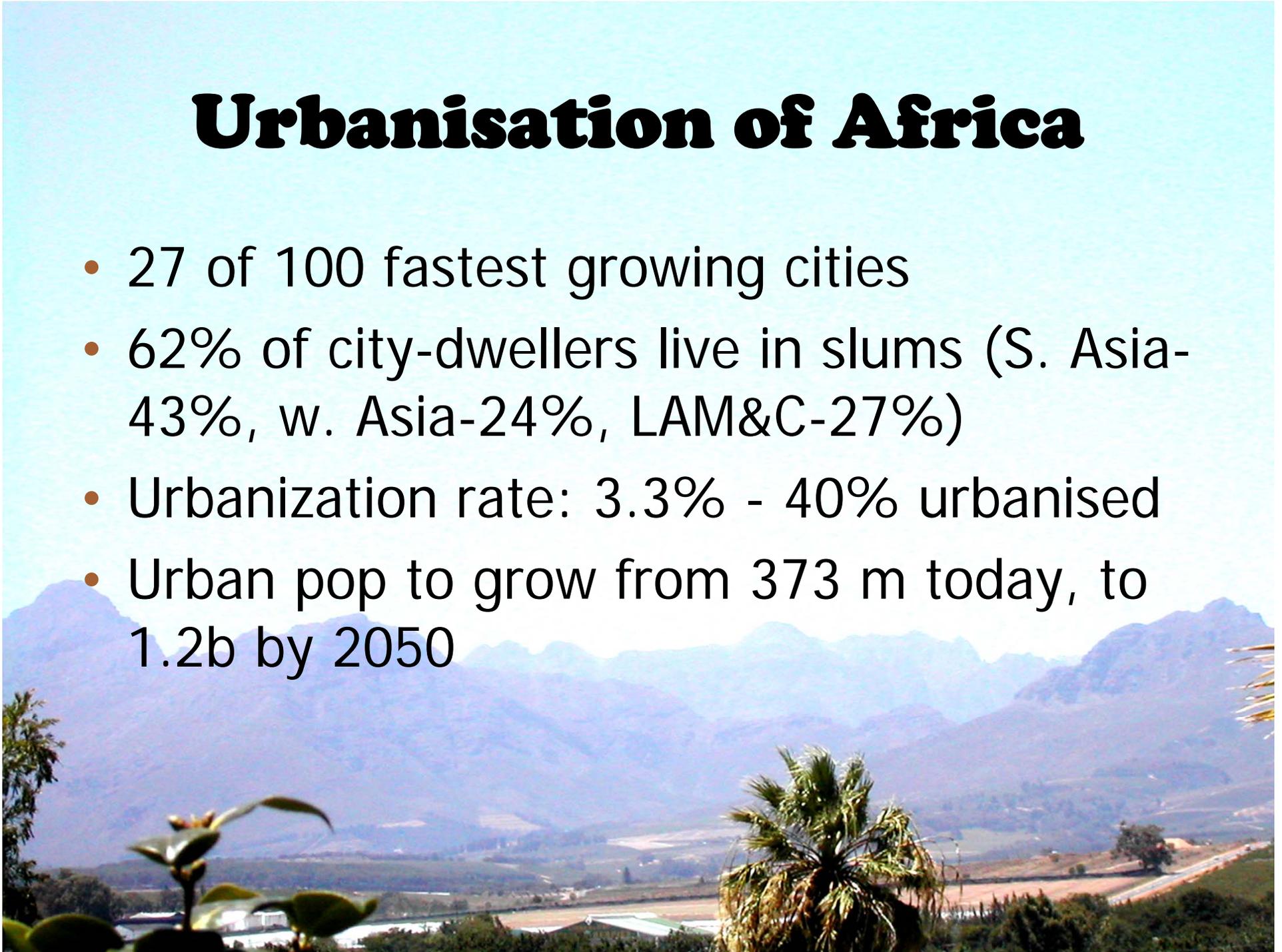
IAASTD International Assessment of Agricultural Knowledge,
Science and Technology for Development



