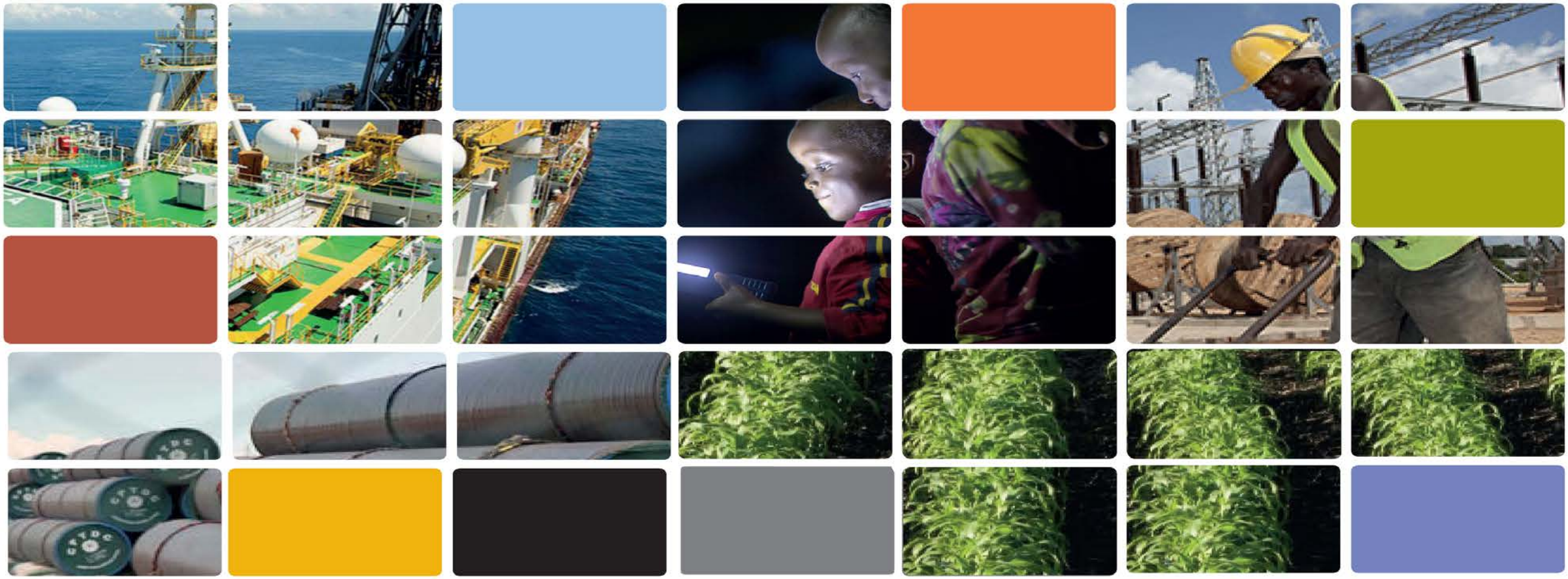


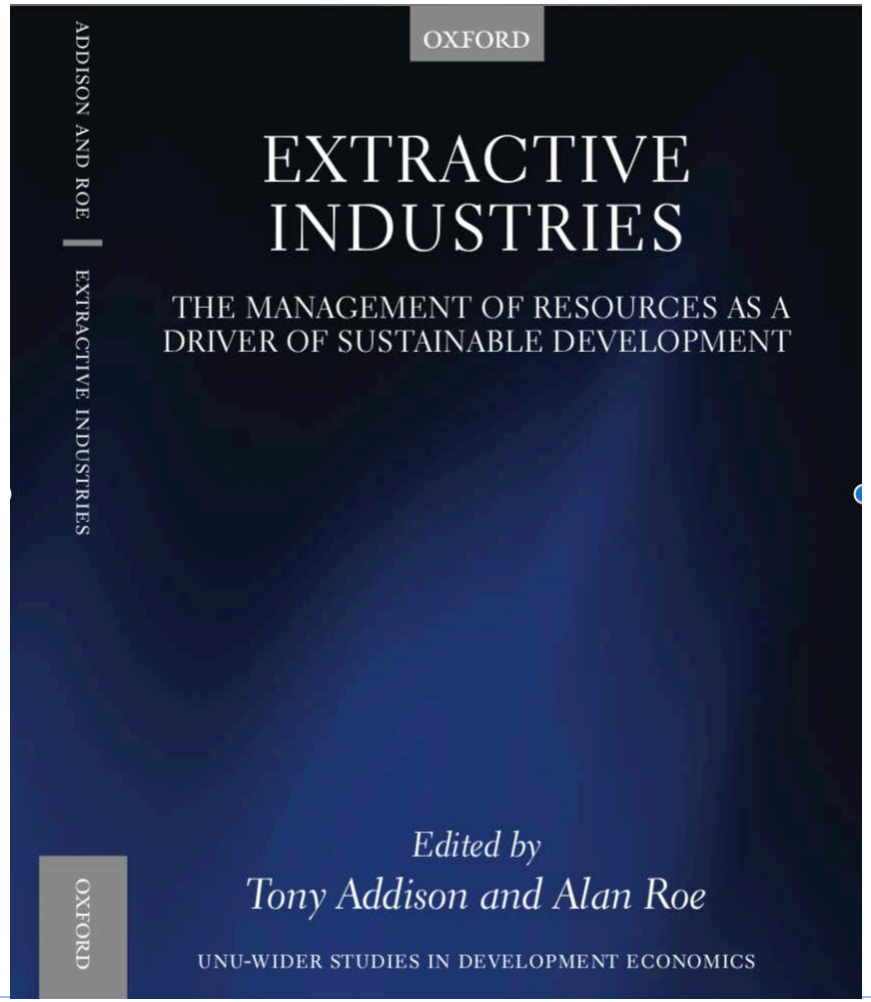
Alan R Roe

Mining, Oil & Gas: Issues for African Economies

UNITED NATIONS UNIVERSITY
UNU-WIDER

Maputo, Mozambique November 28th 2018

Further information



- Open Access
- https://www.wider.unu.edu/publication/extractive-industries
- https://global.oup.com

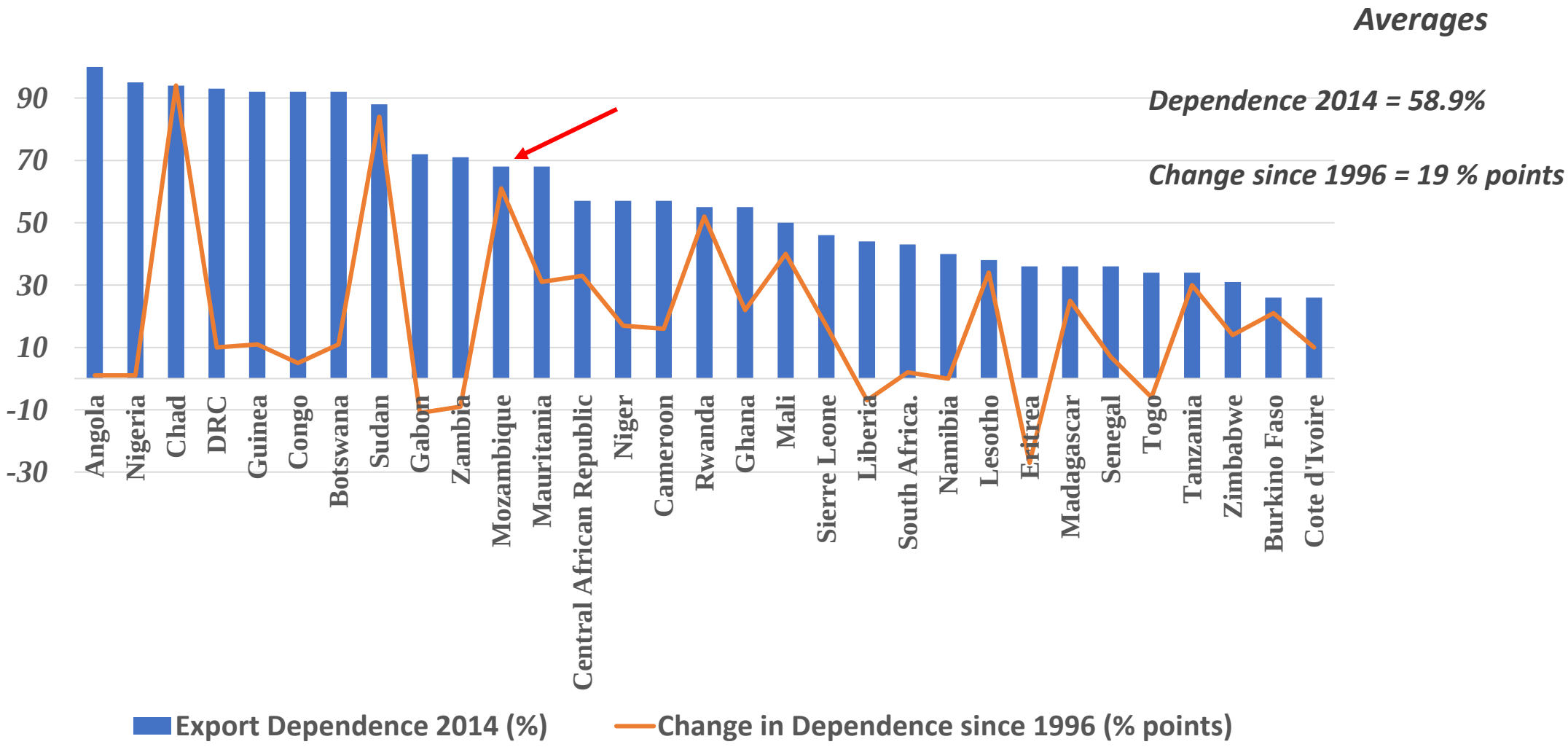
A few facts

Alguns factos

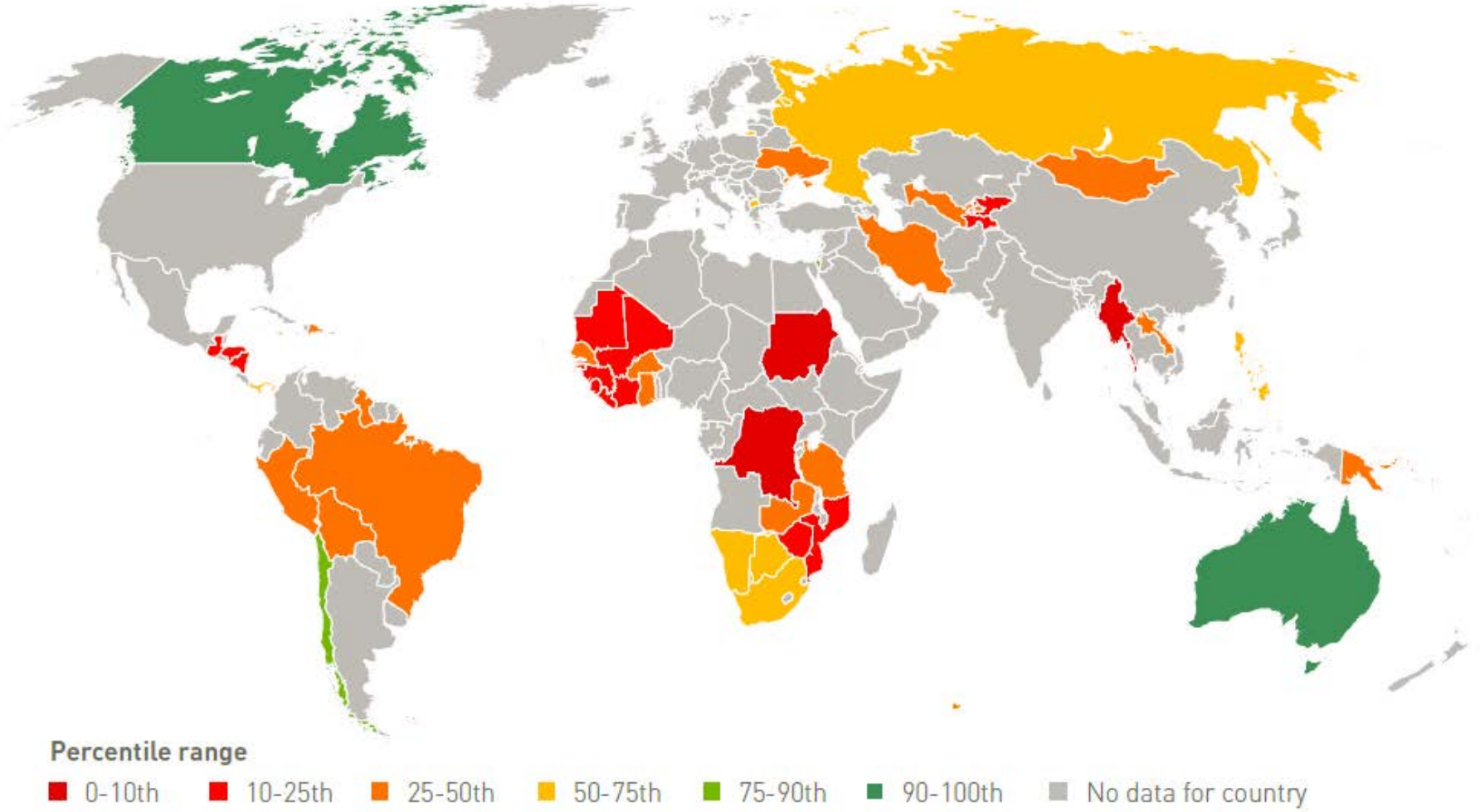
1. Extractives dependence in Africa has risen and is likely to continue to rise

