SPECIAL THEMATIC EDITION

African Economic Outlook 2013

Structural Transformation and Natural Resources

AFRICAN DEVELOPMENT BANK GROUP

OECD DEVELOPMENT CENTRE

Empowered lives. Resilient nations.

United Nations Economic Commission for Africa

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The African Economic Outlook

The annual African Economic Outlook (AEO) report is an essential reference for monitoring the economic, social and political developments of the continent, using rigorous and politically independent analysis. The 2013 edition contains:

- Original macroeconomic analysis and forecasts;
- A special thematic chapter on how to promote structural transformation through natural resource management in Africa;
- Individual country notes for 53 of the continent's 54 countries, providing strictly comparable data and analysis, including: a synopsis of the overall state of the economy; recent economic developments and prospects; macroeconomic policy; economic and political governance; social context and human development; and prospects for promoting structural transformation through natural resources;
- A rich statistical annex.

The AEO content, including the full, 16-page country notes can be accessed and downloaded on the website www.africaneconomicoutlook.org.

This AEO 2013 Special Thematic Edition

This complementary edition to the AEO 2013 gathers the complete AEO analysis on Structural Transformation and Natural Resources by combining the thematic chapter and the thematic sections of all 53 country notes into one single document. It thus provides a unique overview of how each African country uses its natural resources to support the structural transformation of their economy.

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Acknowledgements

The African Economic Outlook was prepared by a consortium of four teams from the African Development Bank (AfDB), the OECD Development Centre, the United Nations Development Programme (UNDP) and the United Nations Economic Commission for Africa (ECA). The Outlook benefitted from the overall guidance of Mthuli Ncube (Chief Economist and Vice President, AfDB), Mario Pezzini (Director, OECD Development Centre), Pedro Conceição (Chief Economist and Head of the Strategic Advisory Unit, Regional Bureau for Africa, UNDP) and Emmanuel Nnadozie (Director of the Macroeconomic Policy Division, ECA). Willi Leibfritz was the Coordinator.

The AfDB team was led by Steve Kayizzi-Mugerwa, Charles Lufumpa, Abebe Shimeles and Beejaye Kokil. The AfDB task manager was Anthony Simpasa. Key team members included Ahmed Moummi, Adeleke Salami, Anna von Wachenfelt and Lauréline Pla. The team at the OECD Development Centre was led by Henri-Bernard Solignac-Lecomte, while the team at the UNDP was led by Angela Lusigi, and the team at ECA by was led by Adam El Hiraika.

The chapter on Structural Transformation and Natural Resources was drafted by Jan Rieländer with Margaret McMillan (IFPRI), with key inputs from James Robinson (Harvard University) and Abebe Shimeles, as well as San Bilal (ECDPM), Somali Cerise, Coumba Ngalani Doucoure, Lisa Kurbiel (UNICEF) and Laura Recuero-Virto. Caroline Helmreich and Bakary Traoré and Inigo Verduzco Gallo provided very able research assistance, as well as Mélanie Favrot, Estelle Plat and Pedro Sousa.

In addition, the chapter on Structural Transformation and Natural Resources drew heavily from the knowledge of international experts gathered in Paris on November 23, 2012: Sambit Bhattacharyya (University of Sussex), Juana De Catheu (OECD), David Doepel (The Doepel Group Pty Ltd), Peter Eigen (EITI), Masuma Farooki (Raw Materials Group), Louise Fox (World Bank), James Greene (OECD), Raphael Kaplinsky (The Open University), Louis Maréchal (French Ministry of Foreign Affairs), Jörg Mayer (UNCTAD), Alain Pénelon (COMIFAC), Claudine Sigam (UNCTAD), Benjamin Turok (South African Member of Parliament, ANC), Anthony Venables (Oxford University), Mauricio Villafuerte (IMF), Christian von Haldenwang (German Development Institute), Pierre Jacquemot (IRIS) and Jane Korinek (OECD). In addition, Günther Nooke (German Federal Ministry of Economic Cooperation and Development), Vijaya Ramachandran, Alan Gelb and Christian Meyer (all at CGD), Malte Drobe (BGR), Bill Ascher (Claremont McKenna College), John Page (Brookings Institution), Martin Kelly and Ben Willacy (both at Wood MacKenzie) provided valuable insights and data.

In collaboration with economists from the partner institutions and under the overall guidance of the AfDB Regional Directors and Lead Economists, all AfDB country economists have contributed to the country notes. The notes were drafted by: Kossi Robert Eguida (Algeria), Joel Muzima (Angola), El Hadji Fall and Daniel Ndoye (Benin), Rogers Dhliwayo and Penina Kariuki (Botswana), Richard-Antonin Doffonsou (Burkina Faso), Sibaye Joel Tokindang (Burundi), Aissatou Gueye and Facinet Sylla (Cameroun), Heloisa Marone and Adalbert Nshimyumuremyi (Cape Verde), Kalidou Diallo (Central African Republic), Claude N'Kodia (Chad), Philippe Trape (Comoros), Nouridine Kane Dia (Congo, Rep.), Steve Gui-Diby, Seraphine Wakana and Léonce Yapo (Congo Dem. Rep.), Daniel Ndoye (Côte d´Ivoire), Audrey Vergnes (Djibouti), Charles Muthuthi and Jan Rieländer (Egypt), Ahmed Moummi (Equatorial Guinea), Adeleke Salami (Eritrea), Samuel Bwalya, Julianne Deitch and Admit Wondifr Zerihun (Ethiopia), Pascal Yembiline (Gabon), Jamal Zayid (Gambia), Pa Lamin Beyai, Gregory De Paepe and Eline Okudzeto (Ghana), Idrissa Diagne and Olivier Manlan (Guinea), Toussaint Houeninvo and Luca Monge Roffarello (Guinea-Bissau), Walter Odero (Kenya), Edirisa Nseera (Lesotho), Patrick Hettinger (Liberia), Vincent Castel and Sahar Rad (Libya),

Jean Marie Vianey Dabire (Madagascar), Peter Mwanakatwe (Malawi), Mamadou Diagne and Hamaciré Dicko (Mali), Alassane Diabate (Mauritania), Martha Phiri (Mauritius), Fatima-Zohra Alaoui, Catherine Baumont-Keita and Bakary Traoré (Morocco), Andre Almeida-Santos, Gregory De Paepe and Manuel Filipe (Mozambique), George J. Honde (Namibia), Richard-Antonin Doffonsou and Souleymane Abdallah (Niger), John Kofi Baffoe and Colleen Zamba (Nigeria), Edward Batte Sennoga and Andrew Mold (Rwanda), Flavio Soares Da Gama (São Tomé & Príncipe), Khadidiatou Gassama and Toussaint Houeninvo (Senegal), Susan Mpande (Seychelles), Jamal Zayid (Sierra Leone), Wolassa Lawisso Kumo, Jean-Philippe Stijns and Nii Moi Thompson (South Africa), Joseph Muvawala (South Sudan), Suwareh Darbo and Kabbashi M. Suliman (Sudan), Albert Mafusire and Zuzana Brixiova (Swaziland), Prosper Charle and Amarakoon Bandara (Tanzania), Carpophore Ntagungira and Nicolas Kazadi (Togo), Mickaelle Chauvin, Laura Recuero-Virto, Hatem Salah and Emmanuele Santi (Tunisia), Vera-Kintu Oling and Alex Warren-Rodriguez (Uganda), Emmanuel Chinyama and Ndoli Kalumiya (Zambia), Mary Manneko Monyau and Damoni Kitabire (Zimbabwe). The work on the country notes greatly benefited from the valuable contributions of local consultants.

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Part One

Structural transformation and natural resources in Africa

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Chapter 1

Structural transformation and natural resources in Africa

Structural transformation towards more productive activities and better jobs is closely linked with a strong natural-resource sector. To harness Africa's natural resources for structural transformation, a four-layer policy approach is suggested:

i. establish general framework conditions for structural transformation such as education, infrastructure and access to sufficiently large, regional markets;

ii. establish specific conditions required for natural resource sectors to thrive;

iii. optimise the revenues from natural resources and invest them strategically to promote structural transformation;

iv. address structural transformation directly by increasing agricultural productivity and enabling economic linkages between the natural-resource sector and the economy as a whole.

Introduction

The theme of last year's edition of the *African Economic Outlook*, that of promoting youth employment, showed that in spite of steady growth Africa's ability to offer economic and social opportunities to its younger generation has not matched its demographic dynamism. African economies today are facing nothing less than the formidable challenge of creating more and better jobs, not just by sustaining the pace of growth, but by making it more inclusive.

Emerging economies, such as Brazil, China, India among others, have been more successful than most African countries in that endeavour, achieving impressive reductions in poverty for more than two decades. How are they different from Africa? One answer is that they have undergone a more rapid *structural transformation*; that is, the process by which new, more productive activities arise and resources move from traditional activities to these newer ones. A higher proportion of labour thus moved from low-productivity to high-productivity sectors.

In Africa, the evidence suggests that structural transformation is in its formative stage in most countries and has not yet put down deep roots. As a result, the pace of poverty reduction has not kept pace with the relatively rapid growth attained in many countries.

The second difference between most African countries and the emerging economies mentioned above is the importance of natural resources for Africa.

Taking together agricultural commodities, timber, metals and minerals, and hydrocarbons, natural resources have accounted for roughly 35% of Africa's growth since 2000. Resource-based raw and semi-processed goods accounted for about 80% of African export products in 2011, compared with 60% in Brazil, 40% in India and 14% in China. Similarly, most greenfield foreign direct investment (FDI) in Africa went to resource-related activities. Given that Africa is comparatively land-abundant and scarcely populated the importance of natural resources comes as little surprise (Wood, 2002). In other words, Africa has a strong comparative advantage in natural resources.

The high proportion of jobs in the primary sector thus reflects a lack of structural change and of productive jobs, but also Africa's comparative advantage and hence the basis from which structural transformation must take off. The question then becomes how Africa can achieve growth that delivers more productive jobs, given its comparative advantage.

The high level of prices for natural resources offers a window of opportunity that Africa must take advantage of. Driven by the phenomenon of "shifting wealth" and the appetite of emerging economies such as China for natural resources, demand has remained high in spite of the current sluggishness in advanced economies. It has put Africa back on the map of international investors and led to a number of impressive new discoveries of mineral and energy resources. It is up to Africa to make the most of this renewed interest. This requires policy makers and entrepreneurs to analyse the obstacles to structural change, and draw lessons from countries that have built on their natural-resource wealth to chart a growth path providing employment and income for all.

As sources of development finance increase and diversify (as shown in Chapter 2 of this volume), and policy space broadens – underpinned by sustained macroeconomic stability – a growing number of African governments are exploring options for actively promoting the structural transformation of their economies. But how is this to be done? Should African economies prepare to seize the new opportunities opened by rising labour

costs in China and adopt East Asian types of manufacturing and export-led strategies, as Mauritius successfully did 30 years ago? Should they invest massively in the processing of raw materials extracted from African soil, so as to climb up the global value chains and retain a larger share of their own wealth? Or should they look into an alternative "Indian model" centred on services?

This report argues that since natural resources – energy, minerals, and agriculture – will remain the continent's comparative advantage for the foreseeable future, by contrast with most of Asia, the priority of an active transformation strategy should be to establish a strong, diversified resource-based economy.

This chapter is structured as follows:

Section 1 on **taking stock of structural transformation** analyses structural transformation in Africa over the last decades. During the 1990s productivity within individual sectors rose but labour moved in the "wrong" direction, from higher to lower productivity sectors. Africa has been able to turn this trend around in the new millennium: positive structural change is beginning to take root. But the rate is slow and many Africans remain in poverty because there are not enough good jobs to be had. Given Africa's comparatively low skill-to-labour ratio, it needs mainly low-skilled jobs with growth potential. Where can such jobs come from?

Section 2 on **building on a strong primary sector as the basis for structural transformation** provides a concept. Jobs should come from manufacturing rather than services. But in many countries the conditions are not yet in place. To get there Africa must work to its strengths. It has a strong comparative advantage in natural resources and they can be the drivers of structural transformation through linkages, employment, revenue and foreign investment if given the environment and support to thrive. Diversification is fundamental. Countries with diversified natural-resource sectors also exhibit more diversified manufacturing.

Section 3 looks at **the primary sector in Africa past and present** shows that this has not been recognised in the past, that large-scale agricultural transformation remains to be done in Africa and that the continent has been underexplored. But this is changing for the better. Exploration and production are expanding and Africa stands to gain more from its resources.

Section 4 is about **getting it right: a four-layer approach to harnessing natural resources for structural transformation** presents just that. Putting in place the right framework conditions for structural transformation is layer one. Meeting the specific requirements of the primary sectors to fuel natural resource-based transformation constitutes layer two. The third layer is concerned with optimising the revenue from natural resources and investing it wisely. Finally, layer four is about promoting structural transformation with active policies, focusing on increasing agricultural productivity and building linkages to and from the extractive industries.

1. Taking stock of Africa's structural transformation

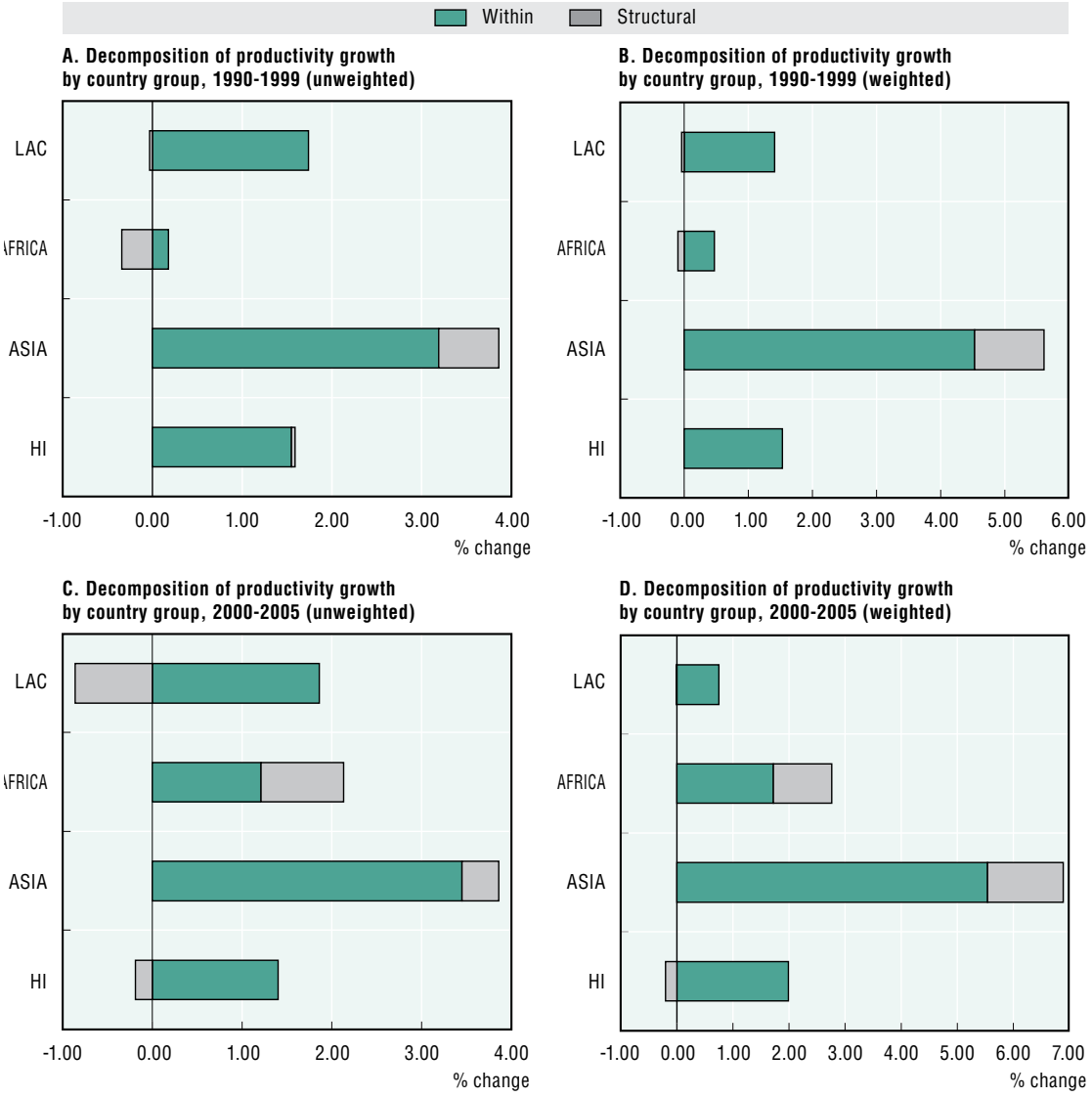
In brief... Structural transformation is the reallocation of economic activity away from the least productive sectors of the economy to more productive ones. It is one fundamental driver of economic development. It contains two elements: the rise of new, more productive activities and the movement of resources from traditional activities to these newer ones, raising overall productivity. Without the first, there is little that propels the economy forward. Without the second, productivity gains are not diffused to the rest of the economy (McMillan and Rodrik, 2011; hereafter identified as M&R 2011). This stock-taking exercise finds that *i)* structural change in Africa was largely growth-reducing between 1990 and 1999; while *ii)* structural change in Africa was largely growth-enhancing between 2000 and 2005; *iii)* structural change in Africa's recent past has been most pronounced in countries that stand to benefit the most as measured by the share of the labour force in agriculture; *iv)* structural change has been higher in countries with better governance, more effective schools and more competitive exchange rates; v) in spite of the arrival of positive structural change during the last decade, Africa needs much more effective transformation to create economic structures that can provide good jobs and income for its growing population; and *vi)* comparison with the historical paths of richer countries shows that Africa follows the general pattern and can accelerate structural change through diversification.

It has been well documented that structural change — that is, the reallocation of economic activity away from the least productive sectors of the economy to more productive ones — is a fundamental driver of economic development (Herrendorf, Rogerson and Valentinyi (2011); Duarte and Restuccia, 2010). In particular, the movement of labour out of less productive semi-subsistence agriculture and into the more productive sectors of manufacturing or services, in both urban and rural areas, is needed to sustain increases in overall productivity and living standards and drive poverty reduction. This holds true both from a theoretical standpoint and from the actual experiences of countries throughout the stages of their development.[1] Traditionally, the concept of structural change has been framed in terms of a reallocation of economic activity between three broad sectors — agriculture, manufacturing and services — which accompanies and facilitates the process of economic growth. Historically, the share of activity in manufacturing has followed an inverted U-shape: increasing during low stages of development as capital is accumulated, then decreasing for high stages of development where higher incomes drive demand for services and increased labour costs make manufacturing difficult.[2] Some of this transition into services and manufacturing occurs within rural areas, but much of it involves migration to urban centres in pursuit of formal employment opportunities. Urban workers typically enjoy higher labour productivity because of, among other things, greater specialisation, more access to capital and lower transaction costs in trade. Structural change has undoubtedly played a substantial role in the productivity catching-up of developing countries. Those with the most rapid growth rates have typically reallocated the most labour into high-productivity manufacturing, allowing aggregate productivity to catch up (Duarte and Restuccia, 2010). In other words, countries that pull themselves out of poverty also exhibit positive structural change.[3]

Comparing the patterns from the 1990s with those observed from 2000-05 in selected countries reveals a remarkable turnaround from negative to positive structural change in Africa. According to analysis by M&R (2011), based on a sample of nine African countries, structural change made a negative contribution to overall productivity growth in Africa in the 1990s. In Africa, the early 1990s were still a period of adjustment. The period starting around 2000 marked the beginning of Africa's "growth miracle", coinciding with a period of intensified globalisation marked by the opening up of the largest developing country in the world – China – and a boom in commodity prices. Figure 1 presents the central findings

on patterns of structural change.[4] Simple averages and employment-weighted averages are presented for the periods 1990–99 and 2000-05 for four groups of countries: Latin American and Caribbean (LAC), sub-Saharan African, Asian and high-income. The most striking result is Africa's remarkable turnaround. Between 1990 and 1999, structural change was a drag on economy-wide productivity in Africa: in the unweighted sample overall growth in labour productivity was negative and largely a result of structural change. A very similar pattern was observed in Latin America at the time. While the situation did not improve in Latin America in the period 2000-05, Africa experienced a remarkable turnaround. Structural change contributed around 1 percentage point to labour productivity growth in Africa in both the weighted and the unweighted samples. Moreover, overall labour productivity growth in Africa was second only to that in Asia, where structural change continued to play an important positive role.