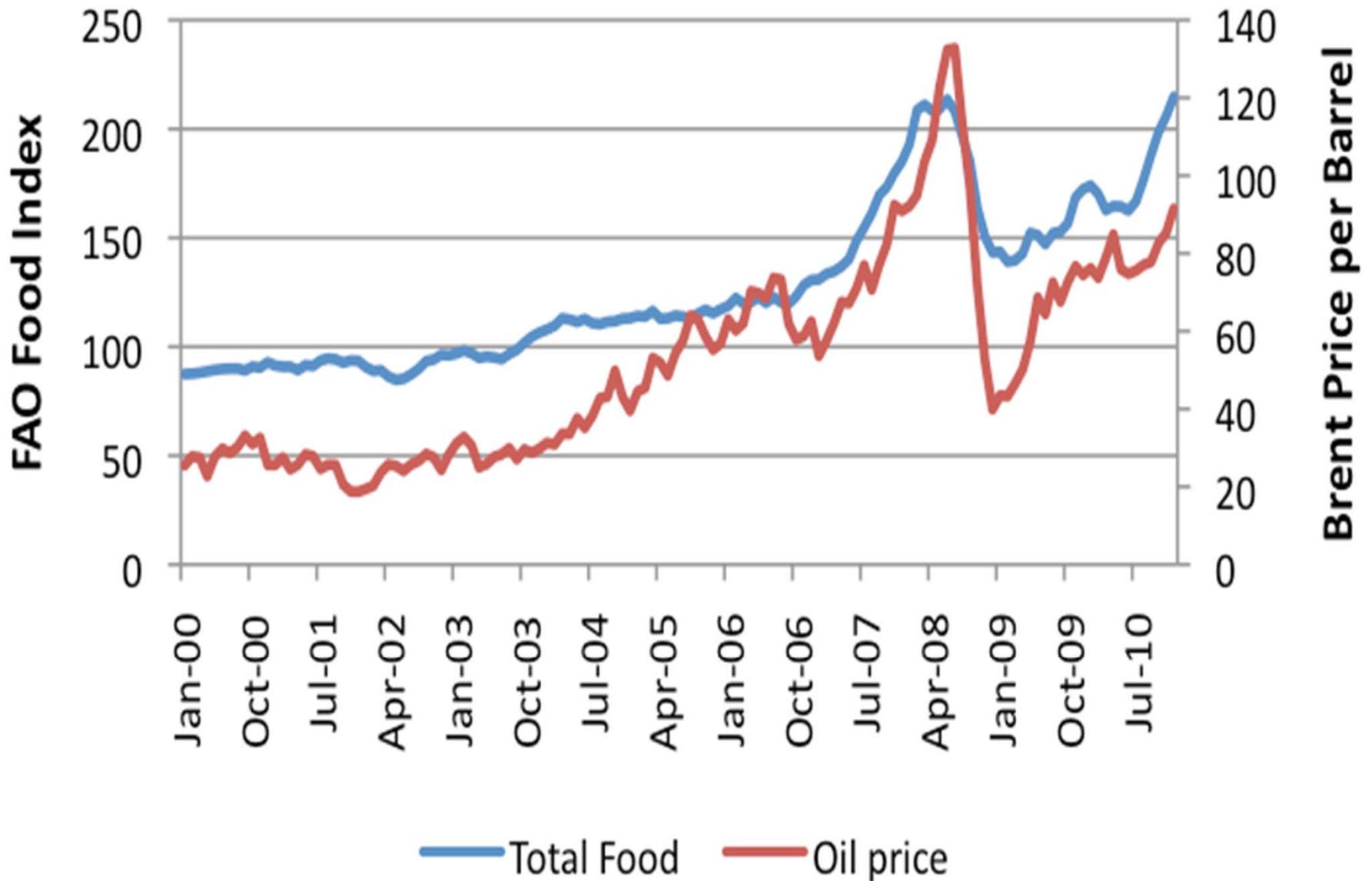
Synthesis Report

Urbanisation of Africa

- 27 of 100 fastest growing cities
- 62% of city-dwellers live in slums (S. Asia-43%, w. Asia-24%, LAM&C-27%)
- Urbanization rate: 3.3% - 40% urbanised
- Urban pop to grow from 373 m today, to 1.2b by 2050