1. Dependência da indústria extractiva na África aumentou e é provável que continue a aumentar

Extractives export dependence in Africa 1996-2014

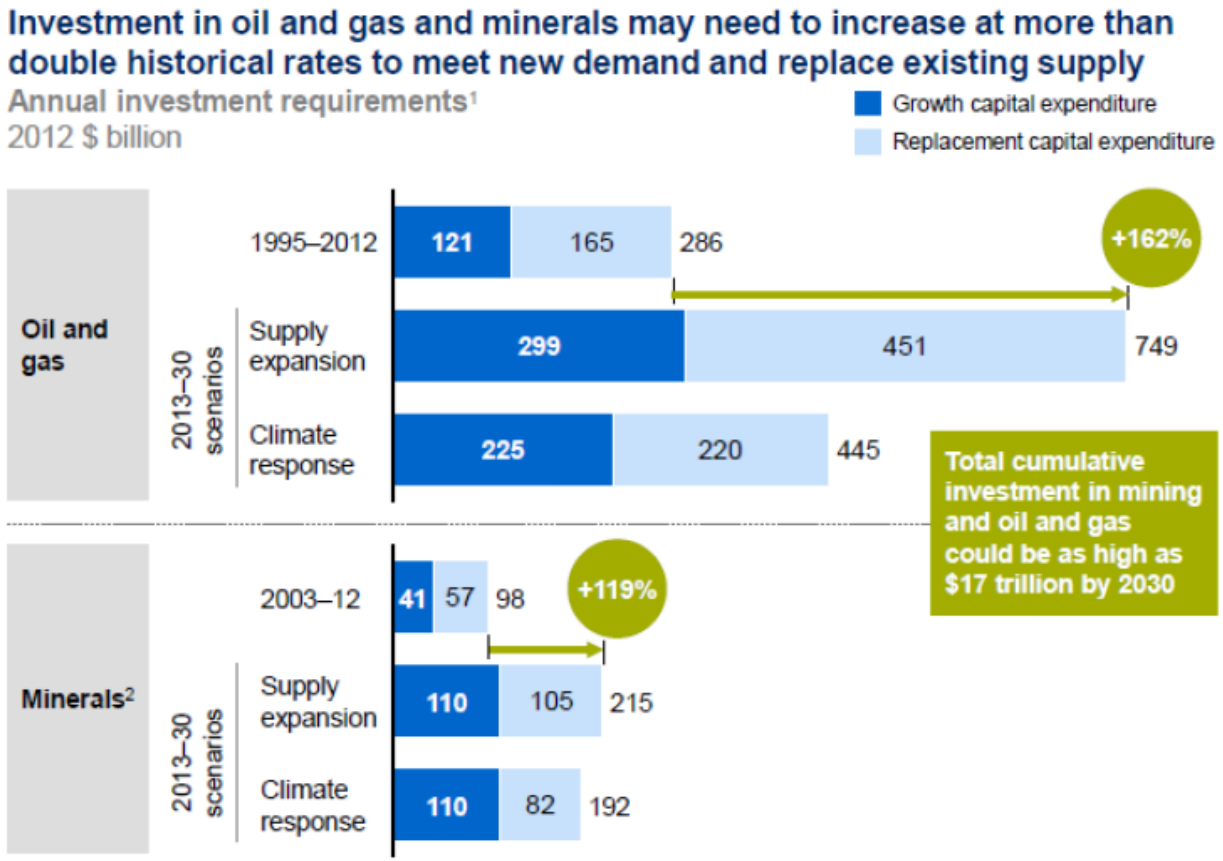


Mining – where is dependency highest?



Further increases are likely

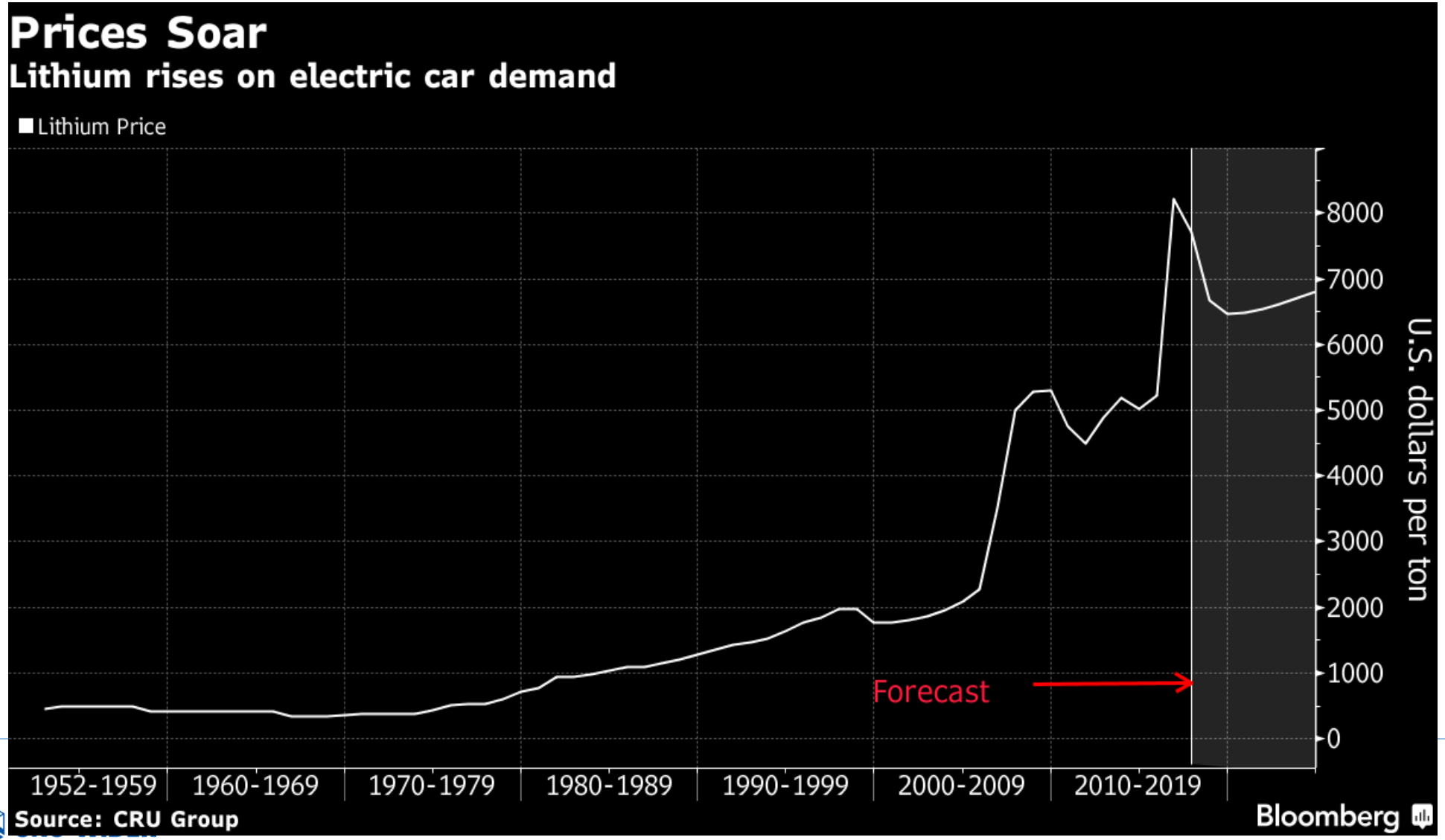
Future is promising with and without a climate change adjustment



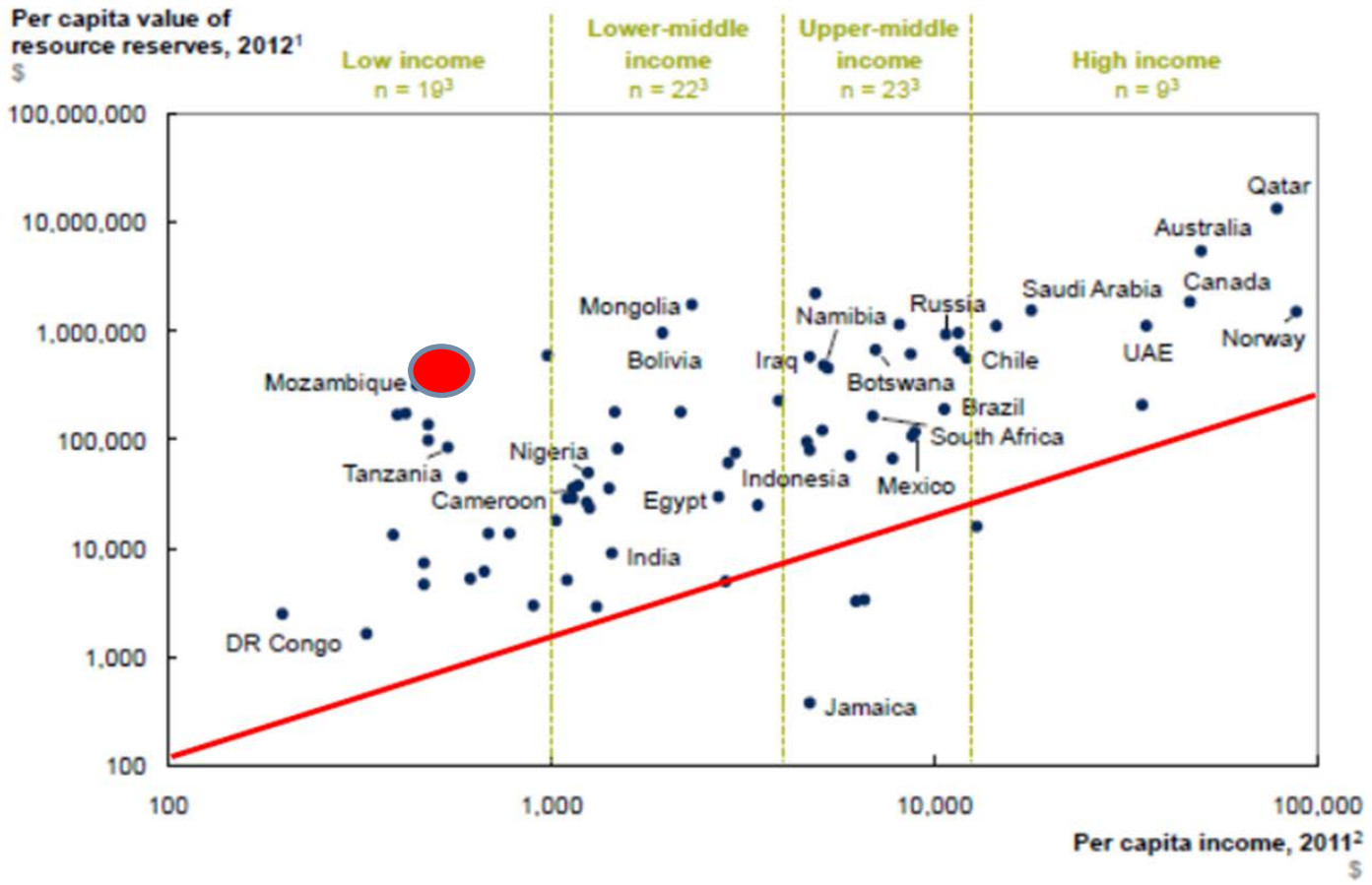
Source: Exhibit 5 in McKinsey Global Institute (2013b: 31).