Figure 1. **Structural transformation in Africa: Comparing the patterns across periods**



Note: These graphs are based on the nine country sample used in McMillan and Rodrik, 2011.
Source: Authors' calculations.

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Using additional, more recent country-level data for this chapter confirms the turnaround of structural change in Africa. Having established that structural change seems to be moving in the right direction for the nine African countries in the M&R (2011) sample, the analysis for this chapter is expanded to 19 African countries.[5] Comprising 16 of 48 countries from sub-Saharan Africa and three of six countries from North Africa, the enlarged sample is broadly representative. Table 1 shows the results. With only few exceptions, using a larger sample of countries confirms the finding of a turnaround. Labour productivity in these 19 countries grew by 2.18% after 2000 and the contribution of structural change across sectors was 0.87 percentage points or roughly 40% of the total. In contrast to the earlier period from 1990-99, structural change now accounted for nearly half of Africa's overall productivity growth.

Table 1. **Decomposing productivity growth in Africa (2000-05)**

	Labour productivity	of which:	
	Growth (%)	Within - labour movement within sectors (%)	Structural - labour movement between sectors (%)
Algeria	0.62	0.43	0.19
Angola	5.68	5.29	0.39
Cameroon	-2.61	-3.08	0.46
Egypt	1.73	3.20	-1.47
Ethiopia	2.09	2.06	0.03
Ghana	3.63	3.66	-0.03
Kenya	0.57	0.29	0.27
Malawi	-1.73	-1.80	0.08
Mali	2.81	2.29	0.52
Mauritius	2.29	1.82	0.46
Morocco	4.18	3.16	1.02
Mozambique	4.91	3.98	0.94
Nigeria	3.77	0.96	2.81
Rwanda	3.96	-0.16	4.12
Senegal	0.79	-0.37	1.16
South Africa	2.47	2.10	0.38
Tanzania	3.17	0.76	2.41
Uganda	1.78	-0.88	2.65
Zambia	1.30	1.23	0.57
Africa Unweighted	**2.18**	**1.31**	**0.87**
Africa Weighted	**2.87**	**2.07**	**0.80**

Source: Authors' calculations.

Household-level data show that there has been an overall shift in employment from agriculture to services and manufacturing. To check the robustness of employment shares estimates (and the changes in employment shares) data from the Demographic and Health Surveys (DHSs) are used. The DHSs are nationally representative surveys designed to collect detailed information on child mortality, health and fertility, as well as on households' durables and the quality of their dwelling. In addition the DHSs collect information on the education, employment status and occupations of women and their partners between the ages of 15 and 49. Importantly, the design and coding of variables (especially on the type of occupation, educational achievements, households assets, dwelling characteristics) are generally comparable across countries and over time. Finally, the sample includes considerable regional variations. In all, 90 surveys are available for 31 African countries and

92 surveys for 37 non-African countries and for most multiple surveys (up to six) were conducted between 1995 and 2011. Using DHS data on changes in occupations, it emerges that for the African countries in the sample for the period 2001-07: *i)* labour force participation of both men and women increased relative to the previous period; *ii)* there was a shift in male occupations away from agriculture and services to manufacturing; and *iii)* there was a shift in female occupations away from services to agriculture and manufacturing. By contrast, it emerges that in the earlier period, which covers 1990-99, *i)* labour force participation of both men and women fell; and *ii)* there was a shift in male occupations into services and agriculture. Given that many fewer women report working, these trends are broadly consistent with the previous findings: most workers in the African countries for which there are data are reporting that they are earning more of their income from manufacturing and services and less from agriculture. Another finding is that a much larger proportion of men report working in manufacturing than is currently reported in national statistics (Harttgen and Vollmer, forthcoming).

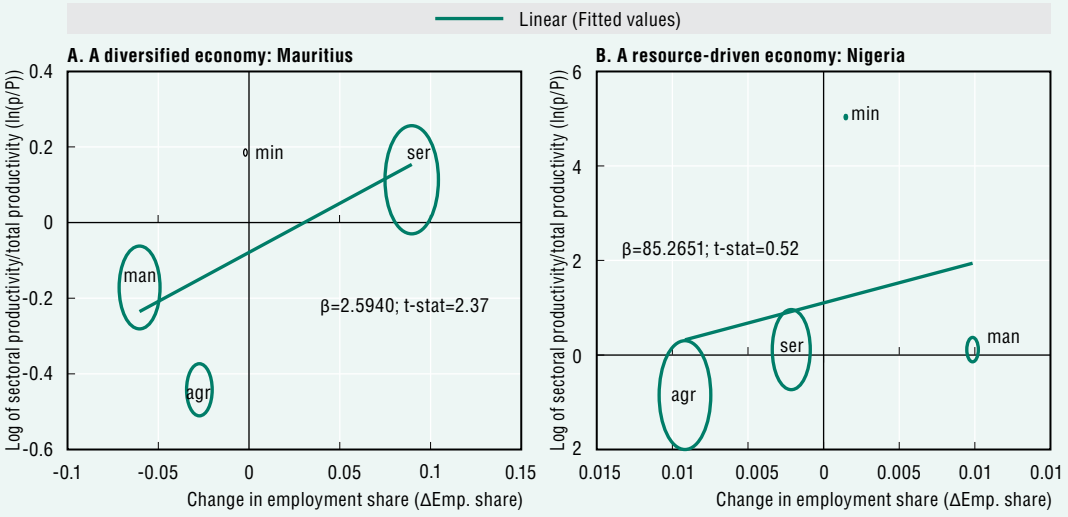
The drivers behind positive structural change have been the quality of governance, human capital accumulation, competitive exchange rates and the share of the labour force in agriculture. Multivariate analysis of the drivers of the recently observed positive structural change in Africa shows that, first, the higher the quality of governance as measured by the Mo Ibrahim Foundation (2012), the more positive the structural transformation. Second, human capital accumulation as measured by changes in primary school completion is positively correlated with structural transformation. This is in line with the fact that skills are important prerequisites for even the most basic jobs in the modern parts of the economy, which need to expand in order to accelerate structural change. According to the World Bank Enterprise Survey Data (World Bank, 2013a), the average length of education of a worker in a formal manufacturing job in Africa is 6.5 years. Third, DHS household level data show that the more competitive the exchange rate (measured by a comparison of price levels across countries6), the more rapid the drop in the share of agriculture in employment. At the same time more competitive exchange rates are positively correlated with the share of employment in manufacturing. Fourth, and finally, countries with a higher share of the labour force in agriculture are experiencing greater growth-enhancing structural change. This is consistent with a large initial gap in productivity, and with productivity growth within agriculture that helps to finance households' investment in both rural non-farm work and migration to urban employment, as well as the rise of employment opportunities in the destination sector.

Box 1. **Structural transformation in four distinct groups of countries**

Dividing Africa's 54 countries into four characteristic groups helps to illustrate the heterogeneity of structural transformation experiences across the continent.

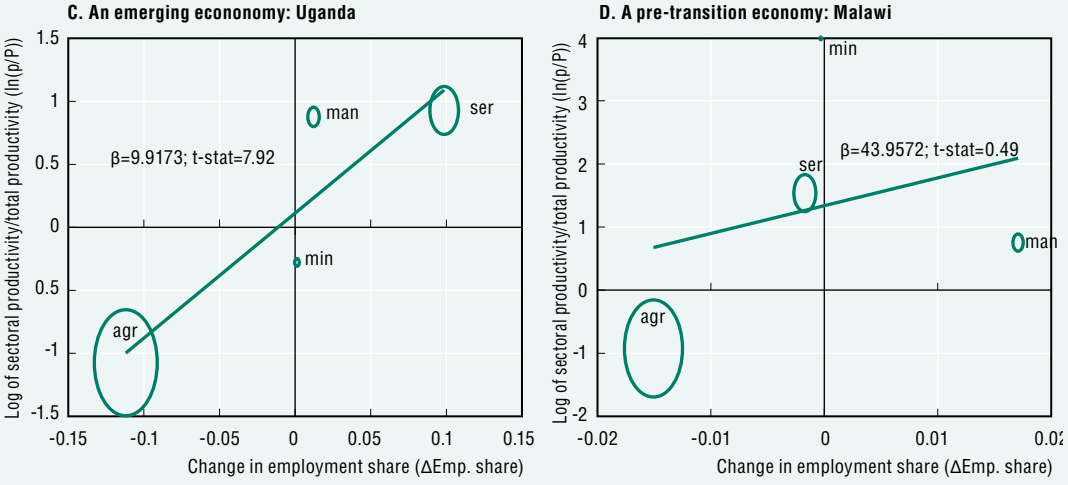
- Resource-driven economies are economies where extractive resources such as oil and minerals represent at least 30% of Gross Domestic Product (GDP).
- Diversified established economies have relatively high levels of per capita income, and low exposure to extractive resources and agriculture as a share of GDP.
- Emerging economies have relatively low levels of GDP per capita, rapid growth rates and a high share of GDP coming from agriculture.
- Pre-transition countries have the lowest per capita incomes and growth in these countries remains low.

Structural transformation in Africa: Exemplary cases for four distinct groups of countries



Source: Authors' calculations based on data from Republic of Mauritius (2012), Statistics Mauritius, (database), http://www.gov.mu/portal/site/cso, and UN (2012), National Accounts Main Aggregate Database (database), http://unstats.un.org/unsd/snaama/Introduction.asp

Source: Authors' calculations based on data from Adeyinka, A., S. Salau and D. Vollrath (2012), "Structural change in Nigeria", Mimeo.



Source: Authors' calculations based on data from Uganda's Bureau of Statistics (2012), CountryStat Uganda, (database), http://countrystat.org/home.aspx?c=UGA, and UN (2012), National Accounts Main Aggregate Database (database), http://unstats.un.org/unsd/snaama/Introduction.asp

Source: Authors' calculations based on data from Malawi National Statistical Office (2012), http://www.nsomalawi.mw World Bank (2010), World Development Indicators, http://data.worldbank.org/data-catalog/world-development-indicators and ILO (2013), LABORSTA, (database), http://laborsta.ilo.org

Note: Size of circle represents employment share in 2000 (Mauritius), 1999 (Nigeria and Uganda) and 1998 (Malawi). Differences in the periods covered stem from differences in the data available. β denotes the coefficient of the independent variable in the regression $ln(p/P)=\alpha+\beta\Delta emp.share$

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Structural change in Mauritius (Figure A) has recently been growth-enhancing and driven by the highly productive service sector. Mauritius is a well-known African success story and its economy is highly diversified.

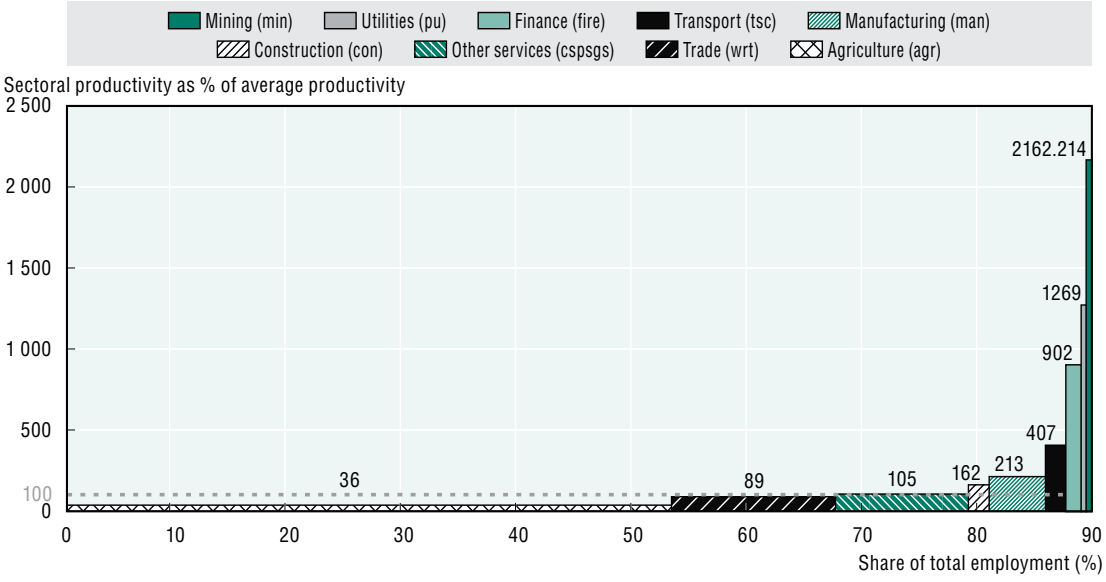
The sizes of the circles indicate that agriculture and mining are relatively unimportant compared to manufacturing and services. In line with many of the developed countries in the sample, the manufacturing sector has contracted in Mauritius. However, unlike some of the other more advanced economies in Africa and elsewhere, Mauritius has managed to grow its tertiary sector based on high-productivity activities that absorb significant amounts of labour.

In Nigeria (Figure B), structural change has played a positive but much less significant role in increasing economy-wide productivity. The main driver of this structural change has been a movement of labour out of agriculture and services into manufacturing. It is notable, though, that the differences in productivity across these three sectors are not very large. This is probably due to the high degree of informality across all sectors of the economy.

Structural changes in Uganda's emerging economy contributed significantly to its overall growth in output per worker (Figure C). Remarkable changes are apparent in the country's economy. Recently, the share of the labour force in agriculture fell by more than 10% while the share of the labour force in manufacturing and services increased by around the same amount. Unlike in Nigeria, productivity in manufacturing and services is significantly higher than productivity in agriculture.

There was limited but positive structural transformation in the pre-transition economy of Malawi (Figure D). In many ways the structure of the economy is similar to that of Uganda: the majority of workers are in the agricultural sector, services come second, manufacturing third and mining last. The main difference is that there have been significant structural changes in the economy of Uganda while there has been very little movement in Malawi. The share of the labour force in agriculture fell by around 1.5% and the share of the labour force in services fell by .002%. These reductions in employment shares in agriculture and services were matched by an increase in the share of the labour force in manufacturing.

Figure 2. **Labour productivity gaps in Africa, 2005**



Note: Each bin corresponds to one of the nine sectors in the dataset of McMillan and Rodrik (2011), with the width of the bin corresponding to the sector's share of total employment, and the height corresponding to the sector's labour productivity level as a fraction of average labour productivity.

Source: Authors' calculations.

StatLink http://dx.doi.org/10.1787/888932807531

However, in spite of the recent progress in structural transformation the productivity gaps between sectors in Africa remain immense. Much potential remains to be tapped. Figure 2 compares productivity in nine sectors with the proportion of labour employed in them. Agriculture, at 36% of average productivity, is by far the sector with the lowest productivity; manufacturing productivity is six times as high; and that in mining is nearly 60 times as high.[7] Most jobs in this African sample are in the most unproductive sectors, with roughly three-quarters of the population in the two sectors with below-average productivity, namely agriculture, and wholesale and retail trade. While these findings seem to imply a misallocation of labour, they also present enormous potential for growth-enhancing structural transformation.

Indeed, if structural change had been faster, Africa could have achieved more poverty reduction. Using the relationship between poverty reduction and labour movement from low to high productivity sectors observed in household surveys it is possible to simulate the relationship between poverty reduction and structural transformation. Figure 3 shows what would have happened to poverty reduction if labour had moved from low productivity to the most productive sectors of the economy at a faster pace than that actually observed. The slow pace of structural change in Africa thus presents a lost opportunity.

Figure 3. **Poverty reduction in Africa if labour had moved to high productivity sectors: A lost opportunity, but also potential for the future**

Note: The graph compares actual poverty reduction with the results from a simulation assuming labour had moved to high-productivity sectors.
Source: Authors' calculations based on household surveys from 16 countries.