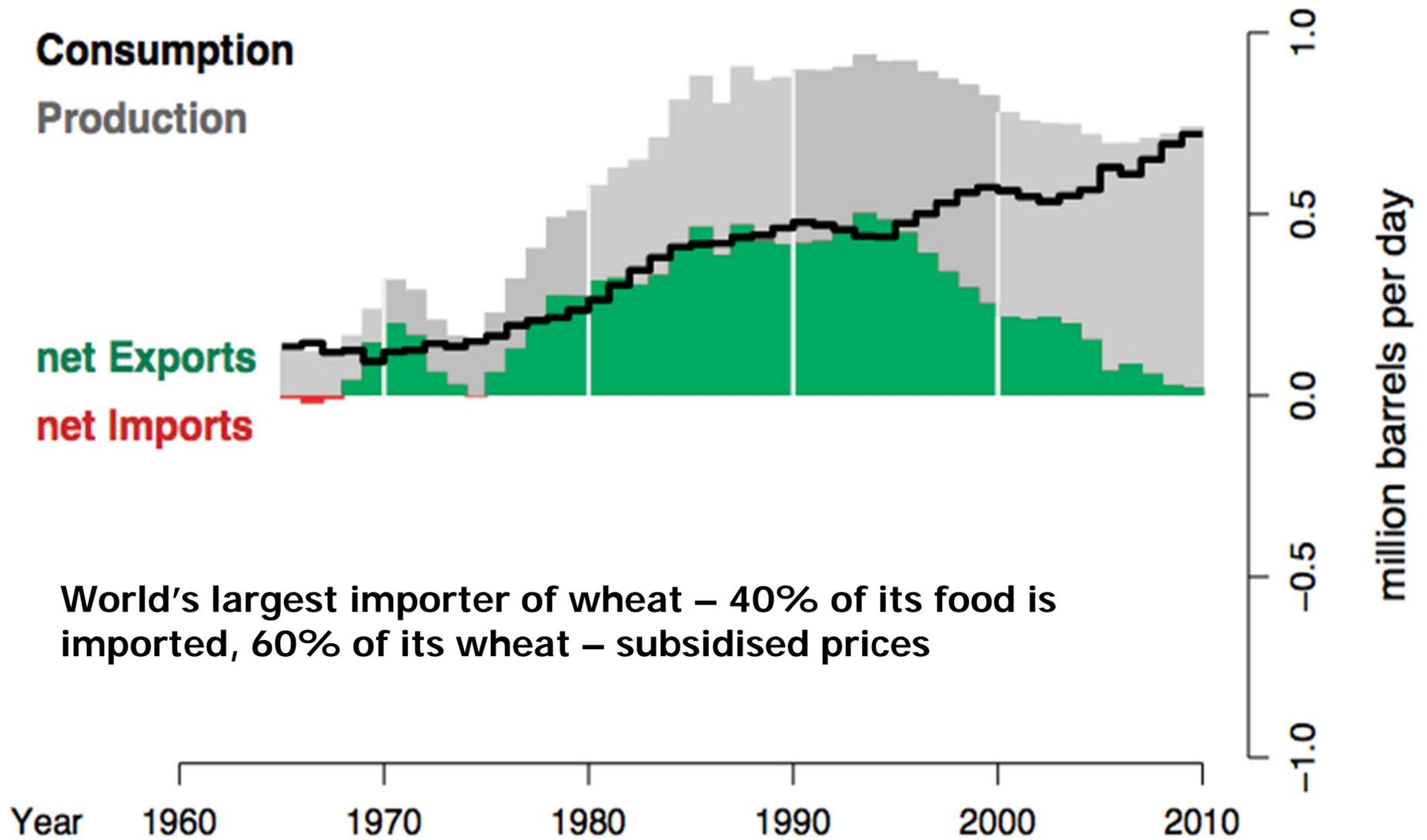


World Food Index vs Brent Oil Price



Egypt : Oil

2009 exports decreased by 26. %



World's largest importer of wheat – 40% of its food is imported, 60% of its wheat – subsidised prices

Africa's choices

- BAU – change conditional on external funding, major problems continue
- Re-define development – resources, cities, farming
- Rediscovery of the commons