Cobalt Price

Lithium Price

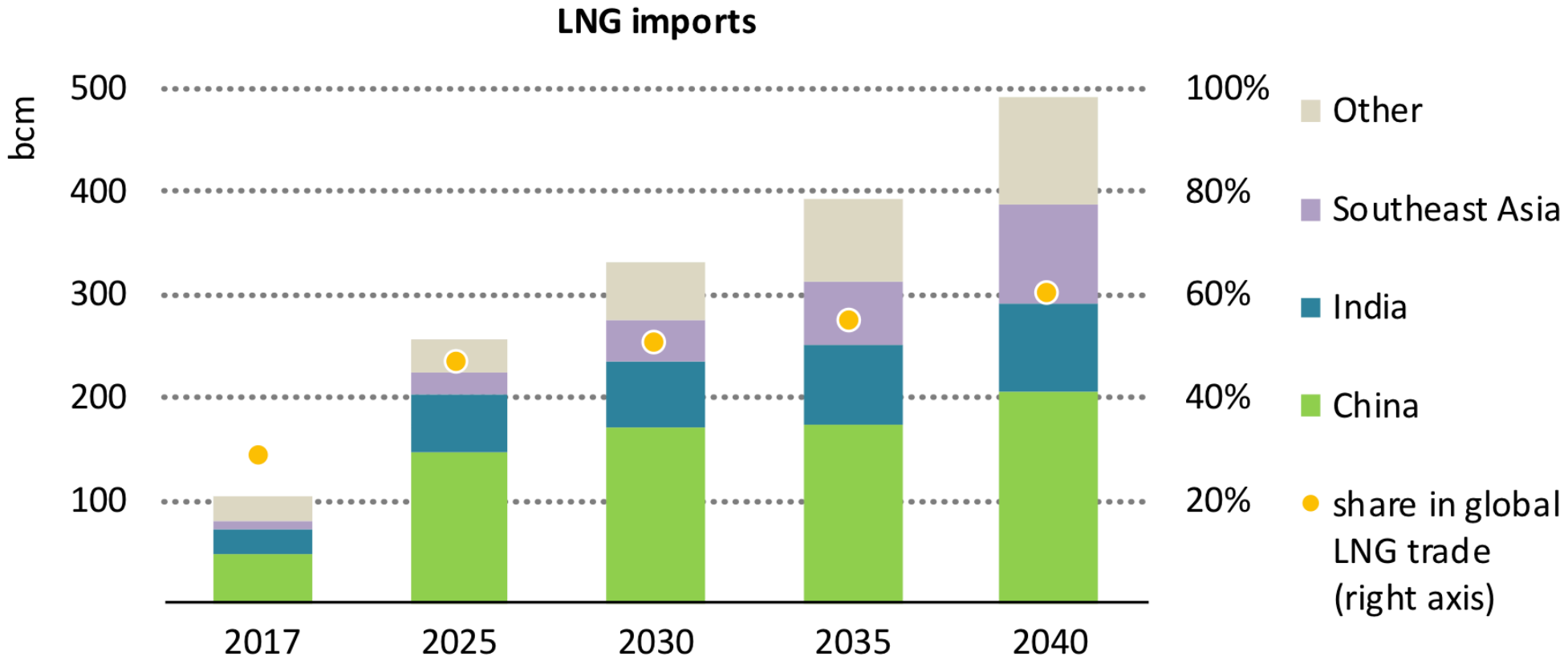


Many African countries have huge unexploited resources



Example Guinea:
Guinea's exceptionally high levels of reserves are nowhere near to being matched by its levels of bauxite production. For example, the world's largest bauxite producer namely Australia has six times the Guinean level of annual production but reserves equal to only 65% of those located in Guinea.

LNG – Asia Drives Demand



2.Increased dependence has been driven by high levels of FDI

2. Maior dependência tem sido impulsionada por altos níveis de IDE

Stocks of FDI (Investimento Estrangeiro Direto) - $ million

	2000	2010	2017
Ghana	1 554[b]	10 080	33 137
Guinea	263[b]	486[b]	4 314[b]
Guinea-Bissau	38	63	191
Liberia	3 247[b]	10 206	8 581[b]
Mali	132	1 964	3 989
Mauritania	146[b]	2 372[b]	7 079[b]
Niger	45	2 251	6 372
Nigeria	23 786	60 327	97 687
Cameroon	917[b]	3 099[b]	6 474[b]
Central African Republic	104	511	651[b]
Chad	576[b]	3 594[b]	5 439[b]
Congo	1 893[b]	9 262[b]	27 040[b]
Congo, Democratic Republic of the	617	9 368	22 527
Equatorial Guinea	1 060[b]	9 413[b]	13 715[b]
Gabon	[b,e]	3 287[b]	9 489[b]
Rwanda	55	422	1 798

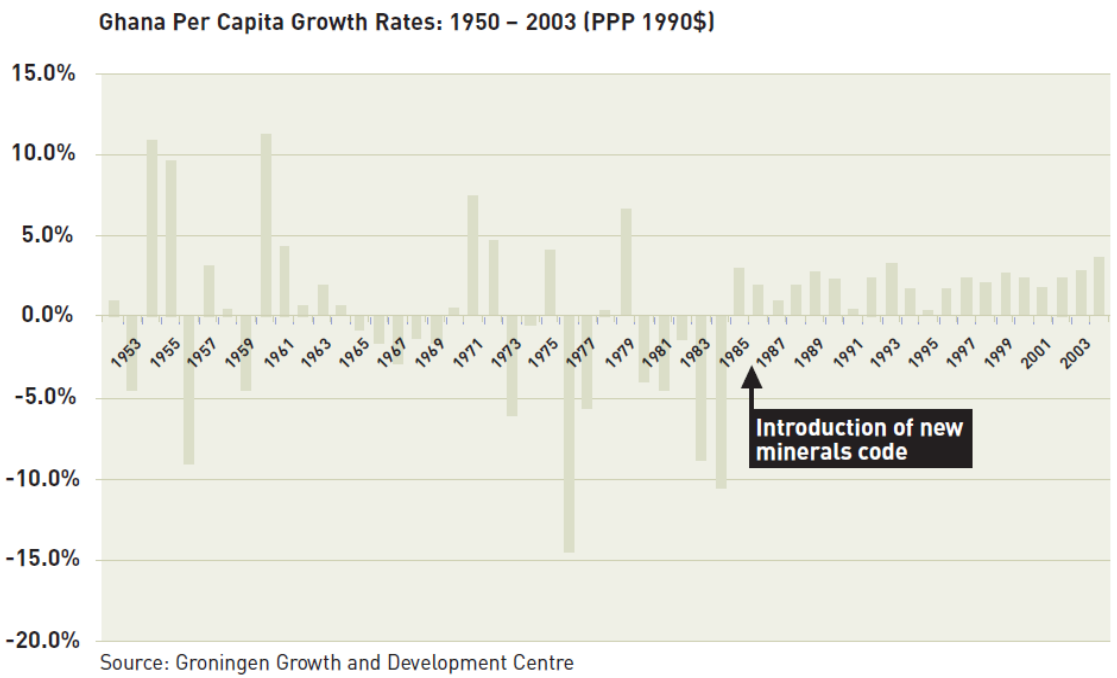
	2000	2010	2017
Ethiopia	941[b]	4 206[b]	18 512[b]
Kenya	932[b]	5 449[b]	11 904[b]
Madagascar	141	4 383	6 528[b]
Mauritius	683	4 658	5 122[b]
Seychelles	515	1 701	2 900
Somalia	4[b]	566[b]	2 316[b]
Uganda	807	5 575	11 893
United Republic of Tanzania	2 781	9 712	20 351[b]
Angola	7 977	16 063	12 075
Botswana	1 827	3 351	5 577
Lesotho	330	929	535
Malawi	358	2 091	1 368
Mozambique	1 249	4 331	38 019
Namibia	1 276	3 595	5 122
South Africa	43 451[d]	179 565[d]	149 962[d]
Swaziland	536	927	769[b]
Zambia	3 966[b]	7 433	16 973[d]
Zimbabwe	1 238	1 814	4 628

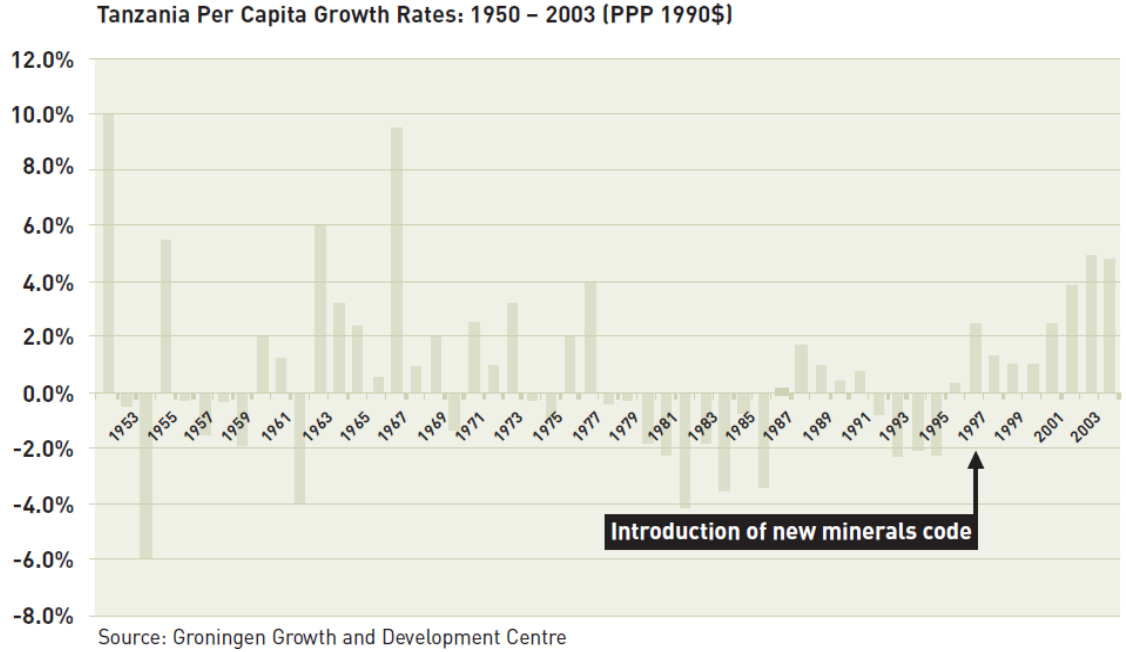
Sudan $1.1 billion in 2000 to $26.5 billion by 2017