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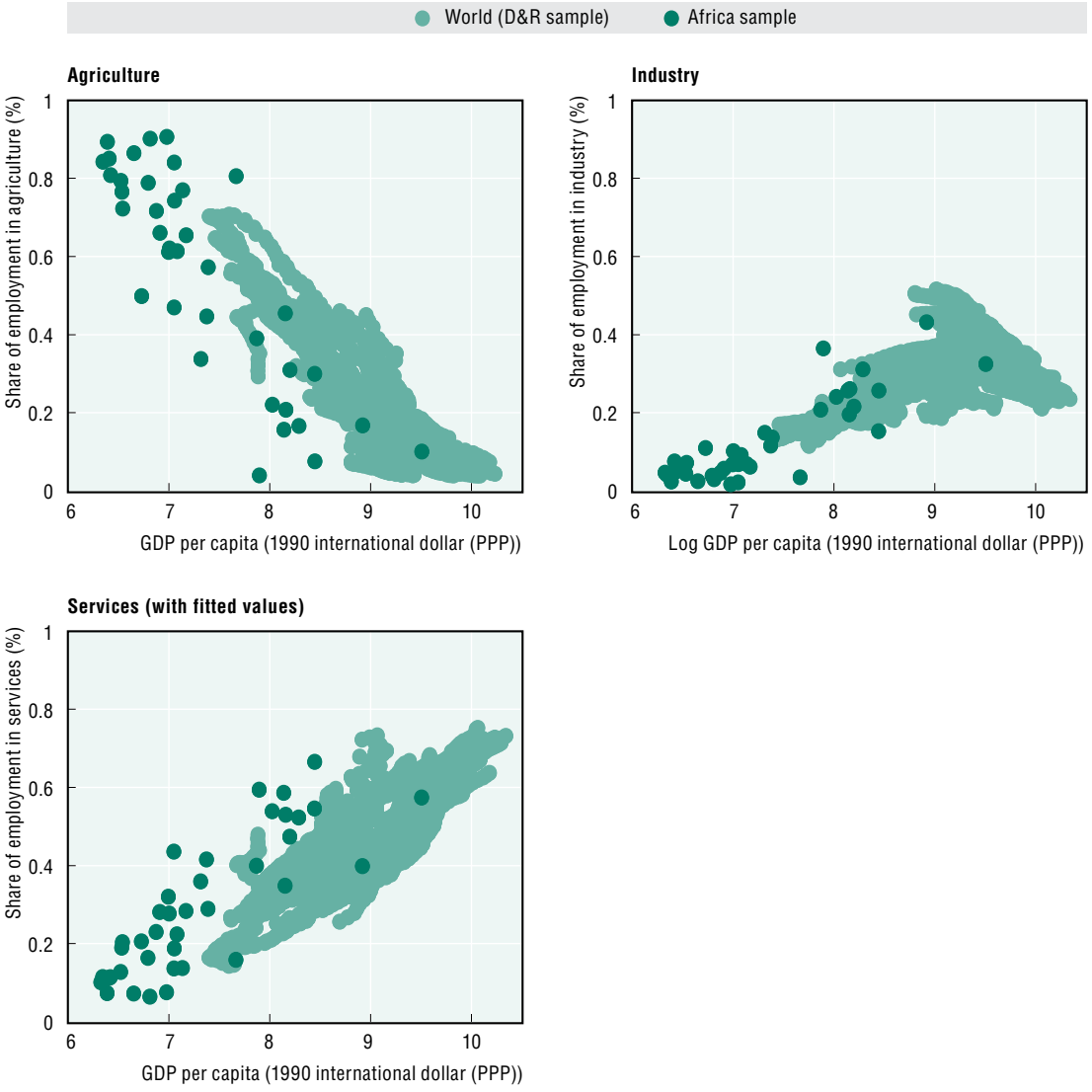
Nevertheless, the patterns observed in Africa are in line with those of other regions, when the stage of its development is taken into consideration. There is no Africa curse. The previous analysis reveals two seemingly contradictory findings. In the face of significant gaps in productivity levels across sectors, employment growth has been weak in most countries' most productive sectors and the majority of the workforce remain engaged in what is by far the least productive sector, namely agriculture. Such patterns seem to imply a misallocation of labour across sectors. However, comparing the relationship between income levels and the distribution of employment in Africa in recent years with other regions over the last several decades, the patterns of structural change in Africa are roughly what would be expected based on what has happened elsewhere (Figure 4). Thus there is no particular "Africa factor" holding back the continent. The challenge is simply one of accelerating the process of structural change.

Figure 4. **Comparing patterns in Africa with those observed in other regions**

Employment shares of three broad sectors

Comparing sample from Duarte and Restuccia (2010) and African countries (sample from 2013)



Note: Data for a panel of 29 countries (none of which are in Africa) covering the period 1950-2006 were obtained from Duarte and Restuccia (2010). These were complemented with data on GDP per capita for these countries obtained from Maddison (2010). Note that Africa data measure sectoral share of total employment, whereas Duarte and Restuccia (2010) data measure share of total hours.

Source: Authors' calculations based on data from Duarte, M. and D. Restuccia (2010), "The role of structural transformation in aggregate productivity", The Quarterly Journal of Economics, Vol. 125/1, MIT Press. Cambridge, MA and London , pp. 129-173, and Maddison, A. (2010), Statistics on World Population, GDP and per capita GDP, 1-2008 AD, University of Groningen, Groningen.

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Comparing Africa to other regions also shows that the potential for structural transformation depends on a country's level of development. Differences in productivity between sectors are greatest in poor countries. As countries develop, productivity gains within sectors matter more. The poorer a country, the wider the gap between the most productive and least productive sectors in that country. As countries grow richer, the productivity gap between sectors tends to close and intra-sector productivity differences

become more important. Multivariate analysis of the drivers of movements of labour between sectors shows that the share of employment in agriculture is an important determinant. The more people in a country work in agriculture, the more structural change has been experienced. On the other hand, structural change has made very little contribution (positive or negative) to the overall growth in labour productivity in high-income countries since the 1990s. What determines economy-wide performance in these economies is, by and large, how productivity fares in each individual sector (M&R, 2011).

Sector shares in GDP and exports reflect the same pattern. At initial stages of development growth is correlated with diversification of sectors and export products. Concentration of sectors and products follows at higher levels of income. Based on a large sample of countries from the 1980 and 1990s Imbs and Wacziarg (2003) determined the average turning point from equalisation of sector shares in the economy (diversification) to concentration of sector shares (specialisation) to be found at around USD 10 000 in 1985 prices. A similar pattern holds for the development of export patterns. A country's basket of export goods tends to increase until an inflection point of purchasing power parity (PPP) USD 25 000, after which specialisation kicks in and the economy begins to specialise in a smaller basket of export goods. Early in the development process diversification occurs mostly at the extensive margin as new export items multiply and are marketed on increasingly large initial scales (Cadot, Carrère and Strauss-Kahn, 2011).

Accelerating structural change towards economic structures that can provide good jobs and income for all in Africa thus requires diversification through new, more productive activities. Most African countries are at comparatively low levels of income per capita and continue to have large shares of their labour force in activities with comparatively low productivity. The historic trajectory of countries that grew from low to high income levels suggests that at the current level of development of most African countries productivity increases will mainly be derived from an expansion of the range of economic activities. In other words, structural change entails the rise of new, more productive activities and the movement of resources from traditional activities to these newer ones, raising overall productivity. Without the first, there is little that drives the economy forward. Without the second, productivity gains are not diffused to the rest of the economy (M&R, 2011).

2. Building on a strong primary sector as the basis for structural transformation

In brief... Although promising in the long run, and feasible strategy options for some of Africa's middle-income countries, high-skill services and advanced manufacturing offer limited opportunities for accelerating structural transformation in the near term for most of Africa's low-income countries. The importance of learning processes, capabilities and factor endowments suggests that building a strong primary sector can be the fastest way to structural transformation. The primary sector can drive structural transformation through four channels: *i)* linkages and diversification into adjacent activities; *ii)* as source of employment for large numbers of low-skilled workers and consequently also the source of demand for potential new products from new activities; *iii)* as source of government revenue, mainly from extractive industries, but industrial agriculture can be important too, which can then be invested in creating the right conditions and pushing structural transformation; and *iv)* attracting foreign investment that brings capital and know-how. Foreign investment also serves as an indicator as to which sectors and activities have potential. Trade data show that a diversified primary sector is closely related to a diversified manufacturing sector. Common capabilities and good framework conditions are the link. The primary sector needs the right environment: most requirements are similar to those of manufacturing. In addition activities based on natural resources have special requirements on which governments should focus, such as transport links to rural sectors, energy for mining, regulations that

set the right incentives and a strong system of land management. Where these are not in place, only resources with very high rents can be exploited profitably. Yet these offer fewer opportunities for structural transformation.

To accelerate structural change new activities must meet four criteria: provide large-scale employment for unskilled workers, be of higher productivity than existing activities, be subject to pressure to perform and be sufficiently close to a country's comparative advantage and capabilities. First, they must provide employment for the large number of people with no or few skills that work in low productivity activities today. Although important improvements have been made and educational attainment in Africa is on an upward trend, educational attainment in most of Africa is low relative to other regions. Second, new activities must be of higher productivity than existing activities or at least exhibit the potential for it. To propel structural transformation, expanding existing low productivity activities is not enough. Third, new activities must be subject to pressure to perform. Competition creates such pressure. In a few countries capable governments have created such pressure without competition, but many have failed. Without pressure to perform new activities are likely to become inefficient and ultimately cause negative structural change. Finally, new activities should be in line with existing comparative advantage, or at least not too far away from it. A country's comparative advantage, here simply defined as the products of which a country produces relatively more, reflects the country's endowment with production factors (land, labour, capital, natural resources) and its capabilities, which are embedded in human capital, technology, institutions and regulations, infrastructure, government capacity and public services. The degree of spillovers and learning opportunities that new activities offer is positively related to their proximity, measured in factor intensities and capabilities, to existing activities (Hausmann et al., 2011). Activities that require a very different set of factors and capabilities from the ones present in a country[8] are unlikely to generate learning and spillovers. They are also unlikely to last. In the best case such activities will remain islands or enclaves with very limited potential for structural transformation, in the worst case they will waste large amounts of resources before failing entirely (see also Lin, 2012). These four criteria point to challenges and opportunities for structural transformation in Africa.

Given the large number of low-skilled workers in Africa, aiming for high-skilled services as a vehicle of structural transformation too soon may not work. It is sometimes argued that Africa might just follow the "Indian" model and direct its energies toward services.[9] This is misleading for several reasons. First and foremost, the service sector that most people have in mind when they think about India's success is the business services sector. But many tasks in the business services sector require high levels of education, which remains a relatively scarce form of human capital in most African countries. Moreover, this sector directly employs only a very tiny fraction – around 2% – of India's labour force. So even in India it has not been a force for the kind of employment growth that would allow for large numbers of people to move from the agricultural sector (out of poverty) into more productive sectors and higher-paying jobs. Achieving broad-based growth on the basis of business services sectors in Africa therefore seems unrealistic, except, potentially, for small countries with a well educated labour force such as Mauritius or Botswana.

Low-skilled services hold more promise, but many activities are of low productivity. Most of the low-skilled service sector in Africa is made up of informal activities in occupations such as personal services and trade. Although these activities are very important for the generation of employment they hold little promise for productivity gains with a few exceptions such as large-size retail commerce (supermarkets) and tourism. While these two areas have seen important growth rates over the last years and will continue to do so, even so their employment potential in most countries is limited.

Manufacturing holds the potential promise of large numbers of low-skilled jobs and new capabilities. However, past productivity increases were not met with commensurate expansion of employment. Rodrik (2011a) has shown that manufacturing industries can serve as escalator activities because they exhibit unconditional convergence of productivity growth.[10] In other words, once a country successfully enters a specific industry the productivity levels of this industry will begin to rise towards the global technology frontier irrespective of the country itself. Manufacturing also holds the promise of "generating millions of jobs for unskilled workers, often women, who previously were employed in traditional agriculture or petty services" (Rodrik, 2011b). After all "industrialization was the driving force of rapid growth in southern Europe during the 1950s and 1960s, and in East and Southeast Asia since the 1960's" (Rodrick, 2011b). Yet, as the preceding analysis of structural transformation has shown, the productivity increases that were realised in the manufacturing sector in Africa did not come with sufficient expansion of employment. During the 1990s the overall contribution to structural change was even negative, as labour was shed. This has improved markedly during the 2000s, but the pace of employment expansion in the manufacturing sector is still much too slow.

Jumping straight to advanced manufacturing has been fraught with difficulties in the past, because the importance of existing capabilities and learning processes had been overlooked. Many African countries pursued fast industrialisation between the 1960s and 1990. Although superficially these strategies seemed to build on existing factor endowments, often targeting the processing of natural resources, they were largely dominated by misconceptions about the links between natural resources and structural transformation and the importance of capabilities. In attempts to industrialise, learning processes, the complexity of technology and the importance of the general business environment and complementary inputs[11] were underestimated, while the potential for value-addition was often overestimated.[12] The result has been little industrialisation to show for the efforts made.[13]

These challenges were compounded by the lack of pressure to perform, creating unsustainable structures that required subsequent painful reforms. The end of this unwinding was an important factor behind the recent turnaround in structural change in Africa. Not only did industrialisation not come about: worse, the large public sectors and high levels of protection for inefficient sectors built up during the early push for industrialisation proved to be economically and socially unsustainable, leading to a decade-long process of structural adjustment that started in the mid-1980s. This period of structural adjustment was marked by a significant decline in the share of the labour force employed in the formal sector and a movement of labour out of industry and back to agriculture. In other words, unwinding the results of misguided attempts at industrialisation in the past has been a driving factor of the negative structural change observed in Africa during the 1990s. Having largely completed this unwinding, which came at high social costs, made the turnaround towards positive structural change possible.

For structural transformation to take off, Africa needs to focus on creating capabilities. Entrepreneurs need the right environment to thrive in. Despite past failures, Rodrik's finding of unconditional productivity convergence in manufacturing points to the potential of this sector for structural transformation (Rodrik, 2011a). To combine productivity increases with job creation, the firms active in this sector need an environment that allows them to expand their activities and invites other entrepreneurs to join the sector with innovations, expanding employment. An economy's ability to competitively produce and export new products depends on its capabilities. Capabilities are best understood as a mix of specific technological know-how and skills with environmental factors such as the quality of public services (infrastructure, education, health etc.) and financial services, institutions and regulations, as well as the general level of government capacity and human capital (Hausmann et al., 2011). In addition, the size of the reachable market and macroeconomic and political stability are important factors in the environment.

Box 2. **Structural reforms and transformation in Zambia and Mozambique**

Zambia's first free elections in 1991 were won based on a commitment to comprehensive structural adjustment and the promise of more transparent and accountable governance (Bratton and Liatto-Katundu, 1994; and Thurlow and Wobst, 2004). After two decades of policies emphasising state ownership and import substitution, the government inherited an unstable and contracting economy with high poverty and inequality, a collapsing copper-dominated export sector, and massive foreign debt. The fourth structural adjustment program (SAP), which began immediately after the new government was elected, encompassed: *i)* macroeconomic stabilisation; *ii)* public sector reform; *iii)* external liberalisation; *iv)* the privatisation of state assets; and *v)* agricultural reforms. Although these reforms hoped to stimulate growth and diversify the economy, GDP growth remained stagnant at 0.2% throughout the 1990s."

They go on to show that this period of structural adjustment was marked by a significant decline in the share of the labour force employed in the formal sector and a movement of labour out of industry and back to agriculture. They show that much of this was precipitated by the privatisation of state-owned factories. Finally, they show that between 1999 and 2001 things were beginning to turn around in Zambia. They attribute the turnaround to a more stable macroeconomic and political environment in which the government was able to mitigate the effects of Zambia's copper exports on the exchange rate and domestic prices.

The story in Mozambique is not very different. After a prolonged period of civil war, Mozambique entered its first structural adjustment programme with the World Bank in 1987 (McMillan, Welch and Rodrik, 2003) The first period of reform lasted until 1990. A second, more aggressive period of reform began in the early 1990s. Among the casualties of this reform were state-owned enterprises. For example, by the end of 1994, all the formerly state-owned cashew-processing factories had been privatised, releasing thousands of workers who typically returned to agriculture because little else was available. It is only in recent years that the cashew-processing sector in Mozambique has been beginning to hire new workers. However, the scale of the sector is still much smaller than it was under state ownership.

Currently, African firms are held back by the environment they face. Small market size, poor public services and financial access, and the role of government are the main obstacles, translating into higher external costs. The negative effects of institutions and the business environment at large on the growth and performance of companies in manufacturing in Africa are well documented.[14] Controlling for the business environment, African firms actually have higher productivity and sales growth than firms in comparable countries in other regions. However, given the existing environment, African firms trail those in other regions. The biggest burden on the growth of African firms is geography, in the form of small market size. It pulls down the GDP of African firms by almost 100% compared to non-African firms. The other fundamental explanations for African disadvantages are associated with the basic market-supporting roles of the government: property rights protection, infrastructure and access to finance. Interestingly, party monopoly seems to account for 81% of the total factor productivity disadvantage of African firms compared to non-African firms (Harrison, Lin and Xu, 2013).[15] Gelb, Ramachandran and Turner (2007) show that external "costs (electricity, transport, communications, security, rent, business services and bribes) form a larger share of the costs of firms in African countries than elsewhere." In Kenya, for example, the average gross (at factory level) total factor productivity (TFP) is about 70% that of China. Kenya's net (in the international market) TFP, however, is only about 40% that of China (Eifert, Gelb and Ramachandran, 2005; see also AfDB, et al., 2012).

In addition, in African low-income countries labour costs are higher than elsewhere, suggesting that low-wage labour is not actually a competitive advantage for Africa. African firms on average have to pay a labour premium of 80% compared with the average firm in other regions at the same level of GDP. Firms in Africa are more productive but also face a steeper labour cost curve; as firms become larger and more productive their labour costs increase more in Africa than elsewhere (Gelb, Mayer and Ramachandran, forthcoming). Labour costs are particularly high in African firms that are productive and labour-intensive – exactly the type of firm most desirable for structural transformation. Africa's higher labour costs could be driven by a range of factors. A high price level is likely to be an important factor. Decomposing purchasing power parity (PPP) exchange rates shows that low-income countries in Africa on average have a PPP price level that is about 20% higher than the average for the four poorest comparators. In other words for the same wage in dollars a worker in a poor Asian country can buy more than a worker in low-income Africa.

Africa's land abundance presents a challenge for creating a better infrastructure environment. Compared with other regions Africa is land-abundant and comparatively scarcely populated. With 36 people per square kilometre Africa's ratio of population to surface area is much lower than that of Europe (120 in the European Union [EU], East Asia (also 120) and South Asia (342), and more akin to that found in the Americas: Latin America counts 29 people per square kilometre and the United States 33; (World Bank, 2013b). This translates into much higher costs for some of the public services that are essential for structural transformation. Wood (2002) estimates that "Africa will need to invest at least twice as much of its GDP in infrastructure as will low-income Asia and will have higher recurrent charges for operation and maintenance."

Africa's factor endowments also suggest that the primary sector will continue to play a more important role and manufacturing a less important one in Africa than in Asia or Europe. The preceding paragraphs have shown that Africa is land-abundant and skill-scarce relative to other regions. Africa thus has a high land-to-skill ratio. Comparing regions over time, Wood and Mayer (2001) show that countries with high ratios of land to skills tend to export mainly primary products. As the land-skill ratio falls the export mix shifts towards simple and then more complex manufactures. Given the large gap in population density, Africa will probably never match the land-skill ratio of Asia or Europe. Its sectoral and spatial structure will converge to those in the Americas, which always relied more heavily on the primary sector, defined as agriculture and extractive industries, than on manufacturing because of land abundance, rather than to those in land-scarce Asia or Europe, where manufacturing plays a more important role (Wood, 2002).

This need not be bad news. The primary sector holds potential for creating new activities for enhancing structural transformation that build on existing factor endowments and capabilities. Counting agricultural commodities, timber, metals and minerals, and hydrocarbons, raw commodities and resource-based semi-processed goods account for 80% of Africa's exports[16] (see Box 3 for a classification of natural resources). Commodity production also accounts for 50% to 60% of employment on average, and in some countries even 80%; most of it in agriculture as has been seen in the preceding section, but a significant amount of highly productive jobs are also in the extractive sector. Although Africa boasts a range of emerging capabilities in other sectors, especially services, the bulk of capabilities related to trade and employment are within, or closely related to, the primary sector.[17] The primary sector offers four channels to drive structural transformation:

First, new activities and capabilities can be fostered through linkages and diversification into other natural resource activities. The most sustainable path to new capabilities that can support new activities is that of proximity to existing capabilities (Hausmann *et al.*, 2011; Hidalgo, 2011; Neffke, Henning and Boschma , 2009; Lin, 2012). Therefore, the diversification

into new activities that could have an impact on structural transformation in a relatively short period of time will have to make use of the existing capabilities in the primary sector. Two mechanisms can be used: *i)* linkages to and from natural resource production into adjacent activities. For example, providing supplies of goods and services for the agricultural and extractive sectors or processing local food commodities into goods with higher value added; and *ii)* diversification into adjacent natural resource activities that make use of existing capabilities and geographic conditions.

Box 3. **Africa's spectrum of natural resources: definitions**

To cover the whole spectrum of Africa's endowment, for the purpose of this chapter natural resources are defined as comprising all commodities of agricultural, mineral and hydrocarbon origin. Following this wide definition the term "primary sector" refers to both the agriculture and extractive sectors.

Agricultural or "soft" commodities consist of food commodities and fisheries, as well as agricultural non-food products and industrial crops. Agricultural food products include fruits and vegetables, cereals such as wheat and rice, and plantation crops for the production of beverages (tea, coffee and cocoa, for example). Livestock such as cattle, sheep or goats, and all fishery products also fall in this category. Non-food products comprise industrial crops such as timber and cotton, as well as indigenous natural products and the cut-flower industry.

Minerals and metals, or "hard commodities"**,** comprise precious metals and minerals such as gold, silver, platinum and diamonds, as well as ferrous (iron) and non-ferrous base metals where copper, zinc, lead and aluminium are the major varieties. Rare metals (cobalt, molybdenum) and minerals (phosphates, sulphates etc.) also fall into this category.

Hydrocarbons, also referred to as energy commodities, include any resources used for power production. This refers to petroleum products (namely oil and natural gas) and coal,[18] but also includes uranium and plutonium to be used as inputs for nuclear power production.[19]

These three categories hint at Africa's richness and the large variety of natural resources it boasts. The inclusion of agricultural commodities enlarges the common understanding of the term "natural resources" which is often understood as only comprising resources of mineral and hydrocarbon origin. Although separating out agricultural goods as a separate analytical entity makes analysis easier and certainly makes sense for many issues related to the high-rent nature of some of the extractive resources, it does not do justice to Africa's natural richness. Moreover, despite their obvious differences all three resource types have opportunities and challenges in common. For one thing, all natural resources are derived from the earth with the input of labour and capital. Wheat is grown and copper extracted. Both need human ingenuity, labour and capital. Second, taken together they form the basis of most product value chains. Third, prices of all three resource types have risen hugely over the last decade, almost in harmony, offering opportunities, but also dangers of inflation, volatility and the creation of dependency. Applying a wide lens of analysis, therefore, allows for more comprehensive policy conclusions.

Second, the primary sector, especially agriculture, holds the key to broad-based structural transformation as the largest employer of low-skilled labour. In fact, experience from other regions suggests that broad-based agricultural transformation is a prerequisite for industrial development (Johnston and Mellor, 1961; Henley, 2012). "This (a) provides cheap

food for domestic consumption enabling a low-cost industrial labour force to survive, (b) drives up incomes of farmers, who in turn become consumers of industrial goods, and (c) frees up labour for industrial and urban jobs and savings for investments" (Gelb, Meyer and Ramachandran, forthcoming). The development of domestic supplier networks into soft, hard and energy resources is another opportunity for job creation, which has relatively low thresholds in terms of technology and scale.

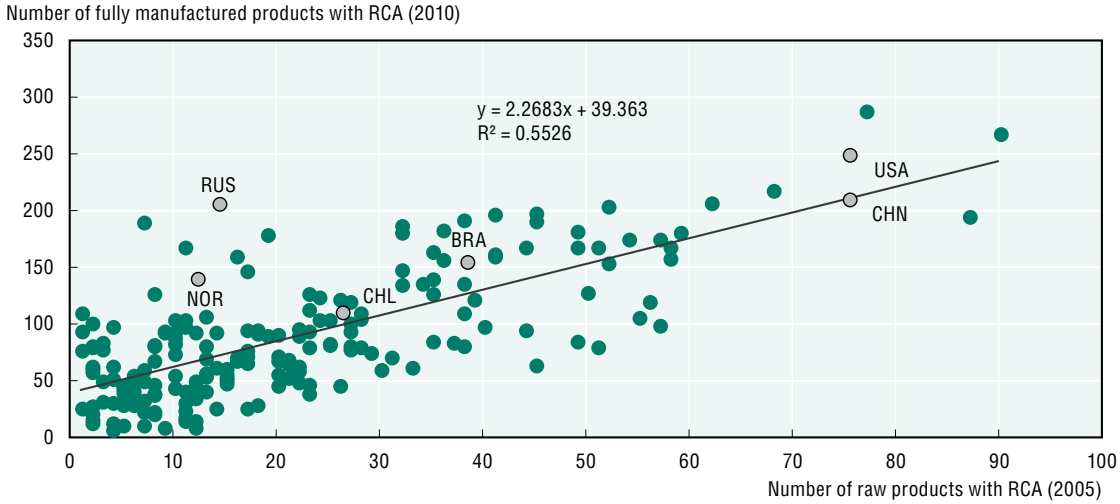
Third, the primary sector, particularly extractive industries, can create important revenues for the state to invest in structural transformation. The investment needs for structural transformation in most African countries are huge. Infrastructure and education gaps top the list in most countries. Yet each country faces specific bottlenecks that must be addressed to accelerate structural transformation. Extractive industries offer revenue potential that can be used to address these bottlenecks with targeted investments. Framework conditions for both enhanced structural transformation and the development of dynamic resource sectors can thereby be improved.

Fourth, a strong natural resource sector can attract foreign investment, which brings otherwise scarce capital and know-how. Foreign investment also serves as an important indicator as to which sectors offer potential. With roughly 60%, natural resources continue to attract the majority of greenfield foreign direct investment (fDi markets, 2013). For many low-income countries in Africa foreign investment related to natural resources is an essential source of capital. It also comes with important know-how. By interacting with foreign investors, resource-producing countries can gain valuable knowledge about the industry and requiring foreign investors to transfer technology can enable the development of local capabilities. FDI can also serve as an important indicator for evaluating the competitive potential a specific sector has to offer. Getting this assessment wrong was one of the reasons for the failure of industrial policies in the past. Instead, governments should focus on attracting FDI and invest in those areas where such investments are forthcoming. In this respect the recent uptake in greenfield FDI in Africa in resource processing and energy generation, driven largely by projects of petroleum refineries, liquefied gas and fossil fuel electricity generation, is very encouraging.[20]

Investments in exploration and exploitation are a good indicator of the strength of a country's resource economy and the quality of the business environment. Having great resource potential does not guarantee that this will be exploited. Gold in the sea is a good example. It is assumed that the world's oceans contain billions of tonnes of gold. But this is not being exploited because no viable technology exists. Technology is one factor, economic incentives another: Egypt boasts plentiful oil and gas reserves but is unable to cover its domestic demand because the sector regulations in place deter further foreign investment in exploitation.

Analysis of relative comparative advantage demonstrates the close link between a strong resource sector and a strong manufacturing sector. Balassa (1986) defined a country's revealed comparative advantage (RCA) as the number of products of which the country exports relatively more than the average. When this concept is applied separately to raw commodities and products with higher value added it can be seen that the RCAs of countries in both categories are closely related. Countries that have comparative advantages in a large range of raw commodities also tend to have comparative advantages in a wide range of higher value-added products (Figure 5 and Figure 6). Thus, instead of holding a country back, a strong and diversified primary sector is an important step towards a diversified economy that creates productive jobs.

Figure 5. **Relative comparative advantage (RCA) in unprocessed commodities and manufactured products: World**



Note: To exclude reverse causality effects data for raw products are from 2005, data for manufactured products from 2010. Selected countries are highlighted for illustratory purposes: Brazil (BRA), Chile (CHL), China (CHN), Malaysia (MYS), Norway (NOR), Russian Federation (RUS), United States (USA).

Source: Authors' calculations based on UN (2013), UN ComTrade, (database), via http://wits.worldbank.org/wits

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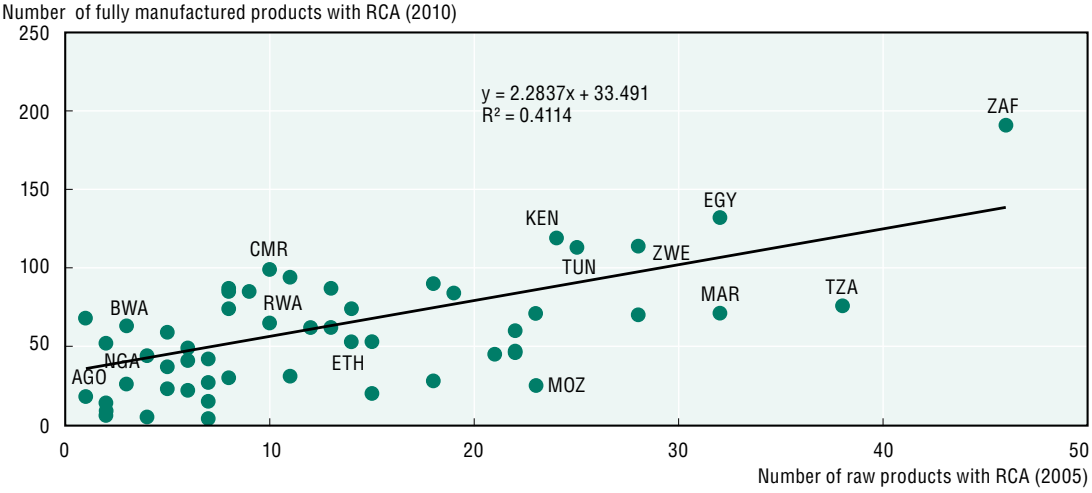
Figure 6. **Relative comparative advantage (RCA) in unprocessed commodities and manufactured products: Africa**



Note : To exclude reverse causality effects data for raw products are from 2005, data for manufactured products from 2010. Selected countries are highlighted for illustratory purposes: Angola (AGO), Botswana (BWA), Cameroon (CMR), Egypt (EGY), Ethiopia (ETH), Kenya (KEN), Morocco (MAR), Mozambique (MOZ), Nigeria (NGA), Rwanda (RWA), Tanzania (TZA), Tunisia (TUN), South Africa (ZAF), Zimbabwe (ZWE).

Source: Authors' calculations based on UN (2013), UN ComTrade, (database), via http://wits.worldbank.org/wits

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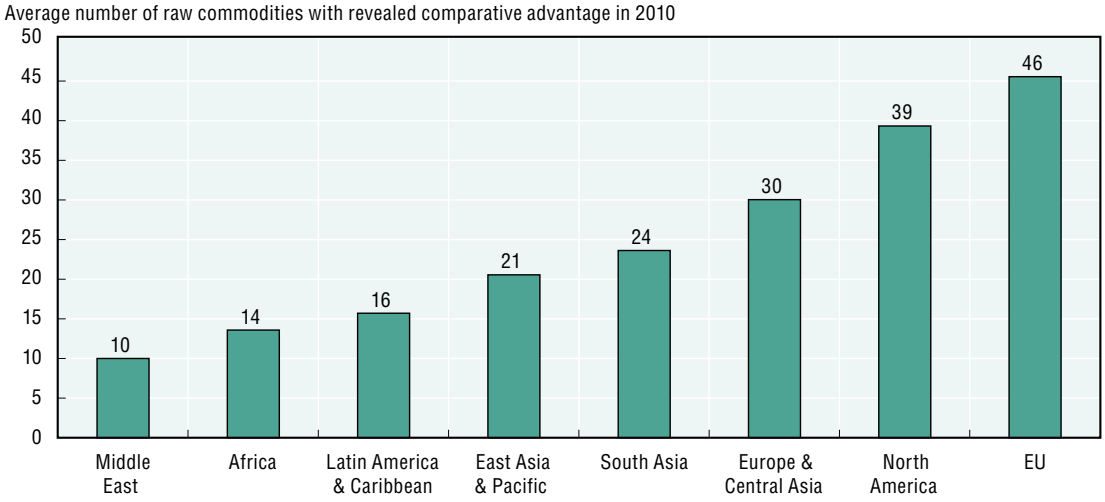
However, geological abundance of resources does not automatically translate into a strong primary sector. Africa's natural resource exports are less diversified than those of other regions. Despite the heavy concentration of raw commodities in African exports, the range of such commodities in which Africa has a comparative advantage is limited compared

to other regions (Figure 7). Only 13 African countries export more commodities with RCA than the global average. South Africa is far ahead with RCA in 46 commodity products, followed by Morocco (36) and Tanzania (34).

Figure 7. **Africa's natural resource exports are less diversified than those of other regions**



Source: Authors' calculations based on UN (2013), UN ComTrade, (database), via http://wits.worldbank.org/wits
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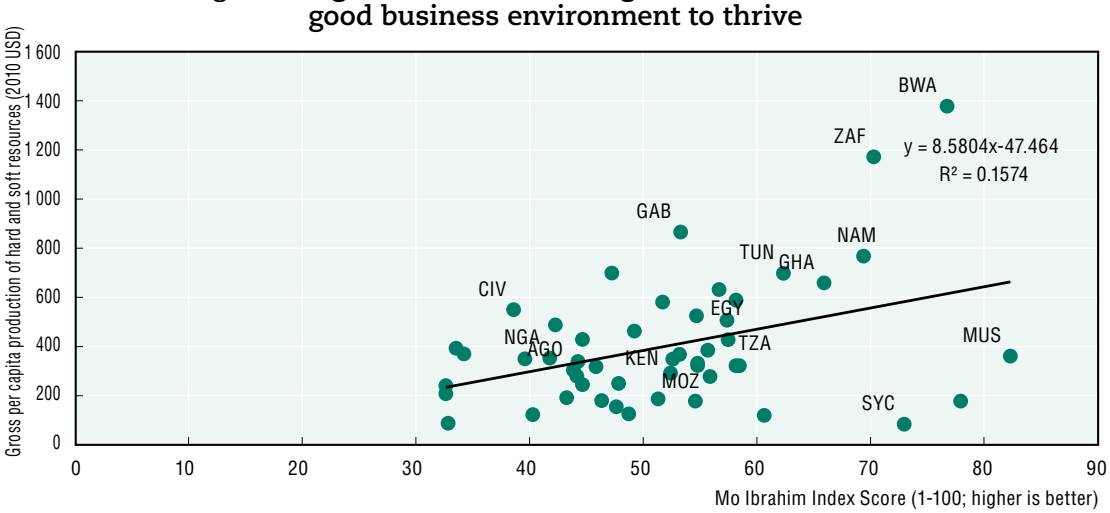
To drive structural transformation, natural-resource sectors need the right conditions. Much of what is holding back structural transformation into manufacturing also stands in the way of stronger natural-resource sectors. While the geological distribution of resources such as land, mineral and hydrocarbon deposits is given by nature, resource abundance in economic terms is largely determined by the conditions for exploration and exploitation faced by investors and farmers. The preceding section has shown that governance, measured by the Mo Ibrahim index, and primary school completion are closely related to positive structural transformation. The same holds for the performance of the hard and soft resource sectors. Figure 8 shows the relationship between a country's gross per capita production of hard and soft resources and the Mo Ibrahim index.[21] Similarly, public services in the form of infrastructure, land management and a reasonable level of property rights are as important for natural-resource production as for other sectors of the economy.

In addition, agriculture and extractive industries have specific requirements that must be met for the unleashing of their potential for structural transformation. The provision of the right skills, transport and energy infrastructure, land management, and sector-specific regulations stand out. One of the biggest obstacles to the transformation of agriculture in Africa has been the dearth of research and skill-building that could have brought about productivity increases as has been the case in countries that experienced "green revolutions". The same holds for the extractive sectors. Although international investors can bring in qualified personnel from abroad, African countries are missing out on the opportunities to create new capabilities offered by these sectors because the domestic skill base is insufficiently tailored to the sectors' requirements (see also Box 4). In terms of infrastructure mining often needs huge amounts of energy that far surpass what is available and are needed by other sectors; agriculture needs more efficient transport links from rural areas to urban centres. Given the land-intensity of natural-resource production, efficient land management is crucial for success and among the primary obstacles to this sector in Africa. Finally, sector-specific regulations such as the rules governing ownership, exploration and exploitation concessions and licences and resource-specific taxes are evidently very important.

Figure 8. **Agricultural and mining commodities need a good business environment to thrive**



Note: Selected countries are highlighted for illustratory purposes: Angola (AGO), Botswana (BWA), Cote d'Ivoire (CIV), Egypt (EGY), Gabon (GAB), Ghana (GHA), Kenya (KEN), Mauritius (MUS), Mozambique (MOZ), Namibia (NAM), Nigeria (NGA), Seychelles (SYC), Tanzania (TZA), Tunisia (TUN), South Africa (ZAF).

Source: Authors' calculations based on data from Mo Ibrahim Foundation (2012), 2012 Ibrahim Index of African Governance: Data Report, http://www.moibrahimfoundation.org/downloads/2012-IIAG-data-report.pdf Bundesanstalt für Geowissenschaften und Rohstoffe (BGR) (n.d.), Data on mining production provided for this report and FAO (2012), FAOSTAT, (database), http://faostat.fao.org

StatLink http://dx.doi.org/10.1787/888932807645

Box 4. **Investments in human capital and applied research and development play a crucial role for the resource sectors and structural transformation**

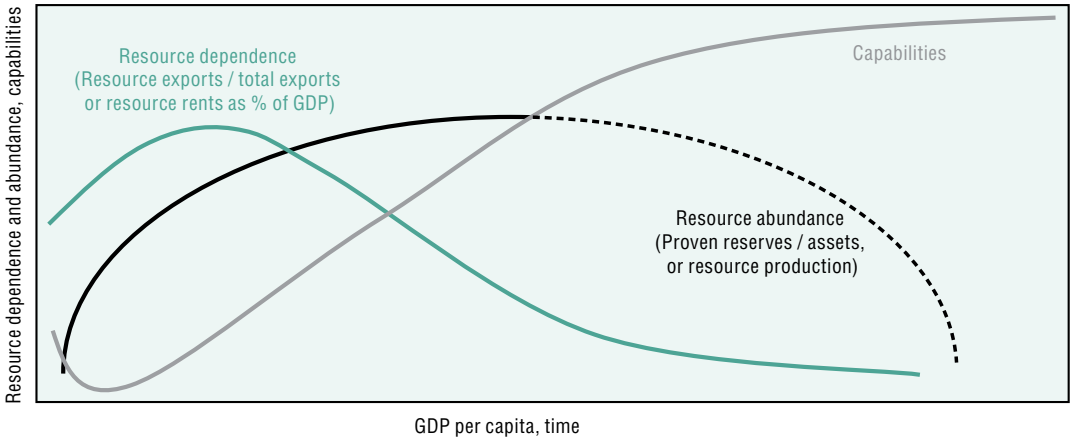
The takeover by the **United States** of world leadership in manufacturing was propelled by the research and education institutions originally established to serve the mining industry. The developments in the mining sector were accompanied by a continuous process of research and learning, which generated technological progress, brought down costs and resulted in the expansion, rather than the depletion of natural resource stocks. The United States Geological Survey (USGS), a large-scale governmental science project, for example, provided detailed maps of great practical value to miners, as it was highly responsive to their needs. The provision of engineers from schools designed to train mining specialists, such as the Columbia School of Mines, promoted the expansion of the sector further. These mining schools, which later evolved into the University of California at Berkeley and Stanford, among others, became the basis for technology-driven development in many industries thereafter and thereby laid the foundations for structural transformation (Wright and Czelusta, 2004).