3. FDI has resulted in some growth (in some African countries) but not much structural change

3. IDE impulsionou algum crescimento (em alguns países Africanos), mas poucas mudanças estruturais

Growth examples: Ghana, Tanzania



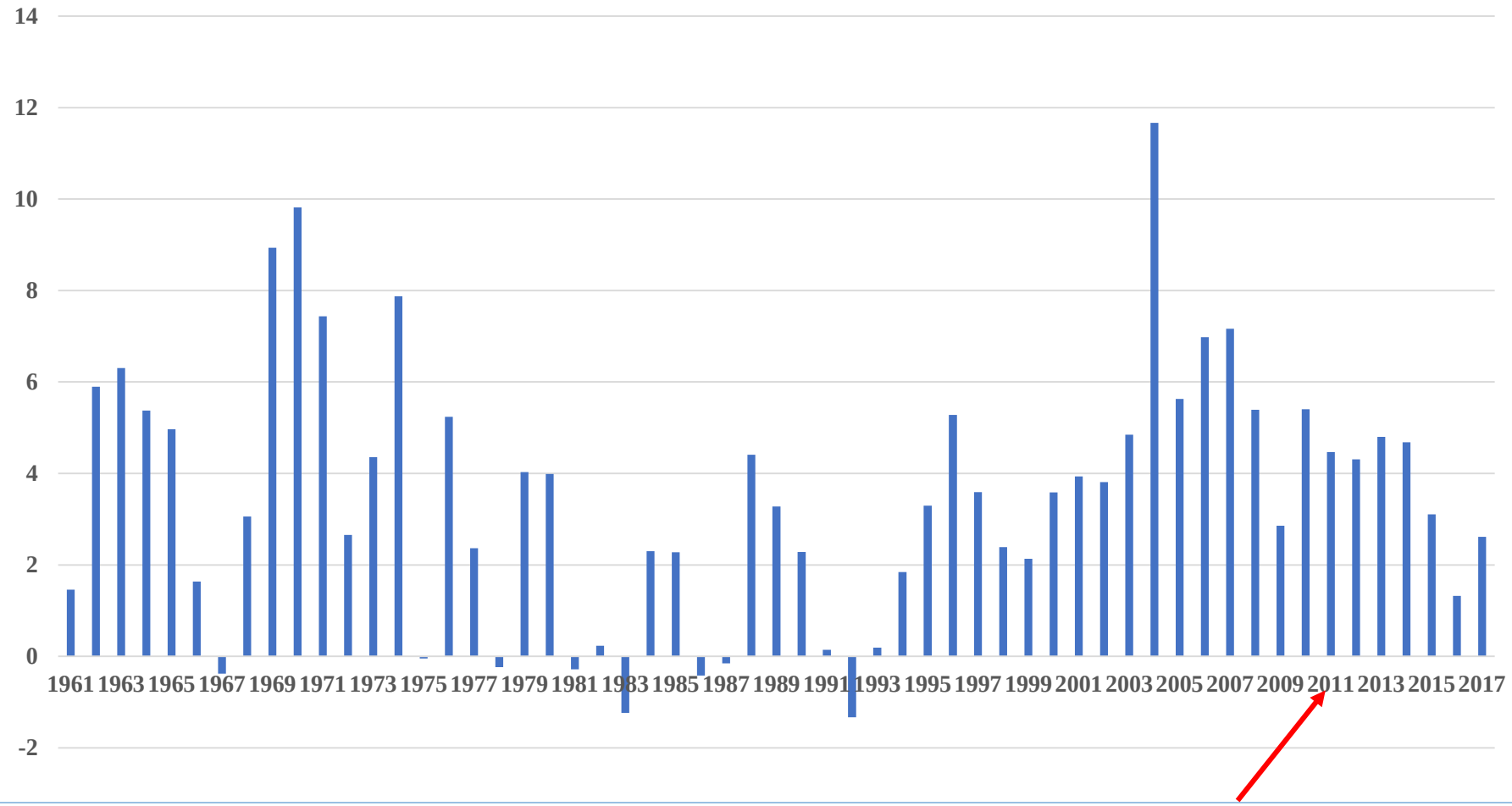


Now the bad news - the record on structural transformation has been disappointing

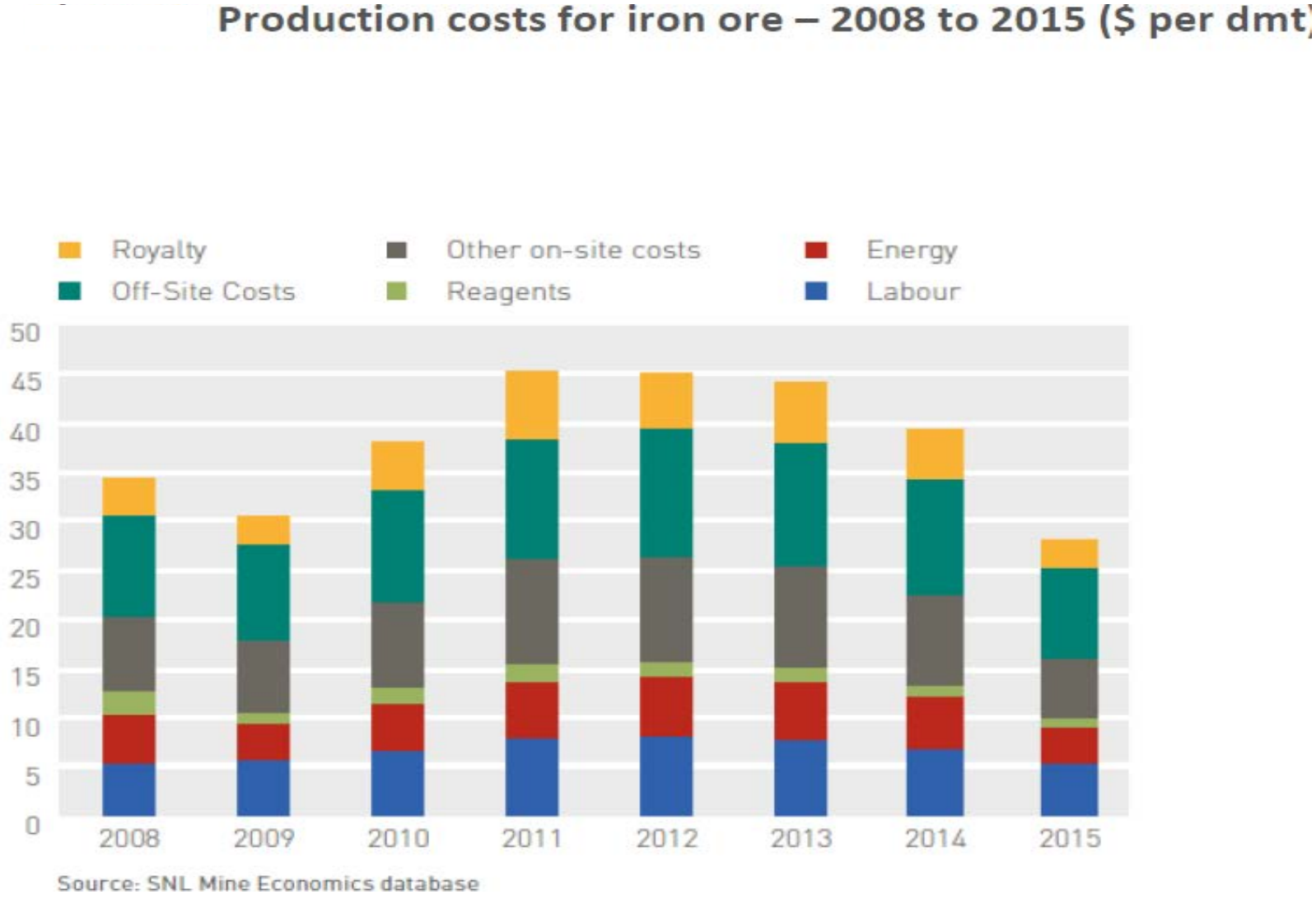
For example: No increase in GDP share of manufacturing since late 1960s

- Africa's share of manufacturing in GDP is less than half of the average for all developing countries
- Per capita manufactured exports are about 10 per cent of the developing country average.
- Africa's share of global manufacturing is smaller today than in 1980

Growth rates Sub-Saharan Africa – not sustained



Who bears the cost of lower commodity prices?



Issues in managing extractives
A. Macroeconomic and fiscal management

Problemas na gestão da indústria extractiva?
A. Gestão macroeconômica e fiscal

1. Macroeconomic and fiscal management

Key policy decisions:

1. whether to borrow (and how much) in the period between discovery, construction (+ 5-8 years) and operation (1-2 more years)
2. what proportion of new revenues to spend?
3. what proportion of new spending to commit to public investment rather than consumption)?
4. what proportion of any saving to be invested abroad (e.g. in an SWF)?

Theoretical answers

(i) A theoretical case for early stage borrowing can be made but has to be subject to realistic debt sustainability conditions – including the likely (limited) fiscal take **from** even socially productive public investments

(ii) Capital scarcity suggests a short-term priority for public investment over consumption, but this result is qualified by:

- possible absence of pipeline of productive investment projects
- need to moderate total public spending in light of *overall* growth of domestic absorption – to avoid RER overvaluation.

(iii) Three reasons for investment in an SWF (future generations, a parking fund, a stabilisation function) require quite different types of funds.

The pre-source curse: lessons from Ghana 2007-2015

Issues include:

- Strong new institutions to manage the macro/fiscal challenges of extractives cannot necessarily be relied upon to hold back political pressures (to over spend) – Ghana
- Significant new discoveries lead rapidly to inflated expectations and to a perception of *increased fiscal space* even if increased revenues are delayed many years – Ghana 2008 (and Mozambique 2013/14)
- Contested electoral processes will intensify the pressures on incumbent governments to borrow and spend excessively – Ghana 2008 and 2012
- An unusually high level of fiscal disciple is needed to avoid spending being assigned excessively to white elephant investment projects and unproductive hikes in government recurrent spending