In **Sweden**, structural transformation based on the resource sectors was driven by government interventions targeting research and education. The focus of universities was shifted towards natural sciences. Newly founded technical institutions soon became a source of innovation. Vocational training institutions assured the dissemination of knowledge and supply of qualified technical personnel. Moreover, study trips and training of Swedish engineers abroad facilitated technology transfer. Later on, the long-term focus on technological upgrading and exchange also paved the way for the emergence of the telecommunications sector. Sweden's knowledge clusters originating from the forestry sector were well equipped to react rapidly to technological breakthroughs which drove the expansion of telecommunications and information technology (IT) (Blomström and Kokko, 2007).

Applied research to promote productivity plays a major role for structural transformation. In **Indonesia**, the availablility of new rice varieties was instrumental in boosting productivity in the agricultural sector, a major driver of domestic demand (Gelb and Grasmann, 2010).

Where natural resources find a favourable environment initial dependence can quickly be overcome, even as the natural-resource sectors keep growing. Figure 9 illustrates the historical paths of countries that turned natural-resource wealth into structural transformation and long-term growth. Their experiences suggest that, at low levels of development, resource commodities, whether soft or hard, are the main income earners and account for large shares of exports and GDP. In other words, the economy's dependence on resources is high. This is to be expected, as resources are comparatively easy to produce and export. In a small or underdeveloped economy the resource sector will therefore account for most exports and a significant share of GDP. As investment pours in, production expands quickly and often further reserves are proven. Both abundance and dependence increase. As the resource sector expands it creates opportunities for the rest of the economy: resource production requires a large range of supplies, from food for its workers to higher technology activities such as software design, chemical analysis and customisation of machinery. At the same time resource exports generate important revenues for the state that can be invested in human capital (education and health) and public capital (infrastructure and public services) thereby creating opportunities for economic activities that are relatively intensive in these types of capital. The original comparative advantage in natural resources can thus be used to push the production possibility frontier outwards and create new comparative advantages through diversification. If the country manages to use its resource endowment in this way, over time resources will become less important as the rest of the economy becomes larger.[22]During this process resource production and the amount of proven assets are even likely to continue growing[23], as new technology and an improving regulatory framework lead to new discoveries, but resources will lose in importance relative to the rest of the economy. In the case of hard and energy resources, abundance will finally decrease as the existing reserves are depleted or become unviable for economic (relative price of labour and capital), social (harm done to neighbouring communities) or environmental (environmental damage of extraction, climate change) reasons. This need not be the case for soft resources which do not face depletion as long as they are not exploited beyond their rate of regeneration.[24] Using data on natural resource rents as percentage of GDP for resource dependence and subsoil assets per capita for resource abundance, Figure 10 shows this trend holds globally and the world continues to be on the upward sloping section of the abundance curve.

Figure 9. **The ideal path from resource discovery to abundance without dependence**



Source: Authors' illustration.

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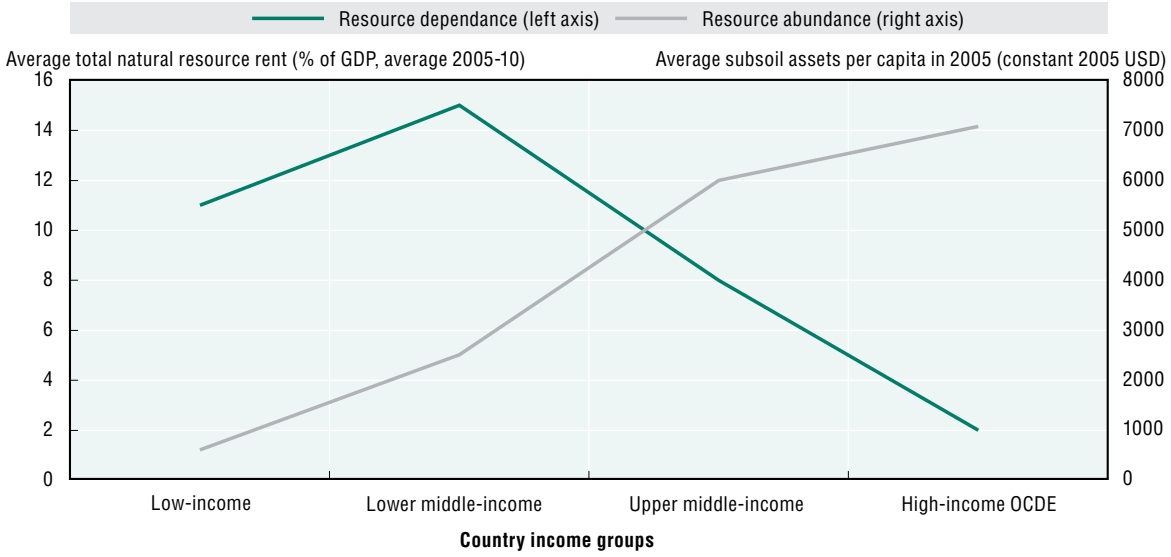
Figure 10. **The observed path through the resource spectrum**



Note: Country income groups only include countries with subsoil assets and exclude high-income non-OECD countries. Resource abundance is measured as subsoil assets per capita, resource dependence is rents as % of GDP.

Source: Authors' calculations based on data from World Bank (2012a), The Changing Wealth of Nations, http://data.worldbank.org/data-catalog/wealth-of-nations.

StatLink http://dx.doi.org/10.1787/888932807683

Where the conditions faced by the primary sector are poor and support is absent, however, structural transformation is inhibited because the resource types that offer most opportunities cannot develop. The high costs that result from poor conditions are the main factor.[25] The higher the costs faced by natural-resource producers, the higher the resource rent must be to allow for profitable exploitation. Yet it is the natural resources with lower rents, especially agriculture and base metals, that offer most opportunities for structural transformation through linkages and employment. Where these resources cannot be profitably exploited they remain either dormant, as in the case of many unexplored metal and mineral deposits (see section on "The primary sector in Africa past and present"), or at subsistence level as in the case of most African agriculture and artisanal mining. Yet a subsistence economy is insufficient for structural transformation as it creates no demand for new products and no surplus savings to invest in new activities. In such a situation the majority of workers remain stuck in low-productivity activities based on natural resources with few ways out.

High-rent resources, on the other hand, can thrive in any environment, but offer much less in terms of linkages and employment and instead can quickly lead to dependence and therefore need strong management. High-rent resources, such as oil and to a lesser extent also gas and some deposits of precious metals and diamonds, do not require much in terms of favourable conditions.[26] If energy resources were included in Figure 8 the relationship between resource production and governance would disappear. This is primarily positive, as these resources enable countries to gain access to major revenues irrespective of gaps in infrastructure and government capacity. However, hydrocarbons offer fewer possibilities for diversification than other resource types and have very low values of connectivity with other products (Hidalgo, 2011). In other words, the capabilities linked to the production of oil and gas offer only very limited opportunities for learning processes that make possible successful advances into other activities. Moreover, oil and gas production is more capital intensive than mining and far more so than agriculture, offering fewer opportunities for employment and consumption multipliers. Instead, as most examples of African oil exporters

show, the large rents in this sector can crowd out other sectors and create a rent-seeking economy that is incapable of overcoming dependence. Nevertheless, several countries have proved that high-rent resources can be turned into broad-based growth through strong and focused management. Botswana's management of its diamond sector is the best example from Africa. See Box 5 for the examples of Malaysia and Indonesia.

Box 5. **Indonesia and Malaysia: Two examples of turning oil dependence into structural transformation**

Indonesia succeeded in controlling oil dependence through counter-cyclical spending and transformation into agriculture. The government of the Suharto period had come to power 1966 with a firm commitment to stability. Pertamina, the national oil company experienced a crisis in 1975 as a consequence of mismanagement by the military associates of the president. This failure enhanced the credibility of a more technocratic team of economic advisers with a sound understanding of the risks inherent in mineral exploitation, enabling them to implement controls on spending. So even though the government officially respected the law requiring it to balance its budget, the technocrats were able to slow spending without public disclosure. This established *de facto* a counter-cyclical budget and resulted in a surplus, which enabled the government to react proactively to the end of the oil price boom in 1981. The government stabilised the exchange rate by devaluation, and cut subsidies and spending. This prevented adverse effects of exchange rate appreciation on non-oil traded sectors and encouraged a wide range of exports and manufacturing. Structural change was promoted by using the country's oil resources to increase agricultural productivity. Applying broad-based development policies, the government made possible the spread of new disease-resistant and high-yield rice varieties. Oil resources were used to develop deposits of natural gas for export and as an input to fertiliser production. The fertiliser, which was distributed to farmers at subsidised prices, increased agricultural yields significantly (Gelb and Grasmann, 2010).

Malaysia diversified its economy and emerged as a successful middle-income country based on its commodity sectors. The country, which used to be an agrarian economy up to the 1960s, used its oil, forestry sector and palm oil to drive structural transformation and growth. Even though the industrial sector had been increasingly prioritised by development policy, the agricultural and rural sector remained the focus of development policies with the objective of commercialising production (Gelb and Grasmann, 2010). This led to a steep increase in the export crop sector (mainly rubber and palm oil) both in the area of cultivated land and production between 1960 and 1990 (Rahman, 1998). Within the oil sector, the state-owned oil company Petronas played a central role in exploitation and negotiating technology transfers from multinational firms. It thereby built up expertise and know-how and is now a Fortune 500 company that competes successfully in the international market. Even though Petronas is not publicly listed, information on its profits, dividends paid to government and its contributions to the government budget are published and publicly discussed, which enables civil society to hold the government to account. Malaysia's federal system and robust democracy, coupled with constituencies rooted in the non-oil sector, forced political parties to compete for solutions to the main problems facing voters. That was probably one major factor driving the reduction of poverty from 50% at independence to 3.6% in 2008 (Akitoby and Coorey, 2012). Structural transformation and a diversification of Malaysia's economy were facilitated by macroeconomic stability, high rates of saving and investment, and economic openness. Moreover, Malaysia invested heavily in energy and infrastructure and built an extensive network of highways which links it to neighbouring countries, as well as advanced telecommunication systems. By 2009, exports of manufactured products represented 70% of total export value, and 45% of Malaysia's total export value were electronics for the US and European markets (Akitoby and Coorey, 2012).

3. The primary sector in Africa past and present

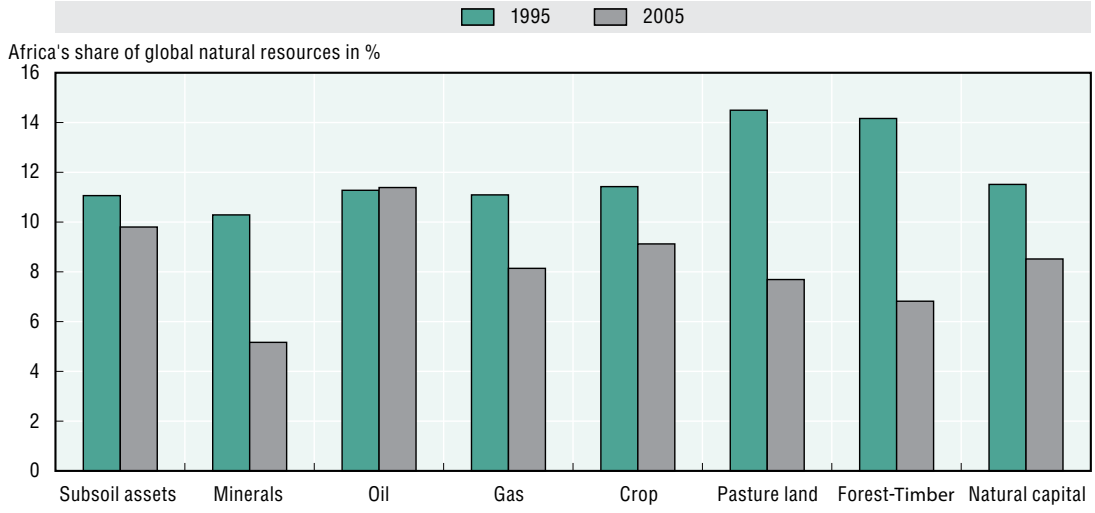
In brief... What has been holding back Africa is not the large share of its primary sector in itself, but the poor performance of this sector. The lack of agricultural transformation distinguishes Africa from other regions and exploration for mineral resources has remained below its potential while the negative side effects of extractive resources have often been managed poorly. There is some improvement. The recent boom in commodity prices has brought the expected growth effects, but exploration has also expanded much beyond previous efforts, largely driven by demand from emerging partners in the East and the South. Although exports of processed products have grown at a slightly slower pace than those of raw commodities, they have by no means been crowded out but gained significantly on the back of the trade boom in natural resources. At the same time, the massive inflows of foreign investment have helped job creation, particularly in the mining sectors, which are more labour-intensive than oil. In the future the resource price is likely to stabilise at a level higher than before the boom and the interest in Africa's resources will remain, opening a window of opportunity that Africa should exploit.

In spite of its potential, the primary sector in Africa has often been seen as contributing little to economic development. Previous attempts to diversify frequently came at the expense of commodity production, particularly agriculture, and resulted in slow growth. Agriculture was branded as backward and extractive industries as enclave activities that offer few opportunities for employment and generation of important expertise for higher value-added activities. The terms of trade of commodities were assumed to be on a perennial downward path (Prebisch, 1950; Singer, 1950). As a result, economic policies in African countries have often conferred market power on the purchasers of agricultural and mineral commodities rather than on the producers (Ndulu et al., 2008). Some of this was done on purpose, as in the case of export credits, which were frequently granted to ensure domestic processing, and export taxes which raised the price of exporting commodities for the same purpose (Radetzki, 2008). However, much of it was the result of a political economy stacked against commodity producers. Marketing boards, for example, were originally devised to ensure producers of soft commodities of stable prices for their products. But when urban political interests took over these boards, they soon degenerated into mechanisms to extract rents from the rural sector (Ascher, 1999).[27] Exchange rates were frequently over-valued, with the intention of making cheaper the import of investment goods necessary for industrialisation. The result, however, was to subsidise urban consumption and counteract structural transformation (Bruton, 1998). Slow growth was the result. The estimates reported in Ndulu et al. (2008) suggest that governments that adopted this mixture of policies lowered their countries' rates of growth by nearly 2 percentage points per annum 1960-2000.

Similarly, exploration for geological deposits of resources has remained below its potential. While the geological distribution of resources is bestowed by nature, resource abundance in economic terms is largely determined by the exploration conditions faced by investors. The value of known subsoil assets per square kilometre of sub-Saharan Africa is barely one quarter of that for high-income countries (Gelb, Kaiser and Vinuela, 2012; World Bank, 2012a). Assuming that at large levels of aggregations (like continents or country income groups) the distribution of resources should approach a common average, Africa's low ratio indicates that there are still many more resource deposits to be discovered there (Collier, 2011). Expenditure on mining exploration activity in Africa has long remained below USD 5 per square kilometre relative to an average of USD 65 in Canada, Australia and Latin America (Ncube, 2012). In addition to the overall difficult business environment highlighted in the preceding section, the low rate of exploration reflects inefficient incentive systems for exploration and insufficient public investment in geological knowledge of Africa.

Accordingly, in spite of significant expansion of the primary sector in Africa over the last decade, benchmarking with other regions shows that much potential has been left untapped, reflecting difficult conditions. The strong demand and high prices for natural resources from which Africa benefited had the same effect worldwide. Resource production and exploration increased in all regions of the world, and mostly faster than in Africa. As a result, notwithstanding impressive growth and significant expansion of commodity output during the last decade, Africa's share of global natural assets, which represent the present value of proven resources[28], declined. Figure 11 shows that Africa's share of global natural capital shrank from 11.5% in 1995 to 8.5% in 2005. Mineral assets are particularly noteworthy: Africa's share dropped by half from 10.3% to 5.2%. Oil is the only resource in which Africa kept its share of global assets.[29] At the same time, Africa's share of global output (Table 2) dropped only in mining and there only by 2 percentage points (or by 15%; from 14% of global output to 12% of global output). Africa's share in global output in energy and soft resources increased by 1 percentage point each. While production increased at a similar pace everywhere, other world regions have thus been able to add more proven reserves through exploration and new technology than has Africa.

Figure 11. **Africa's share of global natural capital decreased between 1995-2005**



Source : Authors' calculations based on data from World Bank (2012a) The Changing Wealth of Nations, http://data.worldbank.org/data-catalog/wealth-of-nations

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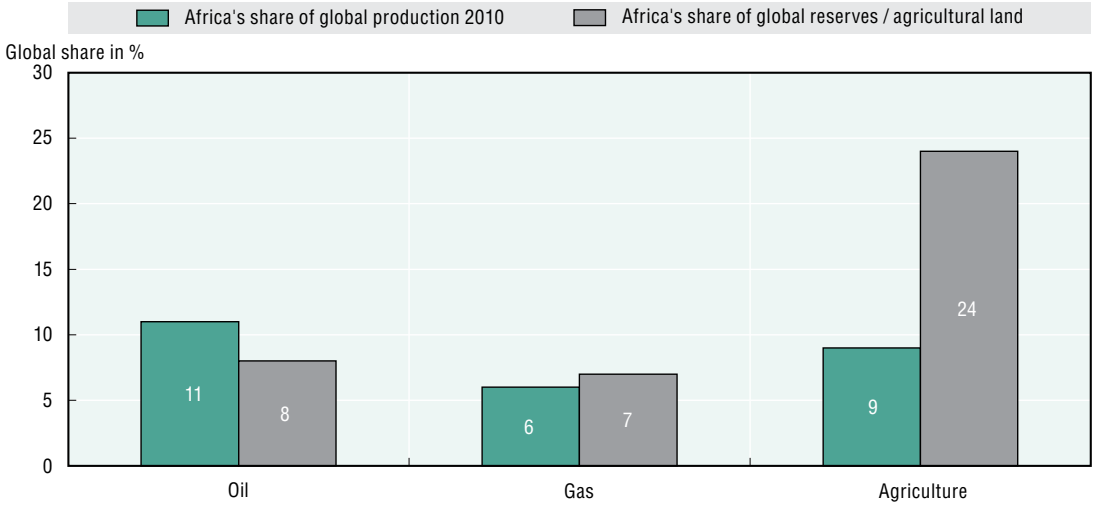
Especially agricultural resources have seen much of their potential untapped. A look at the difference between output and potential for different resources well illustrates Africa's agricultural gap. Figure 12 compares Africa's share in global resource production with its share in global reserves in 2010. In the case of soft commodities, agricultural land is treated as the underlying reserve. While reserves and production are quite close in the case of energy resources, they are far apart in the case of agriculture. Some 24% of the world's agricultural land is found in Africa, but it produces only 9% of global agricultural output. This ratio has hardly changed over the last 40 years. Africa's share in world exports of agricultural products has been constantly declining, from over 10% in the 1960s to 3% in 2010. Most of Africa's production of soft resources is for domestic consumption, especially in the case of food commodities. Non-food agricultural commodities account for only 2% of Africa's agricultural production and Africa's share of global non-food agricultural commodities dropped from 8% to 6% over the last decade. Although the expansion of agricultural production is not a matter

of exploring for new reserves, it is very much a matter of providing the right conditions for the sector and facilitating the implementation of state-of-the-art knowledge and its continued expansion through applied research.