Bawumia and Halland 2017

Ghana - some outcomes

Figure 2: Total debt as percentage of GDP, 2000–14

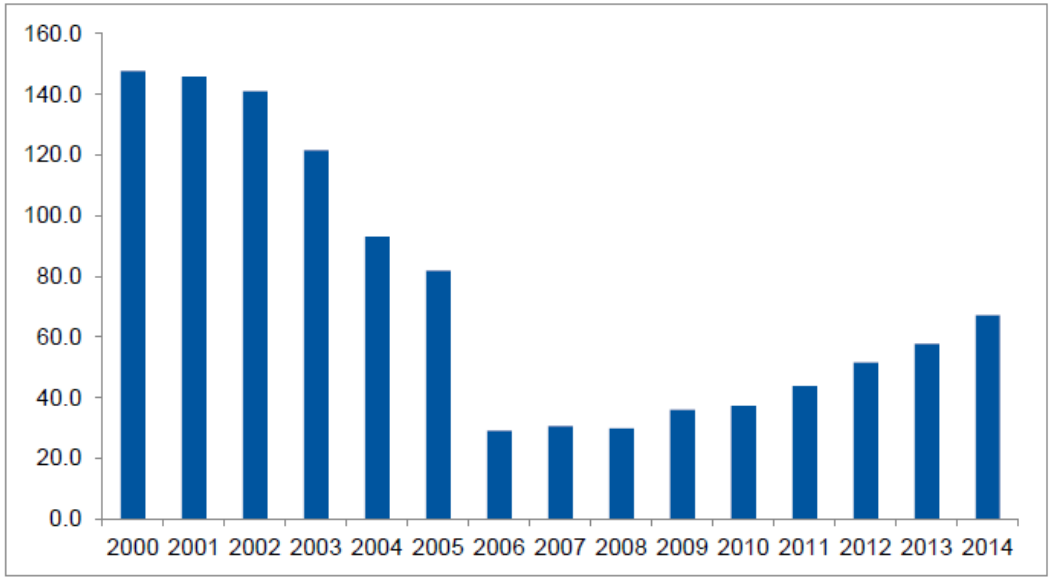
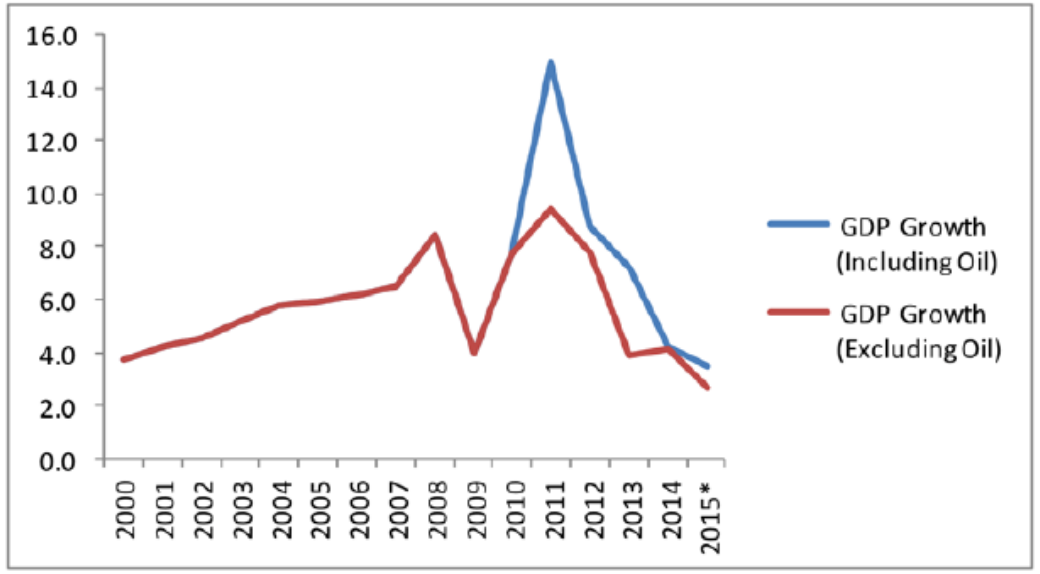
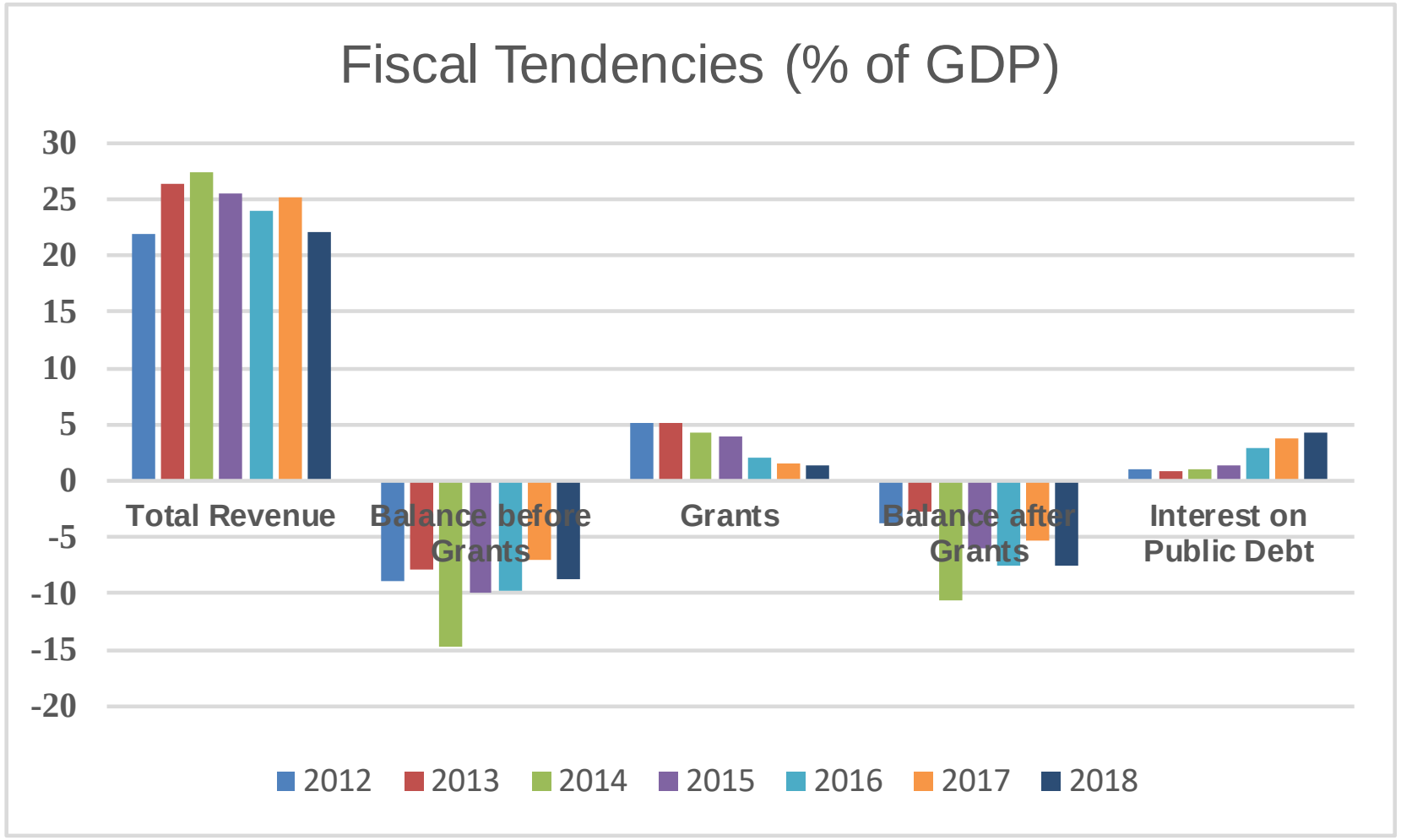


Figure 11: Real GDP growth (per cent), 2000–15



Mozambique fiscal outcomes 2012-2018



There are other reasons why do investment booms fail?

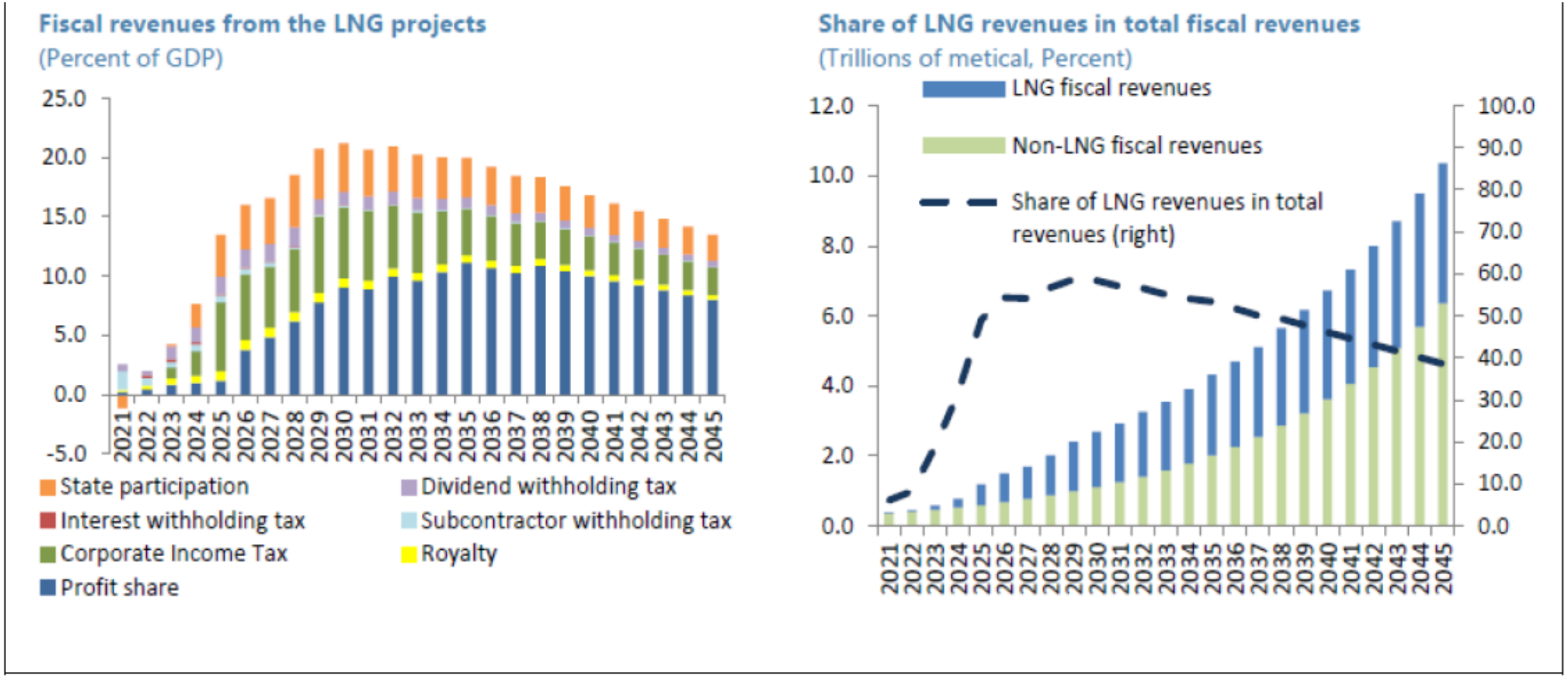
Warner (2014) having studied 24 investment booms in 124 countries found these causes in many countries that had poor outcomes.

- Failure to select public investments by reference to sound economic criteria
- Systematic use over-optimistic predictions of prices, cost and impacts
- Failure to identify the likely (true) rates of return on investments and impacts
- Inertia - an investment once started was likely to continue to command finance even when the conditions needed for success deteriorated
- A high degree of vulnerability of the public investment decisions to abuse for personal or political motives.

Issues involving national oil companies (NOCs)

- NOCS often control a large proportion of national oil revenues – how best to integrate their macroeconomic impacts with those of central government?
- Critical need for clear commercial mandate distinguished from possible social obligations (e.g. avoid the problem of the Venezuela PDVSA)
- Revenue retention – too **much** retention (e.g. Sonagol) moves control from MinFin but too **little** (e.g. Petronas) limits its ability to carry out its designated functions
- Transparency, accounting and monitoring – how much **oversight** to assign to Parliament and to civil society (e.g. to avoid the Petrobras problem)

Mozambique- revenue projections from 2016



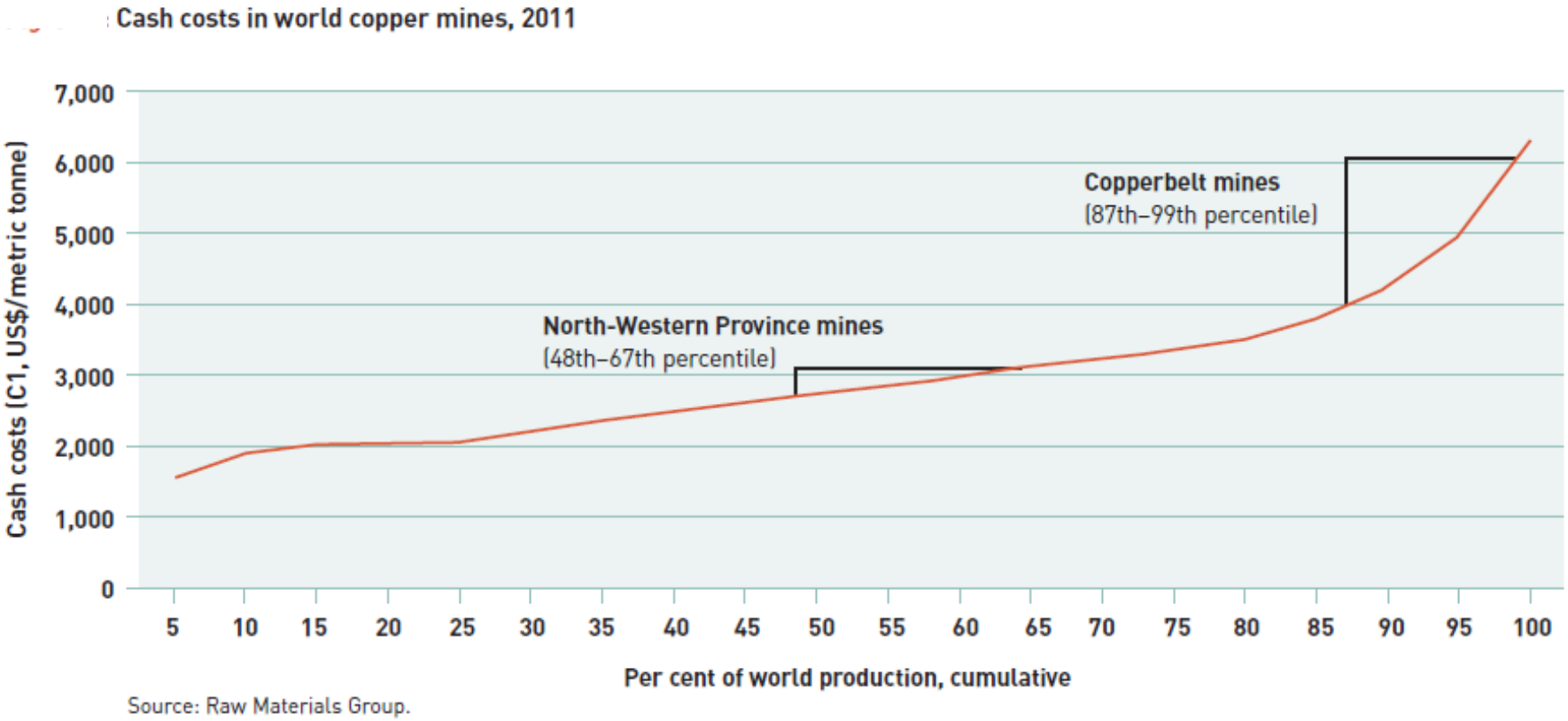
Lag between (a) discovery and (b) actual revenues to government was ***at least*** 12 years

Issues in setting tax arrangements

Include:

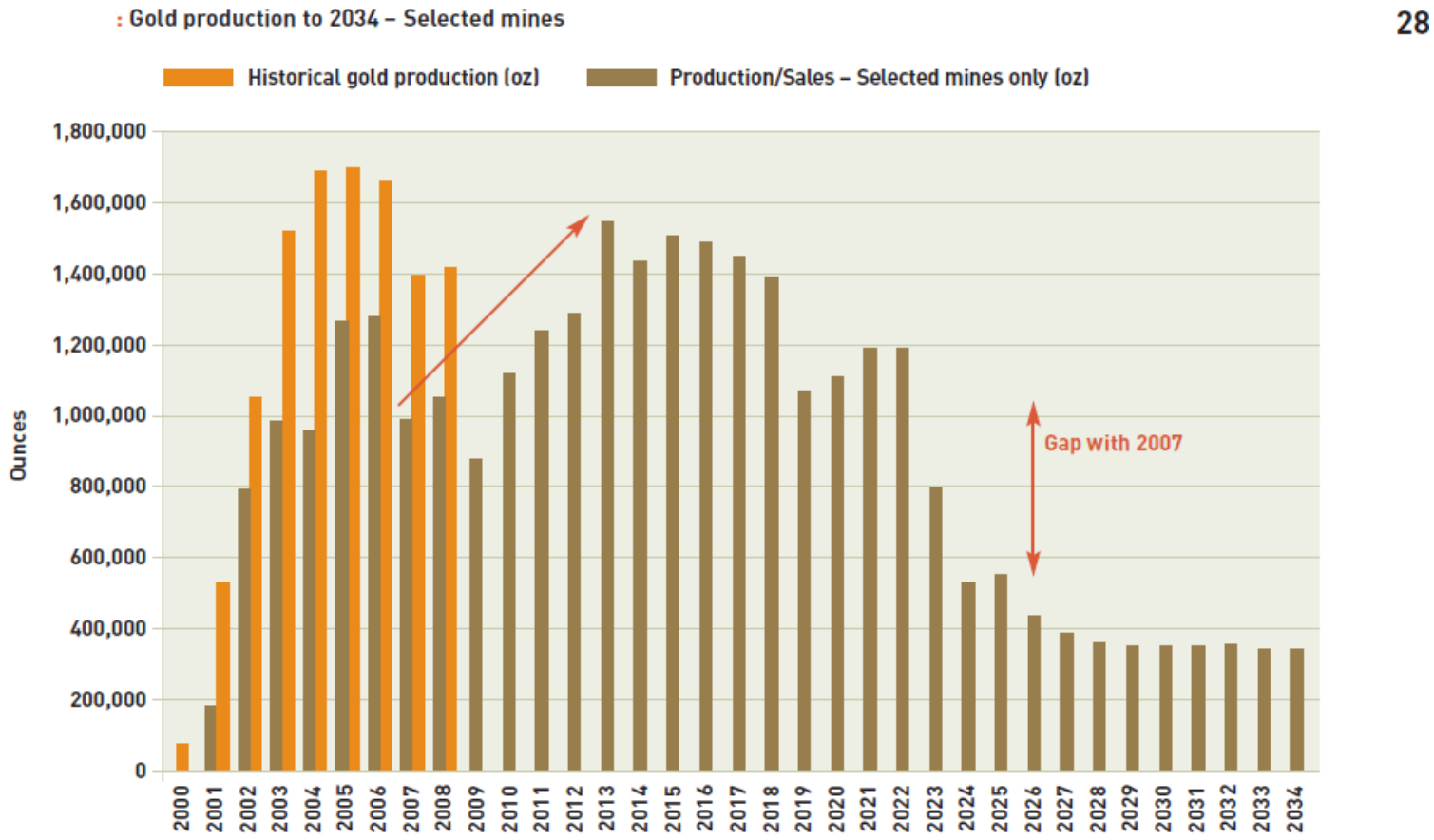
- How to set taxes that deliver reasonable revenue to government without discouraging investment?
- how to sustain that fair share as prices move up and down?
    - any case for stability agreements?
    - any case for excess profits tax?
- how to achieve efficiency in tax collection to match the quality of tax design?
- how to allow for differential costs across different extractives projects?
- use general tax arrangements or set special arrangements for individual projects?
- how to better monitor and police transfer pricing and other tax abuses?

The inherent problems of setting tax rates - Zambia



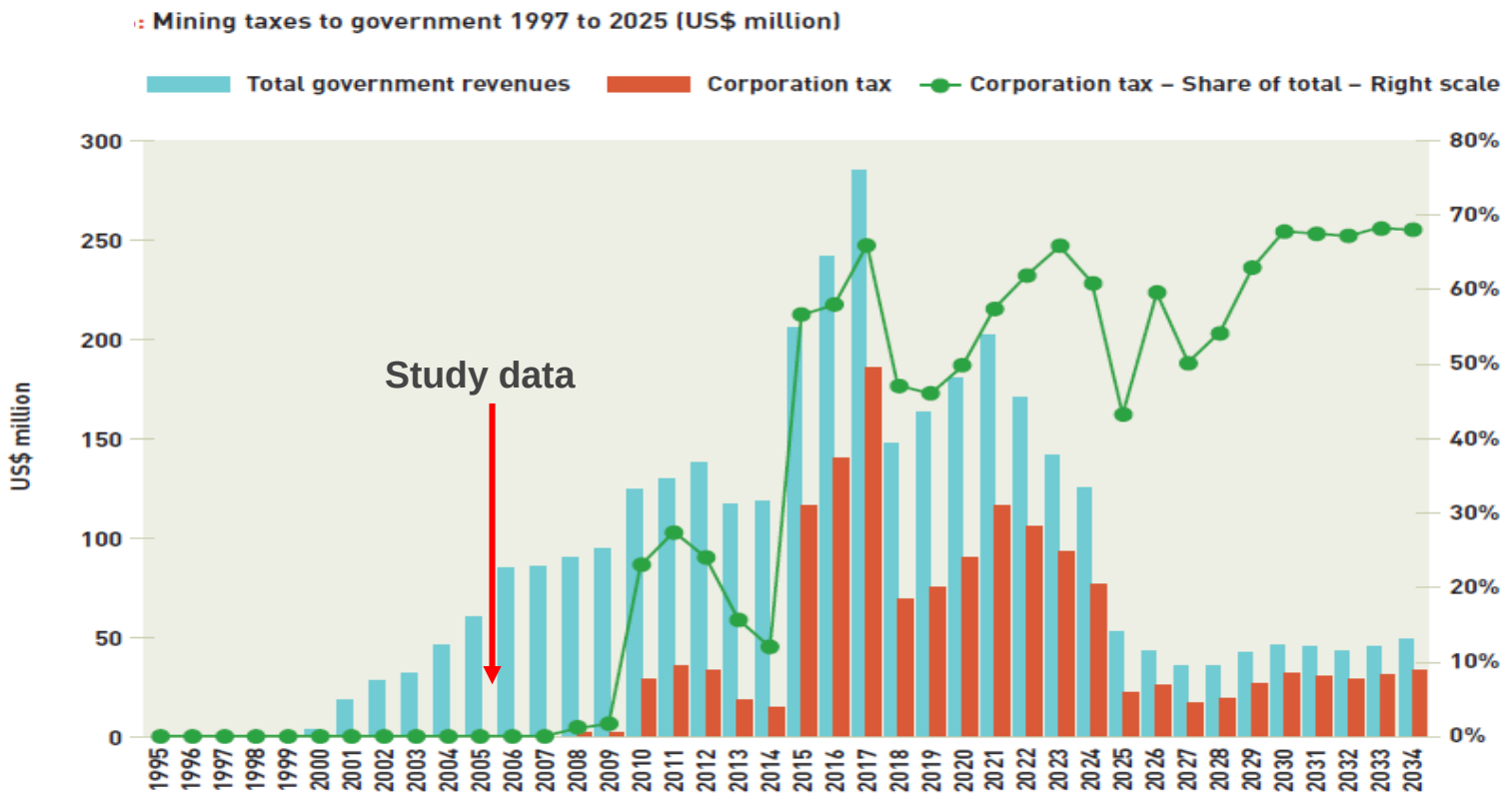
Future production will fall - absent new investment

Tanzania example gold mining



Problems of anticipating future tax collections

Tanzania example - 2008



Issues in managing extractives

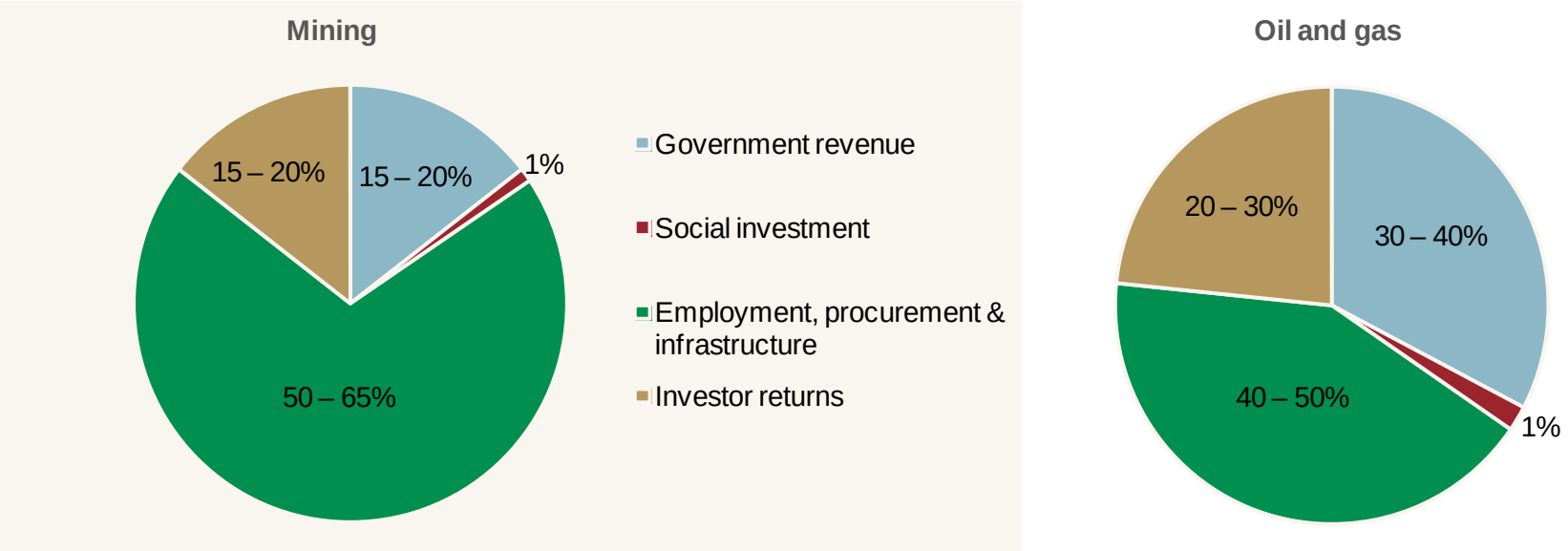
B. Structural transformation over time.