In the search for oil and in its production, however, Africa has not lagged behind other regions. Oil rents are high and country conditions are less important. Oil stands out in Figure 11 and Figure 12. Africa has increased its share of world assets by 1% and it boasts a higher ratio of production to known assets than any other resource. That is largely because energy resources in general, and oil in particular, are much less dependent on country conditions than other natural resources. They boast higher rents,[30] can easily be exported in unprocessed form and are much less dependent on general infrastructure such as roads, railways and power stations than either hard or soft resources. Most metals, on the other hand, involve much higher production costs relative to their market price. Significant processing is required to make transport economically viable and deposit-specific technological challenges are significant.

Figure 12. **Production versus potential in Africa – soft resources have a long way to go**



Source: Authors' calculations based on BGR (Bundesanstalt für Geowissenschaften und Rohstoffe) (n.d.), Data on mining production provided for this report, FAO (2012), FAOSTAT, (database), http://faostat.fao.org, (data on soft resources), EIA (2012), "International Energy Statistics", www.eia.gov/cfapps/ipdbproject/IEDIndex3.cfm (data on energy), World Bank (2013b), World Development Indicators, http://data.worldbank.org/data-catalog/world-development-indicators (data on GDP and population).

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Where extractive resources boomed only a few countries seized the opportunity to aim for broad-based growth in the past. Many did not overcome dependence and continue to suffer from the "resource curse". Cross-country comparison shows that natural resource abundance (measured by reserves or production of natural resources) *per se* is linked to positive outcomes such as long-term growth, whereas dependence on natural resources (measured as the share of natural resource exports in total exports or the share of natural resource rents in GDP) comes with serious challenges (Brunnschweiler and Bulte, 2008; Gylfason, 2007).[31] As the preceding section has shown, initial dependence on natural resources in poor countries is to be expected, but can be overcome if managed well. However, many African countries have failed to turn resource wealth into inclusive economic development. Instead small elites control resource rents and good jobs remain scarce. Nigeria provides a sad example of a country that squandered much of its oil wealth through corruption. Angola stands out as an example of "Dutch disease", which describes the process of soaring price levels crowding out the non-resource economy.[32] Equatorial Guinea has a per

capita income level on a par with the European Union (EU), but because of extreme inequality most of its people continue to live in abject poverty.

Instead of managing volatility many governments exacerbated its effects through spending. The lack of financial access added to the problem. Natural resources are subject to substantial price volatility. In countries with a large share of natural-resource exports international resource-price volatility translates more or less directly into an unstable exchange rate and bouts of inflation, as there are relatively few other exports which could cushion the effect. The increasing uncertainty can quickly crowd out the non-resource economy which needs a more stable environment to prosper.[33] Cross-country comparison shows that controlling for volatility can eliminate most of the negative effects of natural-resources dependence (Van der Ploeg and Poelhekke, 2010). To manage volatility, an economy needs well- developed financial sector institutions that can provide liquidity in times of crisis and turn excess capital (in the form of savings during booms) into efficient investments. However, dependence on natural resources acted as a brake on financial sector development[34] and the relationship between the share of natural resources in GDP and the lack of access to finance across African countries remains positive. Government plays an important role, too. Instead of managing volatility through counter-cyclical government spending, many African governments exacerbated its effects by unsustainable spending and wasteful investments during boom times instead of building reserves for leaner years.

Combinations of rent-seeking and insufficient transparency led to waste and continued dependence. Research has shown that countries where non-competitive bidding and non-transparent contracting procedures exist are likely to face a large "corruption premium" on capital-intensive projects. Public investment in those countries is typically larger than average, but expenditures for maintaining public capital are extraordinarily low, which obviously undermines the efficiency of the investments (Tanzi and Davoodi, 1997). This is illustrated by the Ajaokuta steel mill in Nigeria, which was built by a parastatal body with government backing. More than USD 4 billion have been invested, but the mill has never been finished. After the end of the military government in December 1998, reports emerged about USD 2 billion, which had been siphoned off from the project into the pockets of leaders of the past government (Pritchett, 2000). In the same vein, revenues from natural resources can break the accountability link between government and citizens when governments can rely exclusively on such revenues without the need for any further tax collection from citizens. Consequently, the institutional environment will develop to ensure the government's power, not prosperity and common rights for all. This includes preventing the emergence of strong non-resource sectors in the economy as they could become the basis for the emergence of powerful groups that in the long run will demand political changes.

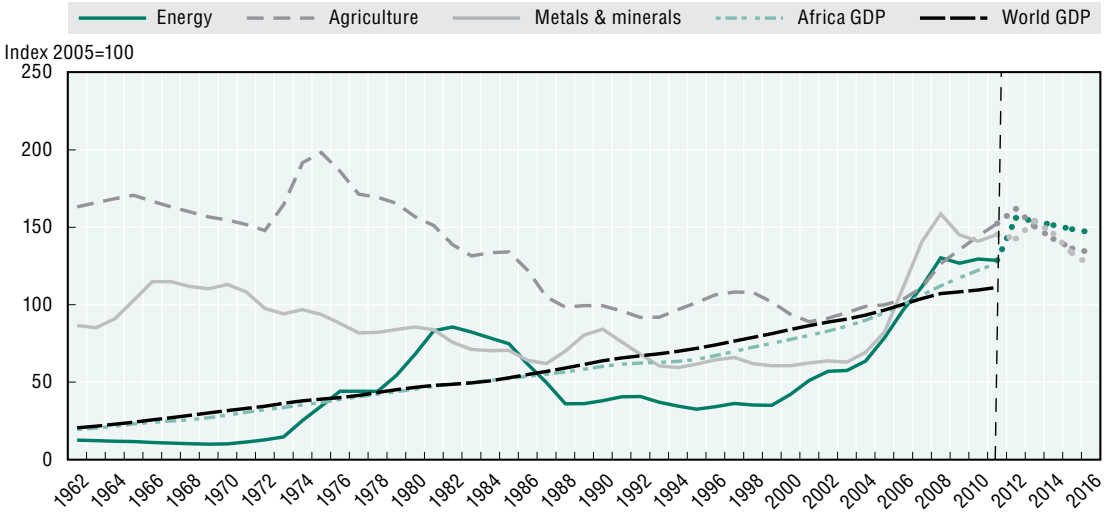
Environmental impacts often went unchecked. In the past, exploration, mine development and waste disposal have at times led to substantial land degradation, which adversely affected local habitats and compromised alternative land use. Air quality suffered mainly from the smelting of copper and other non-ferrous metals that led to toxic dust pollution, sulphur dioxide emissions and acid rain (Warhurst, 1994). In some cases mining-related operations depleted or degraded surface water, ground water and local aquifers through drilling, acid mine drainage, chemical leakages, soil erosion and waste piles. Nigeria's Ogoniland represents one particularly severe case of environmental pollution due to resource extraction. Although the oil extraction in the region stopped in 1993, there is still widespread environmental destruction and contamination (UNEP, 2011).

Some of this has changed. Improving terms of trade and the reversal of past policies have led to the recent revival of the primary sector, contributing to growth and structural change. Between 2000 and 2011 prices for metals and fuel more than tripled and reached unprecedented levels, overtaking their previous maximums from 1967 (metal) and 1982 (oil) in 2006 and 2007. Prices for agricultural commodities reached levels not seen since the 1970s and are currently 50% higher than they were in the 1990s. Although many countries in Africa are net resource importers, overall the continent has benefited significantly from the resource boom. Between 2000 and 2011 Africa's GDP grew by 64%, double the rate of world economic growth (Figure 13) and natural resources accounted for roughly 35% of this growth since 2000. At the same time, the renewed commitment (see Box 6) to agriculture has increased the sector's productivity, freed up labour and thereby contributed to structural change.[35] The long period of decline in agricultural productivity was associated with increases in employment in agriculture and the recent uptick in agricultural productivity is leading to the positive structural change outlined in the preceding section.

Box 6. The Comprehensive Agricultural Development Programme: A sign of new commitment to agriculture

The commitment of governments to agriculture is illustrated by initiatives such as the Comprehensive Agricultural Development Programme. The Comprehensive Africa Agriculture Development Programme (CAADP) is an Africa-led and owned agenda that serves to provide a common framework for policy and partnership renewal in the agricultural sector. CAADP's primary objectives are to increase investment in agriculture and improve agriculture policy and strategy design and implementation. Through these outcomes, CAADP is supposed to help meet the goals of higher growth, poverty reduction, and food and nutrition security. Specific benchmarks for participating countries are to allocate at least 10% of the national budget to the agricultural sector and achieve an annual agricultural growth rate of 6%.

Figure 13. **Africa has benefitted from rapidly improving terms of trade of natural resources. Prices will remain at a higher level than before 2000 but come down from their peak**



Note: All series are indexed to 2005=100 and shown as a 3-year moving average; 2012 onwards are projections.
Source: Authors' calculations based on World Bank (2012b), *Global Economic Prospects: Managing Growth in a Volatile World*, Volume 5, June 2012, World Bank, Washington DC and World Bank (2012a) *The Changing Wealth of Nations*, http://data.worldbank.org/data-catalog/wealth-of-nations.

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In spite of continued setbacks, indications suggest that Africa is also getting better at avoiding the resource curse. Ghana is a new oil producer and started production in 2010. Its Petroleum Revenue Management Act (Government of Ghana, 2011) is considered strong and transparent by international observers. It provides for the creation of a stabilisation fund and a heritage fund. The former cushions the impact of potential oil revenue shortfalls, while the latter provides an endowment to support the welfare of future generations. In addition, since 2011 Ghana's Ministry of Finance has successfully been hedging both oil imports and exports in order to preserve macroeconomic stability against volatile oil prices. Ghana has also been able to preserve its democracy despite the presence of oil. Nigeria has managed to embark on a democratisation process despite its oil dependence. Although problems with corruption and a difficult business environment continue, much progress has been made in the management of public funds. At the same time, because of budgetary pressure Nigeria and Egypt are in the process of abandoning, or at least significantly reducing, unsustainable fuel subsidies. More and more countries are signing up to initiatives that promote transparency of resource revenues to ensure citizen control and responsible spending. International regimes set up to prevent the trade in conflict minerals,[36] which often serve to finance violence, have proved very effective. Awareness of environmental challenges has increased as well. A recent example is Morocco's leading phosphate producer OCP, which has established activities for water saving, desalination and recycling to limit its use of this "scarce and costly" resource (OCP, 2012).

High global demand led to an expansion of natural resource production. Table 2 shows that resource production in Africa expanded significantly between 2000 and 2010 for all resource categories. Measured in real terms, both soft and energy resource production increased by about a third, and mining output by about a quarter, with important variation between different metals and hydrocarbons.

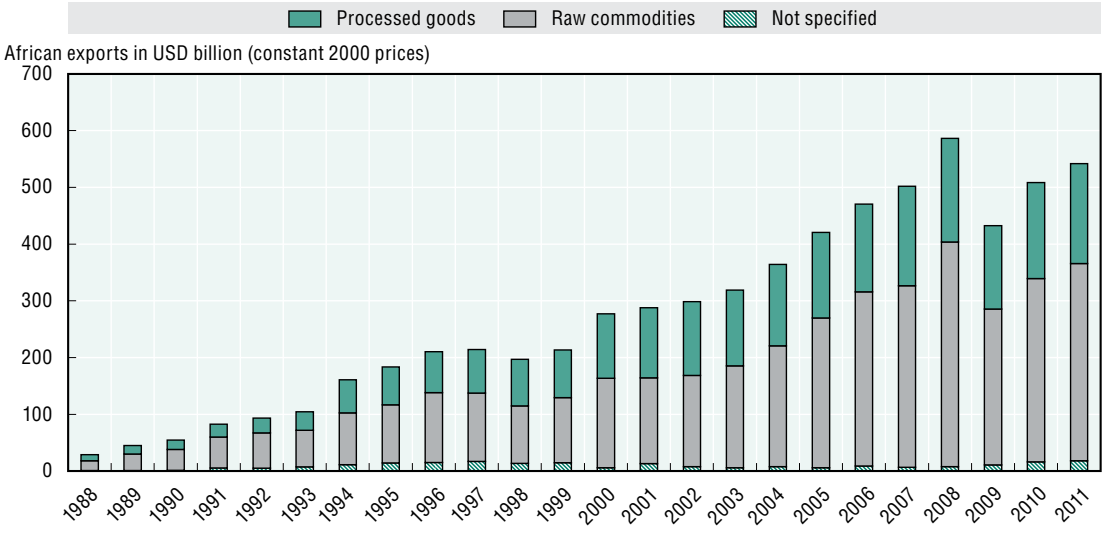
Table 2. **Africa's natural resource production 2000, 2010 and future potential**

	2000			2010					
	Africa's share of global production in %	Value of Africa's production (2010 USD million)	Number of countries 2000	Africa's share of global production in %	Value of Africa's production (2010 USD million)	Number of countries 2000	Real output growth 2000-10 in %	Difference in countries	Future potential
PGMs	55	10 588	2	74	14 191	4	34	2	By 2017 33% output increase
Cobalt	43	490	6	62	1 775	8	262	2	By 2017 87% output increase
Diamonds	45	4 265	16	54	4 967	17	16	1	By 2017 14% output increase
Chromite	51	1 578	4	42	2 442	4	55	0	
Manganese	32	493	4	30	3 131	8	535	4	
Phosphates	28	4 607	10	26	5 662	10	23	0	
Gold	24	25 568	36	19	19 947	39	-22	3	By 2017 53% output increase
Uranium	17	111	3	19	1 013	4	813	1	
Copper	3	2 871	11	8	7 806	12	172	1	By 2017 86% output increase
Nickel	5	1 225	5	5	1 535	5	25	0	
Iron ore	5	4 637	10	4	6 404	9	38	-1	By 2017 466% output increase
Mining total	14	59 592	44	12	73 286	44	23	0	
Oil	10	216 001	18	11	284 875	19	32	1	
Gas	5	39 036	14	7	68 423	18	75	4	15-20% growth additional to normal expansion from new fields in Mozambique and Tanzania
Coal	6	21 266	15	4	23 759	13	12	-2	
Energy total	10	276 303	11	377 056		36			
Food	8	195 082	54	9	260 910	54	34	0	
Non food	8	5 618	54	6	5 729	54	2	0	
Agriculture total	8	200 675	54	9	266 605	54	33	0	
Timber	12%	77 267	46	13%	87 229	54	13%	8	

Note: Agriculture total does not include timber. Natural gas valued at average European price.
Source: Authors' calculations based on BGR (Bundesanstalt für Geowissenschaften und Rohstoffe) (n.d.), Data on mining production provided for this report, FAO (2012), FAOSTAT, (database), http://faostat.fao.org/, (data on soft resources), EIA (2012), "International Energy Statistics", www.eia.gov/cfapps/ipdbproject/IEDIndex3.cfm (data on energy), World Bank (2013c), "Commodity Price Data - Pink Sheet", http://econ.worldbank.org/WBSITE/EXTERNAL/EXTDEC/EXTDECPROSPECTS/0,,contentMDK:21574907~menuPK:7859231~pagePK:64165401~piPK:64165026~theSitePK:476883,00.html.

On the back of high prices and increased output, Africa's exports boomed and showed that growth in manufacturing exports can go side by side with a strong natural resource economy. However, reflecting terms of trade, commodity exports grew faster than those of processed goods. Among the main arguments brought forward against growth based on natural resources is that it threatens to crowd out the manufacturing sector, which can be the engine of structural transformation by providing productive jobs for low-skilled labour. Between 2000 and 2011 Africa's exports of raw commodities expanded by 120% in real terms from USD 160 billion to USD 350 billion (both in 2010 prices). Instead of disappearing, however, processed goods from Africa equally expanded their reach, albeit only at half the rate of commodities. Exports of processed goods grew by 60% from USD 110 billion to USD 180 billion (both in 2010 prices – Figure 14). The difference in the speed of growth by comparison with raw commodities resulted in processed goods dropping from 40% to 30% in Africa's export basket. Contrary to scenarios of a deindustrialisation of Africa, however, the higher share of natural resources merely reflects the change in terms of trade, documented above. In the mining sector, for example, most of the recent increase in prices has gone to miners, not processors. Refining charges accounted for 30% of the price of refined copper in the 1990s but are down to less than 10% today.

Figure 14. **Africa's exports benefitted from a natural resource boom, but processed goods did not lose out**



Source: Authors' calculations based on UN (2013), UN ComTrade, (database), via http://wits.worldbank.org/wits

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Despite the capital intensity of the extractive sectors, the expansion of natural-resource production has created a large number of jobs. The previous section highlighted the importance of agricultural employment. Although most of these jobs are of low productivity they form the livelihood of almost half of Africa's population and an important source of demand for other products and services. Hagbladde, Hazel and Reardon (2009) estimate that one dollar of income from agricultural activities generates 50 cents in non-agricultural rural income. Although extractive industries are highly capital-intensive, they have generated a large number of productive jobs in Africa over the last decade. Greenfield FDI into natural resource sectors in Africa are estimated to have created about 600 000 jobs between 2003 and 2012 (fDi markets, 2013).[37] Of these 400 000 were created in mining, which, with three jobs per USD million of investment, is ten times as employment intensive as oil. Estimates of employment multipliers in mining range from 0.5 to three additional jobs in supply firms for every job created in mining (McMahon and Tracy, 2012; McMahon and Remy, 2001; Kapstein and Kim, 2011). Assuming a multiplier of two this would translate into 800 000 FDI-related

jobs in mining. In addition, an estimated 6 million Africans find their livelihood in informal artisanal mining (BGR, n.d.), although these are not the types of jobs that drive structural transformation as their productivity is much lower than that of jobs in formal firms (La Porta and Shleifer, 2011), artisanal miners benefited from high resource prices.

In the future, demand for natural resources will remain strong but the boom of the last years is likely to cool down. Growth patterns of the last decade and a general trend of growing natural- resource intensity in countries with per capita incomes under USD 16 000 (Komesaroff, 2012) suggest that demand for minerals will continue to be strong as China, India and other emerging economies continue to grow in the long term. However, this growth seems to be cooling off somewhat at the moment and China's growth pattern is likely to shift from investment to consumption, implying lower intensity in demand for hard and energy resources (but potentially higher intensity in demand for food commodities). Most price forecasters agree that stabilisation at a level somewhat below the current peaks is likely in the medium term (Courvalin and Currie, 2012; IEA and OECD, 2012; World Bank, 2012b; see also Figure 13). A drop back to the much lower price levels of the early 2000s, however, is unlikely because production costs have risen significantly, as new types of deposits have come on line that can only be profitably exploited at current price levels. A significant drop in prices would lead to supply constraints which in turn would support higher prices.[39]

Nevertheless, driven by recent discoveries, the expansion of proven reserves and resource production in Africa is set to accelerate. Recently important discoveries have been made in both oil and gas in a number of East African countries, from Uganda to Mozambique. In particular the gas discoveries off the East African coast in Tanzanian and Mozambican waters are very large and have attracted much international attention to the region, which until then had been a blank spot on the map of African subsoil resources. So far the finds amount to 100 trillion cubic feet, more than ten times Africa's current annual output and rivalling the world's largest fields, such as those in Qatar and Western Australia (Bloomberg, 2012a). Africa can also catch up in mining. Current projections are for output to expand at a significantly higher rate than in other world regions. The US Geological Survey (USGS) estimates Africa will expand its metal and mineral production of 15 important metals by 78% between 2010 and 2017, compared to only 30% in the Americas and Asia. In West Africa the resumption of mining for base metals such as iron ore and bauxite (the basis of aluminium) in Guinea[40] and Sierra Leone will quadruple the African output of these metals over the next years and most likely lead to significant expansions of known reserves. Cobalt and copper production from known reserves will expand by more than 80% in the Democratic Republic of Congo (DRC) and Zambia respectively. Over the long run, soft resources hold arguably the greatest potential for expansion, as the productivity gap between Africa and other world regions closes. To realise this potential, however, concerted action is needed and will be discussed in the last section of this chapter.