Problemas na gestão da indústria extractiva

B.Transformação estrutural ao longo do tempo

Framework for the broader economy-wide effects – transformation and diversification

Typical shares of total spending, per cent



Source: African Development Bank, Bill & Melinda Gates Foundation, Delivering on the promise: Leveraging natural resources to accelerate human development in Africa, 2015.

First note the minority nature of the DIRECT government spend

This spend is also:

- probably slow to build up
- likely to be volatile over time
- likely to be time limited (given the depletable nature of the resource)

This suggests that it should:

- be very carefully planned taking account of pipelines of prepared projects
- be concentrated on high rate of return investments
- make full provision for ongoing recurrent costs
- Wherever possible work in a complementary fashion with relevant private investments – including both the operational and the social investments of extractives companies

Example Botswana

Public investment management in Botswana for many years involved:

- firm insistence on quality appraisal of each major project
- the full documentation of sound appraisals
- A rewards system for recognising and rejecting weak/ inadequate appraisals
- A rule of thumb that committed 18 - 21% of capital costs to cover ongoing recurrent costs

In short the system raised the status of TECHNICAL analysis and so helped to counter the narrowly POLITICAL motives for particular projects.

The DIRECT spend of the extractives companies is typically much larger

A standard policy route to achieve economic diversification is via Local Content policies (see later slide).

But there is a potential larger pay-off by recognising the significant gains in economic output and employment that can result from the INDIRECT spend associated with mining **certainly** and **possibly** and oil % gas, particularly:

- via the spending of the relatively large wages paid to workers in these industries
- via the spending on inputs including labour of the direct suppliers to the extractive companies

The multiplier ratio from the DIRECT spend to the TOTAL has been found to be large (5 times or more) even in economies with a thin industrial structure. Example is Zambia

Africa Mining Vision (AMV)

The AMV was adopted by African heads of state and government in 2009

It focuses on the mining sector's potential to help transform economies through:

- more diversified growth involving most typically
  - a range of local content requirements and policies and
  - Various downstream 'value-addition' initiatives mainly beneficiation of unprocessed minerals

Significantly it also calls for individual ***Country Mining Visions for Development'***

Local content and other diversification policy examples

Ghana: The Petroleum Local Content and Local Participation Regulations, 2013 set out detailed targets for minimum local employment and procurement of services and goods in the oil and gas sector that gradually increase over ten years.
Tanzania: The 1997 Mineral Policy and the 2012 Mineral Act emphasized developing backward linkages to the mining sector, but left policy implementation largely to voluntary compliance.
South Africa: Mining rights holders are encouraged by the Mining Charter (2004) to procure an increasing percentage of their capital goods, consumables, and services from Black Economic Empowerment suppliers
Angola: Sonangol requires that all goods and services not requiring vaguely defined 'large capital investments and specialized know-how' must be sourced from firms having more than 51 per cent of share capital owned by Angolan citizens (but subject to a price comparison with imports).
Nigeria: from 2000 onwards , commitment to the development of Nigerian expertise in oil operations and development of input suppliers was included among the criteria for award of concessions.
Mozambique: see later slide

Limitations of standard local content policies

Local procurement regulations have met with limited success;

(i) because of small size of local markets
(ii) insufficient capacity of appropriate local SMEs
(iii) weak implementation of regulations

But the more fundamental issues are that mandated targets:

(iv) may tie new supplier outputs to the existing extractive activities, and so
(v) may fail to support new transformative activities that can outlive extractives
(vi) may fail to help develop transferable skills and capacities
(vii) may raise production costs for extractives and so deter future new investment (i.e. act as a hidden tax).

Limitations of some downstream policies

The mere presence of an unprocessed mineral does NOT assure that adding processed value locally is commercially sensible

- economies of scale may be absent – small domestic market – so high unit cost
- destination markets for processed product may be expensive to reach – also JIT management precludes distant suppliers
- source of cheap energy is often needed
- other inputs needed for processing may need to be imported in large quantities
- so processing ***margins*** may be small and also even ***more volatile*** than prices of unprocessed minerals

Many examples globally of how misplaced downstream policies have been hugely value REDUCING e.g. India and steel, Indonesia and bauxite processing

But some downstream does make good sense

Examples:

Tanzania: Gas to electricity generation using Mnazi Bay near shore natural gas

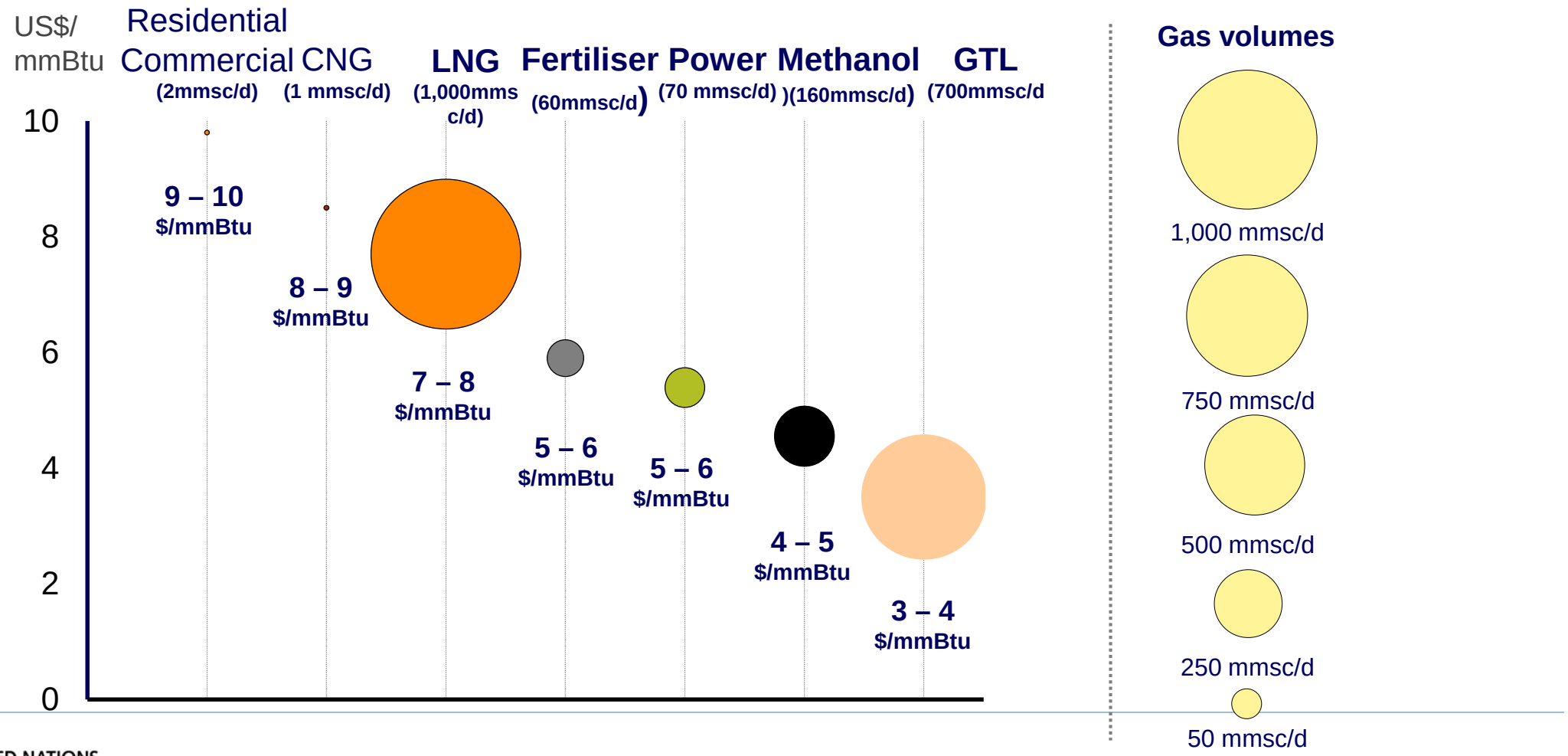
Mozambique: Gas to electricity generation (and other uses in RSA) using the natural gas from the Pande and Temane fields

Botswana: Diamond cutting based on clear commercial agreements with De Beers and experienced cutters in Europe

Beyond this difficult commercial decisions are needed

Example: Tanzania and (high cost) deep sea natural gas

Maximum input prices and projected volumes

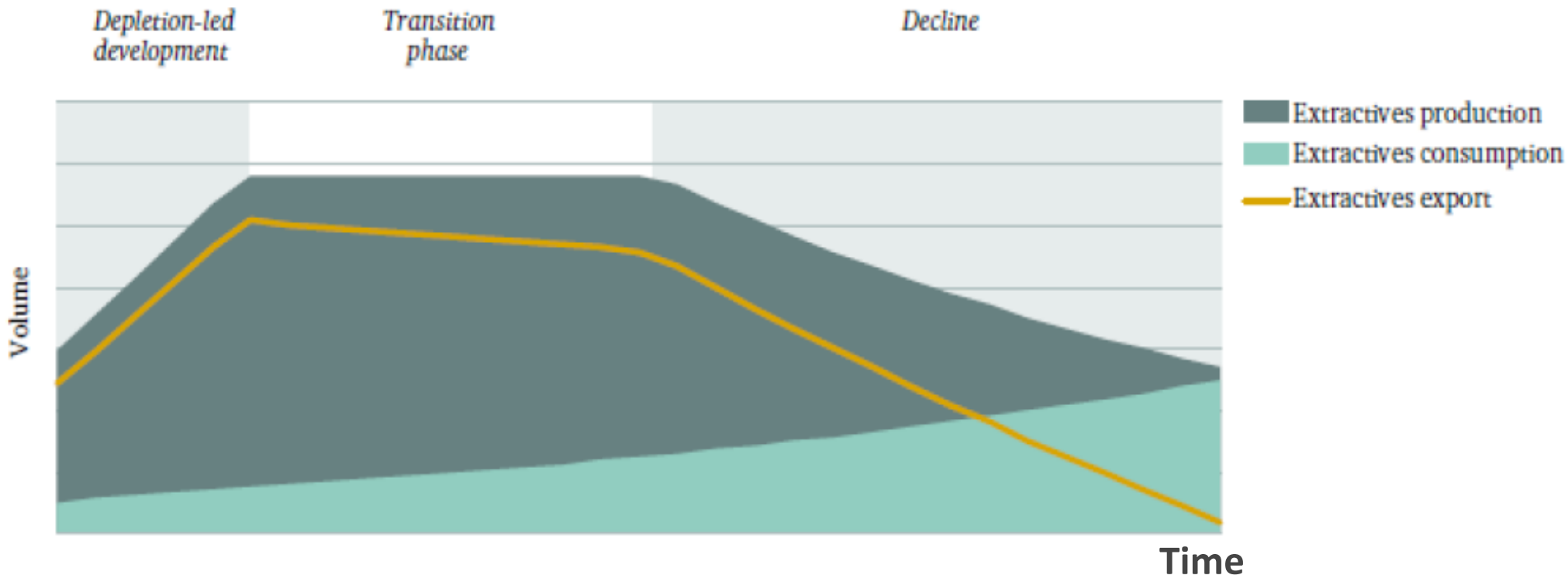


A broadened approach

Could include:

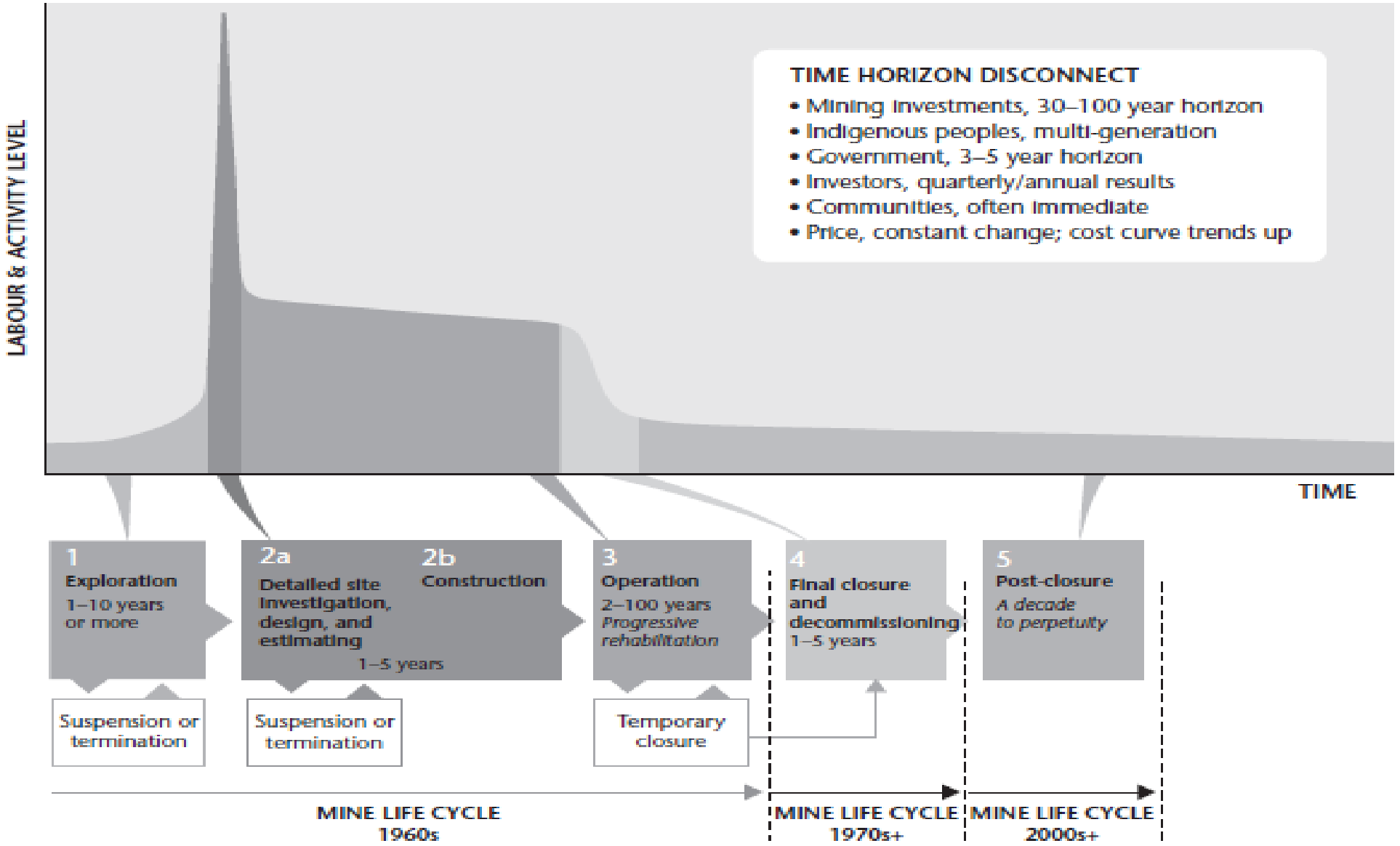
(i) active encouragement of, and partnering with supplier development programmes by the companies
(ii) pro-active policies to remedy the constraints on the expansion of the many thousands of SMEs present in all African countries
(iii) active partnerships between companies and government in training to develop skills transferable across sectors
(iv) prioritization of new public investment on infrastructure to complement the massive investments of private capital
(v) efforts to use the global linkages of the companies to develop exportable capacity in the so-called “industries without smokestacks”
(vi) possibly using special export processing zones

How long do we have to achieve a transition - timing is critical?



Source: adapted from Stevens and Mitchell (2008).

….. Remember too the changing opportunities along the life cycle



Two examples from Mozambique

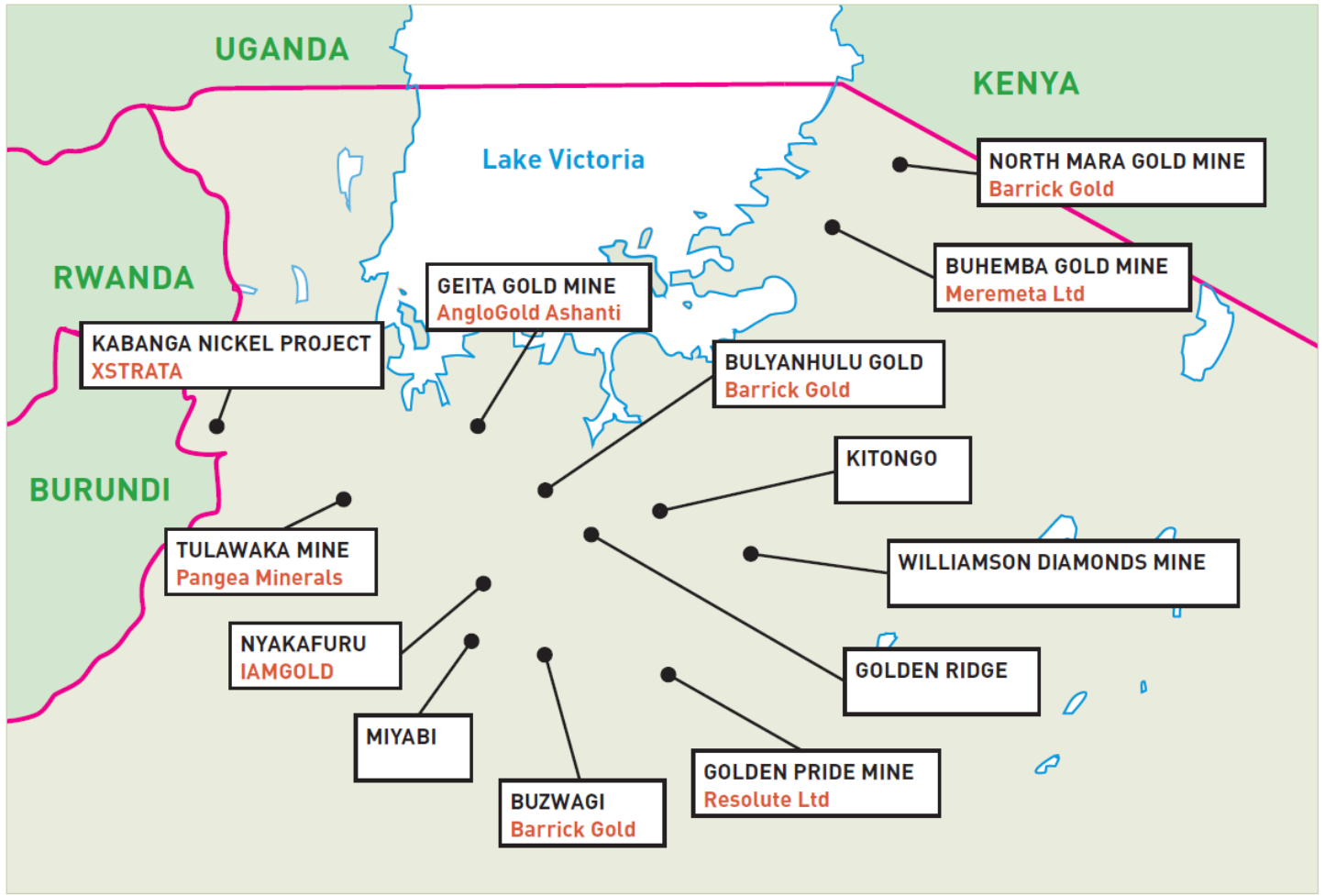
1. MOZAL- Empowerment linkage programme for SMEs (SMEELP)
    - a partnership involving external financial and other support from IFC
    - resulted in significant training upgrades for several SMEs and more than $53 million in incremental sales

Similarly successful arrangements are seen in South Africa, Brazil and in other countries

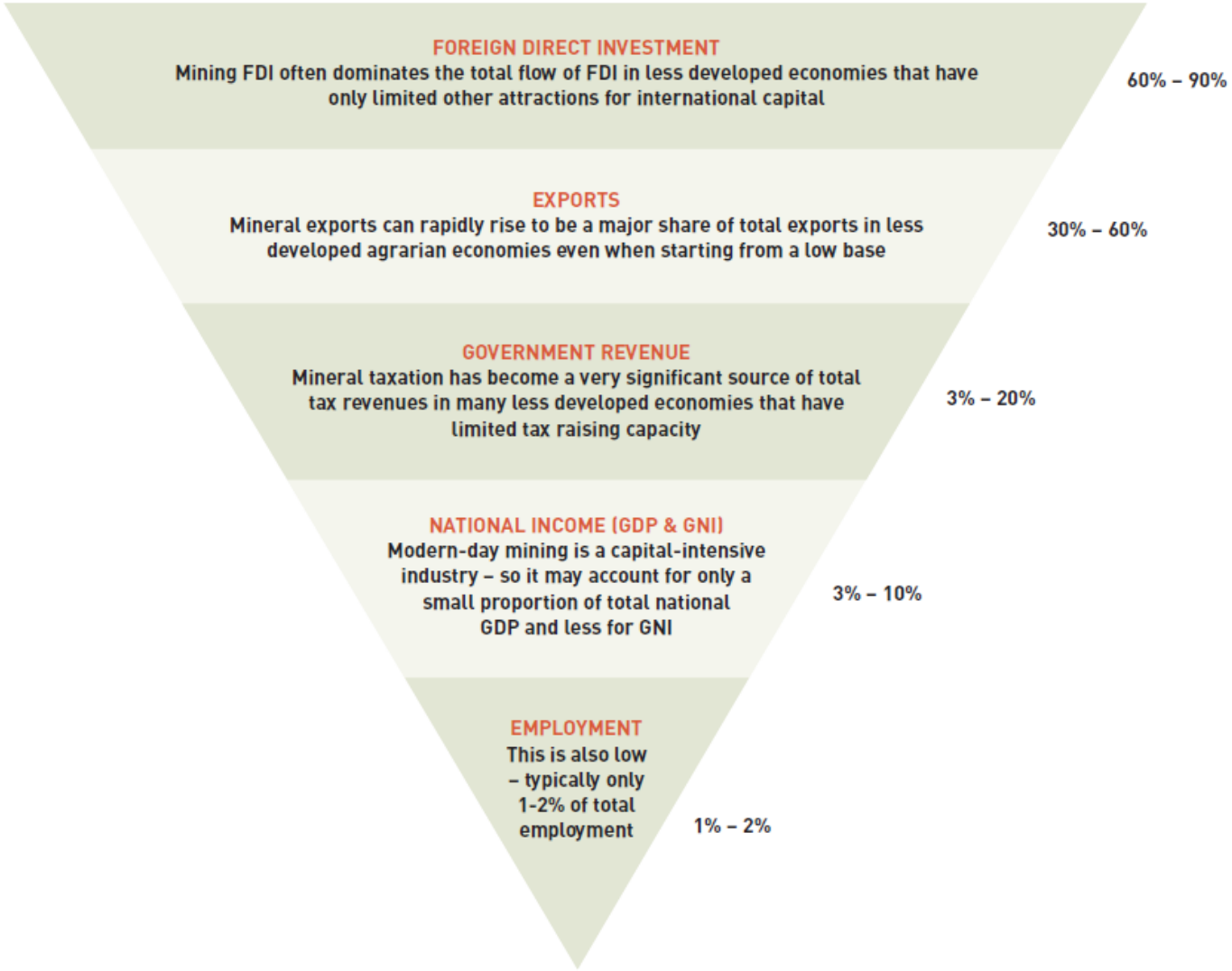
2. Maputo Development Corridor (1996) involving:

- major new infrastructure including road, rail, telecoms, electricity and a port, and helping to promote:
- more active trade links to the South African industrial heartland of the Witswatersrand, to the important mining activities in Limpopo, and the large electricity generating areas of South Africa
- a major industrial park, and further gas related activities.

Compare this with a missed opportunity from Tanzania.



Concentrated contributions of mining argues also for close attention to decentralization policies.



Thank you

See also UNU WIDER E4D

Any comments please to:
alan·roe14@gmail·com