With a comparatively high price level remaining for some time and significant expansion of production over the next years, Africa faces a window of opportunity to create economic structures that can provide employment and income for all on the back of its resource wealth. First, the previous long decline in natural resource prices from the late 1970s until about 2000 (see Figure 13) had tilted the balance of competition far towards international investors, who received very favourable conditions from governments, often leaving little for domestic investment. Higher international demand gives African governments more leeway to negotiate for a bigger take of natural resource revenues. Second, the main supply constraint is at the raw commodity level and the terms of trade between raw and refined products have shifted. Primary production, Africa's comparative advantage, should be the main beneficiary of higher prices. This mechanism works most strongly in the case of hard

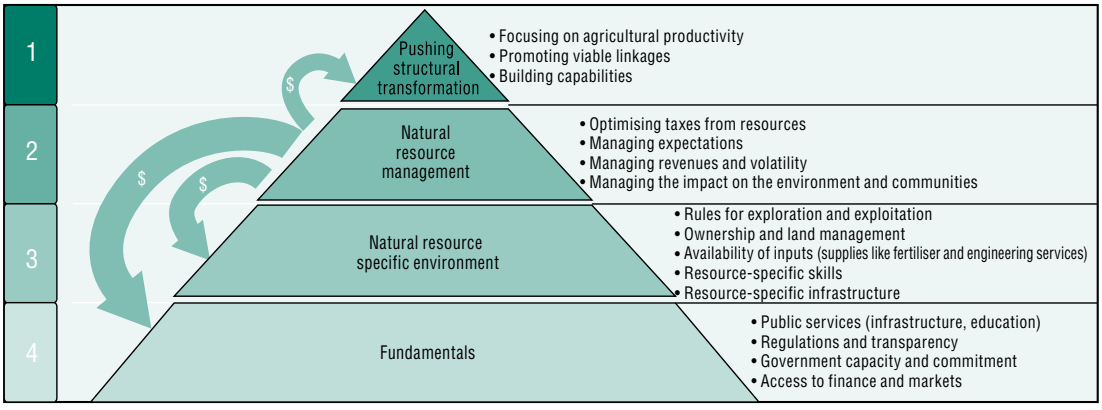
and energy resources, where refining margins have dropped significantly over the last decade. Unfortunately, it does not yet work well in the case of smallholder agriculture, where market power often lies with distributors that have a monopoly on purchases and do not pass on higher prices. Africa is thus set to benefit from an expanding primary sector, offering employment and linkage opportunities and bringing in more revenue that can be invested in structural transformation. The next section focuses on how Africa can make the most of this opportunity.

4. Getting it right: A four-layer approach to natural resource-based structural transformation

Examples of how to turn a country's resource wealth into good economic outcomes for all are to be found in all regions of the world and for every resource type. They show that resource production can *i)* create revenue, which can be invested strategically to promote growth and structural transformation; *ii)* stimulate growth in several sectors through linkages into and out of resource sectors; *iii)* support integration into the global economy through foreign investment. While the geological distribution of resources is given by nature, resource abundance in economic terms is largely determined by the exploration conditions faced by investors.

Natural resource-based structural transformation requires a four-layer policy approach that combines investment in fundamentals with a push for transformation. Figure 15 illustrates this. As the preceding sections have shown, irrespective of the sector, new activities with potential for structural transformation need a favourable environment if they are to thrive. Providing the fundamentals such as high-quality public services, a favourable institutional and regulatory environment, capable government and access to finance and markets constitutes the first layer. Where this is provided, entrepreneurial activity can bloom across the spectrum, in agriculture and extractives but also in manufacturing and services. The fundamentals also comprise transparent, accountable and inclusive governance systems which ensure that revenues are used for broad-based growth in the interest of society as a whole. The environment specific to the natural resource sectors constitutes the second layer for structural transformation based on natural resources. Extractive-resource exploration and exploitation need regulations that provide incentives for investment (see also Box 10), and all natural resource-related activities require effective systems of land management and ownership as well as a supply of skills and research specific to the resource sectors. Agriculture is often held back by insufficient supplies of fertiliser, a crucial input. Managing the special opportunities and challenges of natural resources constitutes the third layer and applies mainly to extractive resources. Optimising revenue from resource production in the form of a balanced tax system is paramount. The investment needs to provide the right conditions for structural transformation in Africa are immense and taking a fair share of resource revenues is crucial. Yet the past has shown that prudent management of revenues and spending is at least as important. Managing the impact of resource extraction on communities and the environment requires prudent management as well. The fourth and top layer is the realm of active government policies pushing for structural transformation. This push must differ from past attempts in two crucial aspects. First, it must focus on making agriculture more productive. Second, it must focus on viable linkages for which a business case exists. Most of these will be backward linkages, but forward linkages might be possible. In either case the creation of capabilities must remain a core objective.

Figure 15. **Natural resource-based structural transformation**
A 4-layer policy approach



Source: Authors' illustration.

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Evidently, one size does not fit all. Africa exhibits great diversity in natural-resource endowments and levels of development. Strategies for structural transformation must reflect this diversity. Despite recent new entrants such as Chad, Mauritania and Ghana in oil and Cameroon, Congo Republic, Ghana and Tanzania in gas, energy resources remain the most concentrated type of natural resource. Only 19 African countries produce significant amounts and four countries (Algeria, Angola, Libya and Nigeria) accounted for 77% of oil production and 87% of reserves in Africa in 2010 (EIA, 2012). In contrast, all African countries produce food and non-food agricultural commodities and 44 countries produce metals or minerals. Nevertheless, concentration is present as well. Four countries (DRC, Ghana, South Africa and Zambia) accounted for 70% of all mining production in 2009 (BGR, n.d.) and 15 countries account for 75% of Africa's agricultural production (FAOStat, 2012). The level of dependency on resources varies greatly too. Poor countries are always resource-dependent, middle-income ones may be. Table 3 shows the level of resource dependence measured as the share of gross resource production in GDP. In the poorest countries, resource production accounts for the lion's share of GDP (or even more than that, as gross production figures are used), reflecting the findings of this chapter's analysis of structural transformation. At higher levels of GDP two groups emerge: middle-income countries with a relatively high share of resources in GDP and middle-income countries with a low share of resources in GDP. Those with a high share of resources in GDP are exclusively oil exporters. The group with a low share of resources in GDP combines resource-poor countries such as the Seychelles, Mauritius and Cape Verde (not counting the beauty of nature as a resource), but also Botswana and South Africa, which rank seventh and eighth respectively in terms of per capita resource production in Africa.

Table 3. 2010 per capita resource production in Africa, large diversity in endowments and dependency

Country	GDP per capita (current 2010 USD)	Gross resource production per capita (current 2010 USD)					Resource production as share of GDP (in %)
		Hard	Energy	Soft - Food	Soft - Non-Food	Total	
Equatorial Guinea	20 703	3	15 053	108	12	1 5176	73
Libya	9 957	1	8 529	332	6	8 868	89
Gabon	8 768	536	4 744	311	19	5 610	64
Angola	4 322	31	2 944	270	3	3 248	75
Congo, Rep.	2 970	7	2 262	182	3	2 454	83
Algeria	4 567	11	2 034	335	3	2 383	52
South Africa	7 272	698	474	470	4	1 646	23
Botswana	7 427	1 145	34	233	0	1412	19
Sudan	1 994	13	439	617	10	1 079	54
Tunisia	4 194	88	292	606	4	990	24
Egypt	2 698	15	430	487	5	937	35
Nigeria	1 242	0	514	348	5	867	70
Namibia	4 876	441	0	324	3	769	16
Mauritania	1 045	438	69	261	0	768	74
Ghana	1 319	162	9	494	3	668	51
Cote d'Ivoire	1 161	17	86	487	46	635	55
Morocco	2 842	117	1	509	6	634	22
Swaziland	3 503	80	28	499	2	608	17
Zambia	1 253	370	0	192	27	589	47
Chad	761	0	324	235	6	565	74
Cameroon	1 147	1	99	406	22	528	46
Mali	613	112	0	399	14	525	86
Guinea	474	128	0	348	12	489	103
Niger	349	36	1	426	1	464	133
Benin	741	0	0	405	23	428	58
Central African Republic	451	5	0	381	7	393	87
Zimbabwe	595	155	22	178	37	392	66
Malawi	339	5	0	329	51	385	113
Rwanda	529	9	0	352	7	367	69
Mauritius	7 584	0	0	358	3	361	5
Guinea-Bissau	551	0	0	346	4	349	63
Burkina Faso	536	59	0	243	30	332	62
Tanzania	511	40	5	267	15	327	64
Sao Tome and Principe	1 215	0	0	322	0	323	27
Uganda	515	0	0	306	17	323	63
Madagascar	421	3	0	305	10	318	76
Kenya	795	0	0	268	24	292	37
Togo	527	19	0	250	11	280	53
Senegal	1 034	27	1	249	2	279	27
Sierra Leone	325	20	0	224	6	250	77
Burundi	242	0	0	241	4	246	102
Congo, Dem. Rep.	199	100	9	106	2	217	109
Mozambique	394	5	38	153	20	215	55
Ethiopia	358	4	0	185	10	199	56
Gambia, The	608	8	0	179	0	187	31
Liberia	247	0	0	148	32	181	73
Cape Verde	3 345	0	0	178	0	178	5
Comoros	736	0	0	155	0	155	21
Djibouti	1 203	3	0	123	0	126	10
Lesotho	1 004	3	0	111	6	120	12
Eritrea	403	0	0	87	1	88	22
Seychelles	11 130	0	0	83	1	84	1
Africa	1 689	73	373	332	11	788	47

Note: Data is presented in descending order by total resource production. Gross resource production values above 100% of GDP are explained by a large foreign share in production costs and profits.

Source: Authors' calculations based on BGR (Bundesanstalt für Geowissenschaften und Rohstoffe) (n.d.), Data on mining production provided for this report, FAO (2012), FAOSTAT, (database), http://faostat.fao.org/, (data on soft resources), EIA (2012), "International Energy Statistics", www.eia.gov/cfapps/ipdbproject/IEDIndex3.cfm (data on energy), World Bank (2013b), World Development Indicators, http://data.worldbank.org/data-catalog/world-development-indicators (data on GDP and population).

Box 7. Botswana, South Africa and Tunisia: Strategies for structural transformation that reflect diverse endowments and capabilities

Botswana's exceptional role as a major diamond provider enabled it to use its bargaining power to promote forward linkages. However, other attempts at creating manufacturing capacity failed. Through interaction with DeBeers, the lead diamond producer, the government acquired expertise in the organisation of the industry and exploited it to make the interests of DeBeers coincide with its own. In the 1980s processing was promoted through the establishment of a cutting and polishing industry for diamonds in order to create employment, even though DeBeers strongly opposed the idea. Under government pressure three factories for cutting and polishing were established. However, none of them has ever been profitable. Some observers assumed that these losses might have been created artificially through transfer pricing, in an attempt to prevent further pressures from the government to establish downstream activities. These assertions have, however, never been investigated (Morris, Kaplinsky and Kaplan, 2013). In 2005 the government used its bargaining power when renegotiating mining licences with DeBeers. Under the new agreement, 16 factories for cutting and polishing were licensed for operation. The government and DeBeers set up a 50-50 joint venture, the Diamond Trading Company which controls diamond supply and is required to release a specified amount of diamonds to local manufacturing companies. It contributes to employment creation by setting targets for training domestic workers. Penalties for non-performance mean incentives for DeBeers correspond with national interests (Morris, Kaplinsky and Kaplan, 2013). As part of the sales agreement, DeBeers will further "transfer its London-based rough diamond aggregation and international sales activity to Botswana by the end of 2013. This has the potential to transform Botswana into a leading diamond trading and manufacturing hub." (DeBeers, 2011). An attempt to diversify into car manufacturing in the 1990s, however, failed spectacularly after initial success, mainly because of previously underestimated competition (Good and Hughes, 2002).

In South Africa, long experience of serving the domestic mining industry led to the development of local technological expertise and a network of local suppliers (Morris, Kaplinsky and Kaplan, 2013). The upstream industry, based on the South African platinum group metals (PGM) industry, illustrates market-driven linkage development backed by government interventions. PGM-related mining operations in South Africa are the largest consumers of PGM-related goods and services in the world. The presence of this core clientele in South Africa was a crucial stimulus for the establishment of local supplier networks. Its development was further facilitated by the existence of suppliers to other commodity producers in South Africa, whose expertise provided a strong foundation to build on. Increased competition on world markets maintained pressure for cost effectiveness, which led to constant improvements in technology (Lydall, 2009). South Africa is now a net exporter of mining equipment and specialist services (Morris, Kaplinsky and Kaplan, 2013).

Tunisia, which lacks major resource endowments, applied a broad-based strategy promoting agriculture, manufacturing and services for economic diversification and used its geographical proximity to Europe to integrate into its economy. To diversify its economy, Tunisia identified as priorities aeronautical and automotive components, information and telecommunications technology (ICT), and offshoring, textile, leather and shoes as well as agri-processing. Even though the amount of its arable soil is limited, Tunisia has been able to develop a strong agricultural sector. While relying on a small number of goods, the country has been able to diversify into a variety of agri-business activities. Using its proximity to the EU Tunisia intensified economic integration by entering into a free-trade agreement (OECD and UN, 2011).

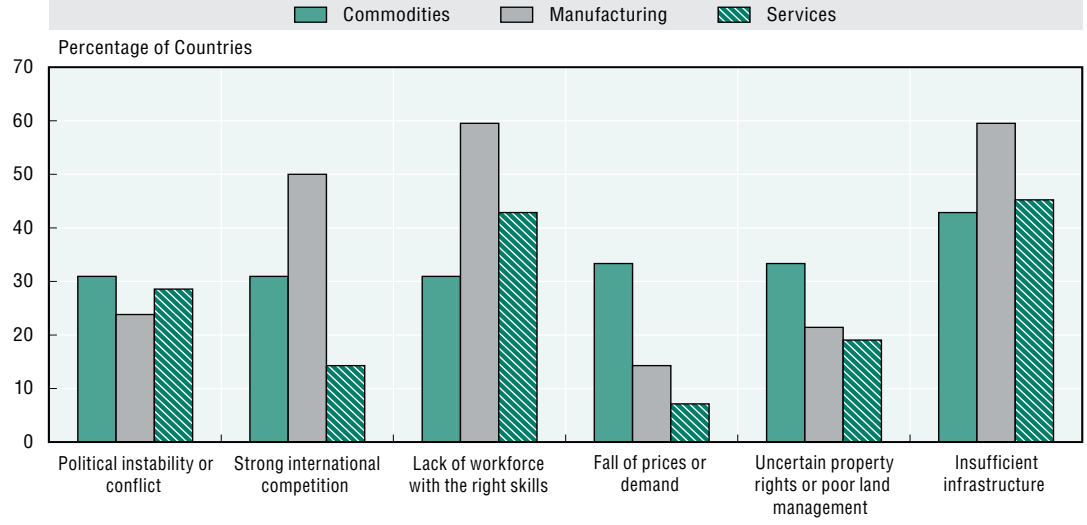
The rest of this section analyses the policy challenges in each of the four policy layers and draws lessons from the experiences of African and other economies.

4.1. *The first two layers: Putting in place the right conditions for structural transformation based on natural resources.*

In brief... Contextual factors such as the availability and quality of public services (including infrastructure and education), regulations and transparency, government capacity and commitment, and access to finance and markets make up a large part of the capabilities necessary for the acceleration of structural transformation. Many of the specific requirements of the natural-resource sectors are extensions of the fundamental conditions which all sectors of the economy need if they are to thrive. The following analysis, therefore, combines the perspective of the first two layers. Creating good conditions can be very costly; especially in Africa where many regions are sparsely populated and population growth puts pressure on education systems to expand. A realistic assessment of each individual country's situation and capacity needs to precede the formulation of feasible strategies for structural transformation. Specific bottlenecks should be tackled with targeted investments. In that way, the framework conditions for both enhanced structural transformation and the development of dynamic resource sectors can be improved (Venables, 2012).

Infrastructure is crucial for resource and non-resource sectors and a particular challenge for land-abundant Africa. In particular transport and energy infrastructure is an essential ingredient in a strong mining and agricultural sector. Both need good roads, perhaps railways, and power, which are also the basic bottlenecks in the growth of firms across Africa (Ramachandran, Gelb and Shah, 2009; AfDB, et al., 2012).[41] Figure 16 shows the answers by AEO experts on 42 countries to the question as to which were the main causes of negative change by sector over the last 20 years. The bars represent the percentage of countries where a given category was identified as an important cause of negative change. The strong impact of infrastructure on all sectors stands out. In over 40% of African countries insufficient infrastructure is seen as a major cause of poor past performance. Compared to more densely populated regions such as Asia or Europe, Africa is particularly challenged to provide its economy with the necessary infrastructure. Wood (2002) estimates that "Africa will need to invest at least twice as much of its GDP in infrastructure as will low-income Asia and will have higher recurrent charges for operation and maintenance."

Figure 16. **What were the main causes of negative change by sector over the last 20 years in Africa?**



Note: Answers represent the share of countries in the survey for which experts identified the given item as a main cause of negative structural change
Source: AEO country experts survey.
StatLink http://dx.doi.org/10.1787/888932807797

Energy provision remains the most important infrastructure obstacle, especially for industries based on natural resources. The importance of electricity for business development in Africa has been widely demonstrated (Harrison, Lin and Xu, 2013; Ramachandran, Gelb and Shah, 2009). It is cited as the most important obstacle to the growth of firms in many African countries. Nigeria is the most striking example, ranked as having the worst electricity supply in Africa, while its reserves of subsoil energy resources are the equivalent of several decades of electricity consumption in the whole of Africa. Iwayemi (2008) calls the prolonged dismal electricity industry performance in Nigeria "the most intractable infrastructural problem and policy challenge in the last half a century".[42] Electricity is crucial for structural transformation as it is a necessary requirement for most productivity-enhancing technology. At the most basic level electric light can enable people to use more hours of the day for productive activity. Simple machines can enable agriculture-based households to add economic activities such as sewing. The lack of energy also stands in the way of building on the resource economy. Energy is among the most important inputs to processing of any type of resource, hard, soft or energy. For many processing operations the cost of energy is among the most important determinants of economic feasibility. Allwood et al. (forthcoming) report that world production of materials requires about a third of total worldwide primary energy use per year. Table 4 shows that refining Africa's ore output of the four main base metals – aluminium (bauxite), copper, iron and nickel – would absorb more than Africa's total electricity supply in 2009. Improving Africa's energy supply would thus be a necessary condition for adding more value to resources. Under current conditions raw and semi-processed resources are best exported.

Table 4. **Energy needs for metal refining and Africa's energy generation capacity: A long way to go**

Country	2009 Electricity production (GWh)	2009 Energy need for refining of mining production (GWh), (bauxite, iron, copper and nickel only)	Energy requirement of base metal refining as share of total electricity output (in %)
Botswana	444	2 996	675
Tanzania	4 628	2 583	56
Congo, Dem. Rep.	7 830	7 738	99
Zimbabwe	7 878	411	5
Ghana	8 958	8 800	98
Zambia	10 308	15 946	155
Algeria	42 769	6 600	15
Egypt, Arab Rep.	139 000	7 200	5
South Africa	246 815	336 991	137
Africa*	664 051	764 210	115

Note: Only countries with information for both mining and electricity production are included in the Africa total. The total amount for Africa given in the last row includes countries with smaller amounts of mining output that are not listed in the table. The amounts reflect the production of ores for Aluminum (Bauxite), Steel (Iron ore), Copper and Nickel only. Calculations are approximate, using averages for ore content and energy needs per metal.

Source: Authors' calculations based on Ashby, M.F. (2013), Materials and the environment- Eco-informed material choice, Butterworth-Heinemann, Burlington, MA, Bundesanstalt für Geowissenschaften und Rohstoffe (BGR) (n.d.), Data on mining production provided for this report and World Bank (2013), World Development Indicators, http://data.worldbank.org/data-catalog/world-development-indicators.

Transport costs remain a particularly severe bottleneck and do not only affect infrastructure. Transport cartels and roadblocks hold back smallholder farmers and a lack of co-operation between countries limits the potential for large-scale mining. A recent World Bank report on the African food trade (World Bank, 2012c) identifies the lack of competitive transport services as a particular obstacle. Cartels are common and regulatory reform urgent. Roadblocks and corruption are other major obstacles (see also AfDB, et al., 2012). The report estimates that reform that delivers more competition could reduce the cost of transporting staples in West Africa by 50% within ten years. Small-scale producers such

as farmers or artisanal miners are the primary losers from inefficient transport. However, large-scale mining is affected too. Investment in Guinea's vast iron ore deposits has long been held up by a struggle between the mining firm Vale and the Guinean government over exporting the ore via Liberia, which would require Vale to build less railway track. Similarly, the exploitation of Mozambique's huge coal reserves have for a long time been held back by uncertainty over the available transport routes.

Providing infrastructure for resource industries offers opportunities for the wider economy. In particular, the enormous infrastructure needs of mining operations can also provide opportunities. In Australia the provision of water pipelines to gold mines in the interior of the country made possible the irrigation of land and the development of significant wheat production (Doepel and Bolton, 2013). Roads and railways to large mining sites can bring much-needed transport infrastructure to remote areas. Where the power needs of ore processing require the construction of new generating capacity, such capacity can also serve the wider economy in the area. At about 28 megawatts the energy required to refine 10 000 tonnes of copper, roughly 2% of Zambia's annual production, for example, would be equivalent to twice Benin's current electricity generating capacity. Entering a partnership with resource-extraction firms to generate just a little more energy than what is needed for processing could have a large impact on the electricity supply in many African countries. As discussed elsewhere in this chapter, however, subsidising energy costs on the basis of gas or oil reserves should be avoided.

The supply of skilled labour has been a crucial element of resource-based structural transformation. Although the lack of a skilled workforce trails more pressing obstacles to business development in enterprise surveys in Africa, the relationship between skills and economic development has been amply demonstrated in the literature. Wood and Mayer (2001) show that skill per worker measured in average years of schooling is a strong predictor of the ratio of processed to unprocessed primary products in a country's exports. In many successful resource economies the supply of skilled engineers has proved crucial. In the United States and Sweden technical universities were established to support the resource sector. Later these institutes became the backbone of a range of research-intensive industries, Stanford University and the University of California at Berkeley being the most famous examples. In Chile the state provided support for engineers to study abroad. Today Chile is a major supplier of engineering services. The country also invested in research, training and extension services that led to the creation of highly profitable agricultural production. Australia's poor performance in the late 1800s and early 1900s was largely due to the lack of engineers and the lack of exposure to modern technology that would have made more deposits exploitable (Wright and Czelusta, 2004).

African countries must provide the right skill mix for their resource endowments. This requires anticipating skill needs and making the most of foreign investment. Last year's edition of this report highlighted the mismatch between the important role of agriculture in Africa's economy and the small number of students in agricultural faculties, representing only 2% of the total student body. At present few African engineering firms exist that could take advantage of the many opportunities offered by the exploration and the development of new extraction sites of hard and energy resources.[43] Anticipating the skills needs[44] of the economy based on its current and likely future structure and providing the right education to meet these needs are essential tasks African governments must fulfil. In addition, making the most of resource-bound foreign investments must be part of any skill-building strategy. Foreign investments in natural resources usually come with a high technology content that offers the potential for building advanced skills. Placing training and local employment requirements on foreign investment can ensure that a skill transfer takes place. In addition, educational institutions such as schools and universities should strive to be in close touch

with both foreign and domestic operators better to understand their specific skill needs and build co-operation programmes.

Applied research in natural resources has been fundamental to structural transformation elsewhere and has so far been Africa's Achilles heel. Fafchamps, Teal and Toye (2001) identify insufficient research into export crops as a major factor behind Africa's declining share in world exports of tropical products. Africa encompasses a wide range of climatic conditions, limiting the economies of scale that are possible in agricultural research. This makes Africa more similar to Latin America than Asia, where new seeds and other innovations can spread much more easily (Wood, 2002). Nevertheless, the failure to develop effective agricultural research in Africa has been holding back productivity in the sector and therefore been a serious obstacle to structural transformation. Similarly, applied research in extractive engineering, metallurgy, forestry and pulp and paper, as well as in chemistry, have been crucial elements of success in other resource-rich countries and are sorely lacking in most of Africa.

Making the most of Africa's abundance of natural resources requires countries to benefit from the full talent pool available – men and women. The OECD Development Centre's Social Institutions and Gender Index, which measures discrimination against women in areas such as access to resources, discrimination in the family and access to public space, shows that the sub-Saharan Africa region has the highest level of discrimination against women. Further, the UNDP Gender Inequality Index shows that sub-Saharan Africa shows the highest level of loss in human development because of gender inequality. The gender gap holds back structural transformation in general and the natural resource sectors in particular (Box 8).

Box 8. **Closing the gender gap to accelerate structural transformation**

While large-scale oil, gas and mining operations can create employment, there are often gender inequalities in access to jobs and in their quality. Eftimi, Heller and Strongman (2009) find that it is rare to find any large-scale extractive companies with more than 10% female employment, with many having less than 5%. This is the result of gaps in education, discrimination in hiring processes based on beliefs about "men's work" and the norm of the male as the primary breadwinner. The exclusion from large-scale mining means that women are more likely to be in informal artisanal and small-scale (ASM) mining, often associated with poor pay and safety risks. Although women's participation in African ASM varies from country to country, a common feature throughout the continent is that it decreases as mines become professionalised and large-scale (Hentschel, Hruschka and Priester, 2002).

Women's unequal access to resources holds back agricultural production. Women are in the forefront of agricultural production and food security, with 63% of female workers compared with 48% of male workers in Africa depending on agriculture-based livelihoods (Agarwal, 2011). Yet unequal access to, and control over, land, property and technologies prevents women from contributing to and benefiting from agricultural production equally, particularly as women are concentrated in low or unpaid positions in the sector. Even where women are afforded equal legal rights to land and property in national constitutions or land legislation, discriminatory attitudes or the failure to change administrative practices in rural areas may result in discrimination in practice. Further, men are often the only individuals named in land titles with the result that women miss out on consultations about land use. Changes in land use may also increase

women's unpaid work burden in gaining access to food, water and fuel for the household (Eftimi, Heller and Strongman, 2009).

Countries have much to gain by removing discrimination and closing gender gaps. In large-scale mining, there is evidence that women employees typically take better care of equipment and are safer in operations (Eftimi, Heller and Strongman, 2009). Increasing women's access to formal and better-paid jobs in large-scale extractive operations and local suppliers will not only improve the status of women themselves but also have knock-on effects for the health and well-being of their families. In agriculture, the Food and Agriculture Organization (FAO, 2011) has estimated that if women farmers had the same access to productive resources as men, the resulting gains in agricultural productivity could lift as many as 150 million people out of hunger. Further, analysis by the OECD Development Centre has found that countries where women have equal rights in access to land produced around three times more annual cereal yields in 2009, compared to countries where women have no or few rights in access to land (OECD, 2012).

What policy actions are needed for a gender-sensitive approach? Countries should remove discriminatory laws and practices governing access to land and property; prioritise skills and technological training for women and girls; increase high-quality employment opportunities for women in large-scale extractive industries; improve conditions for small-scale mining; and ensure women's equal participation in consultative processes regarding natural resource development.

Poor property rights and land management systems are fundamental obstacles to a strong resource sector. Smallholder farmers need the opportunity to have access to sufficiently large pieces of land. To large investors overlapping rights often present considerable risks. Uncertainty about property rights and land management are a general problem for business development in Africa, but particularly so for the commodity sector (see Figure 16). Two issues stand out: for smallholder farmers stronger property rights are important to create incentives for investment and expansion and for large investors unclear and overlapping property rights present considerable risks. Most countries that have experienced successful resource-based structural transformation, such as Sweden, Indonesia and Malaysia, undertook, however, land reforms at crucial junctures. These reforms aimed at higher productivity through scale economies by giving individual farmers access to sufficiently large, coherent pieces of land and strengthening the links between effort and reward in the form of property rights. The generally poor state of land management and wide-scale absence of land register systems also impact on large extractive projects, as secure property rights or concessions over a site are among the primary conditions for the required large investments to flow in. Unfortunately, cases exist of large deals for agricultural or extractive projects between investors and central or regional governments where the customary usage of the land in question by the surrounding communities is ignored, often without the knowledge of the investing party. Such situations present a considerable risk of continuing conflict with the communities, which can endanger the project and have serious repercussions on the investing parent company (the Munden Project, 2013). To improve the state of land management, many African countries participate in the Land Governance Assessment Framework (LGAF) project (see Box 9).

Box 9. **Land Governance Assessment Framework (LGAF)**

Though past land-titling programmes in Africa were often unsuccessful, there is a renewed political commitment to improving tenure security. The success of these land tenure reforms in enhancing tenure security hinges on the appreciation of the diverse and dynamic nature of existing agrarian structures and tenure systems. These complex relationships demand context-specific analyses and interventions that recognise the plurality of the forms of access to land and control over it. The evidence suggests that many governments in Africa are fully aware of the complexities and are grappling with how best to address these issues. For example, several countries in Africa are participating in the Land Governance Assessment Framework (LGAF) that is jointly managed by the World Bank and the International Food Policy Research Institute (IFPRI). The LGAF is designed to bring stakeholders together in a country to take stock of existing land tenure practices, identify areas for interventions that would improve tenure security and monitor progress over time. The renewed interest in land tenure issues stems in part from increased foreign investment in land in Africa. As a result of this interest, many governments are also grappling with the issue of how best to screen commercial investments in land and how to engage local communities in the process. Important outstanding issues typically include: *i)* providing clarity on property rights, *ii)* valuation of land and *iii)* analysis of the economic and social costs and benefits of such projects.

The exploration and exploitation of extractive natural resources need good conditions and regulations that create the right incentives. Investing in public geological knowledge has proved important. The exploration and exploitation of mineral and hydrocarbon resources involve considerable risk and capital requirements. Public geological knowledge has been shown to be a very valuable tool in the exploration of the United States (see also Box 4), as it reduces the risk of exploration and improves the conditions for negotiating a fair agreement between exploiters and governments later on. In addition, regulations must reconcile incentives (Box 10). Exploration for new deposits is often done by small organisations that are willing to take on the often high risks of exploration and then sell their operation to one of the large multinationals once they achieve significant mining production. Exploration licences are often given for only a few years, subject to renewal by the government. Exploitation licences, on the other hand, are often provided for much longer periods of time. The possibility of losing an exploration licence after a few years of unsuccessful investment can be a strong disincentive to investing in exploration, especially where the risk of political change is high and where geological knowledge is scarce. Even where exploration is successful, the start of potential production requires significant additional investment and time. In the case of base metals the interval between finding a workable deposit and production of exportable concentrate can be up to 15 years.[45] Long gaps in time between initial investment and returns on this investment add to the capital needs of a project, decreasing the amount of risk that can be shouldered. In addition, the availability of public transport and electricity infrastructure is crucial for these smaller firms that are significantly more capital-constrained than the large mining houses. However, the latter have a lower appetite for risky exploration projects and much potential remains untapped because of the lack of infrastructure. The Africa Mining Vision (AU, 2009) recognises these challenges. Its action plan includes increased investments in geological surveys to improve public knowledge about deposits and continuous strengthening of government capacity to act as a strong partner and manager to the mining sector.

Box 10. **The regulations that govern natural resource exploitation must align incentives for exploration and exploitation.**

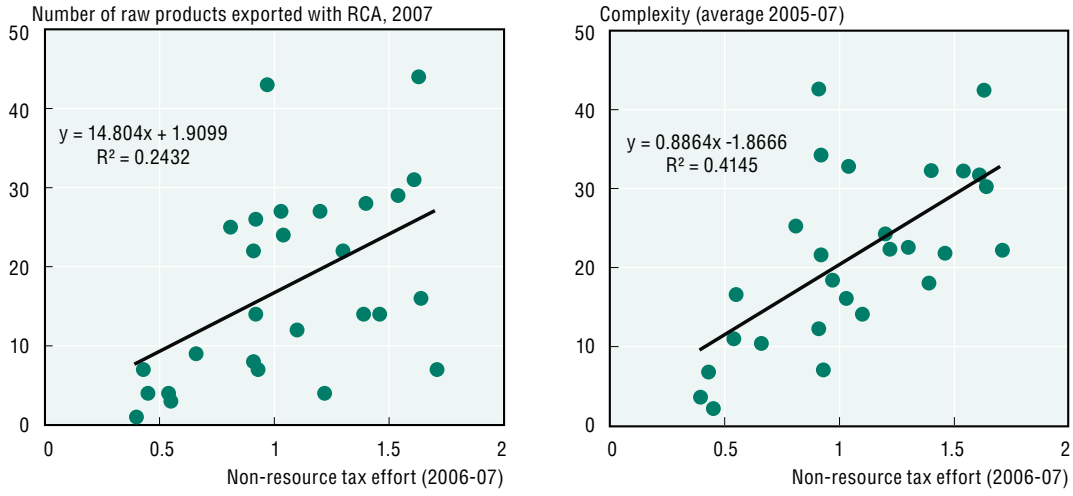
The case of the **United States** illustrates that even in a society with basically well-functioning institutions, the nature of resource-specific regulations was vital for the enormous economic contribution of natural resources to US industrialisation. The federal government initially claimed one third of all natural resources in the public domain and regulated mining activity closely for revenue purposes in the early 19th century. A leasing system for lead mines was maintained in several states, which required miners to obtain exclusive permits and bring their ore to officially licensed smelters from which a 10% royalty was collected. Because of noncompliance on all sides and the smelters' refusal to pay royalties, the system soon fell apart. It had been bypassed by federal agents who had sold mineral land as farmland for their own personal benefit so that three-quarters of mineral land passed into private hands. When gold was discovered in California the gold boom took place in a virtually complete absence of governmental authority. The principle of open access for exploration on the public domain was a *de facto* reality. Miners drew up simple rules among themselves to preserve order and minimise violent disputes. Many of the elements of these rules later became codified in the federal mining laws. Between 1870 and 1910, new resource deposits were continuously discovered in the US. This process was fuelled by permissive regulations and the *de facto* reality of open access for exploration in the public domain. The mining law included exclusive rights to mine a specific site upon proof of discovery, limits on the size of individual claims, and the requirement that a claim be worked at a certain frequency or else be subject to forfeit (Robinson, forthcoming).

The exploration and expansion of **Chile**'s resources were fuelled by public and private investments and regulatory changes. Even though the geological potential of the copper sectors in the US and Chile was very similar in the 19th century, Chilean production fell far behind that of the US between 1880 and 1920, mainly because of lower investment and major American technological breakthroughs. The large capital requirements and distant time horizons in the copper industry gave the US a comparative advantage, whereas the Chilean mining code discouraged the consolidation of mining claims at the time. In the early 20th century, however, large private investments in infrastructure fuelled the industry's development (Wright and Czelusta, 2007). During the 1990s, Chile's mining industry formed the basis for strong economic growth, based on successful exploration, mainly driven by the state-owned company Codelco, resulting in above-average investment activity. Chile's resources are owned by the state, and concessions for exploration and exploitation can be obtained from court. The rights for exploitation can be sub-contracted by the permit holder, which has resulted in Codelco holding more claims than it has the capacity to exploit. The system might therefore lead to suboptimal extraction levels, but generally enables exploitation by public and private actors (Korinek, 2013).

Competitive politics and broad-based tax systems are important elements of transparent, accountable institutions that share power between constituencies and are essential for structural transformation based on natural resources. Few elements of governance define the relationships between state and society better than the ways leaders come to power and the tax system through which citizens pay for the state. In Africa, party monopoly stands out as an obstacle, whereas competitive elections lead to better conditions. Harrison, Lin and Xu (2013) show that party monopoly is an important factor in explaining the productivity lag of firms in low-income countries in Africa compared to firms in other low-income countries. There are many factors involved: the suppression of open institutions that allocate resources to the most productive activities rather than to those elements that enjoy the ruler's favour is certainly chief among them. Bates, Fayad and Hoeffler (2012) confirm the importance of competitive elections for Africa. They find that in African countries where political leadership

was chosen in competitive elections governments exercised better (*i.e.* tighter) fiscal and monetary policies, spent more on agricultural research, witnessed higher educational achievement and provided more paved roads than in countries with authoritarian regimes.[46] Broad-based tax systems that strike a balance between resource and non-resource taxes reflect inclusive institutions. Where resource taxes crowd out other taxes, as in the case of many oil-producing countries, citizens do not pay for the state but nor do they get much in return. In Africa, non-resource tax effort, which measures non-resource tax collection relative to a country's tax potential,[47] has a positive relationship with measures of diversification and capabilities introduced earlier in this chapter (Figure 17). At the same time a strong reliance on resource rents is linked to lower levels of public capital (Bhattacharyya and Collier, 2013).

Figure 17. **Broad-based tax systems are important for structural transformation**



Note: The figures compare the relationship between non-resource tax efforts and a) the number of raw products exported with comparative advantage or b) average economic complexity, for a sample of 27 African countries.

Source: Authors' calculations based on UN (2013), UN ComTrade, (database),via http://wits.worldbank.org/wits Simoes, A. (2013), *The Observatory of Economic Complexity*, http://atlas.media.mit.edu/ and AfDB, OECD, UNDP and UNECA (2010), *African Economic Outlook 2010*, OECD Publishing, Paris, http://dx.doi.org/10.1787/aeo-2010-en

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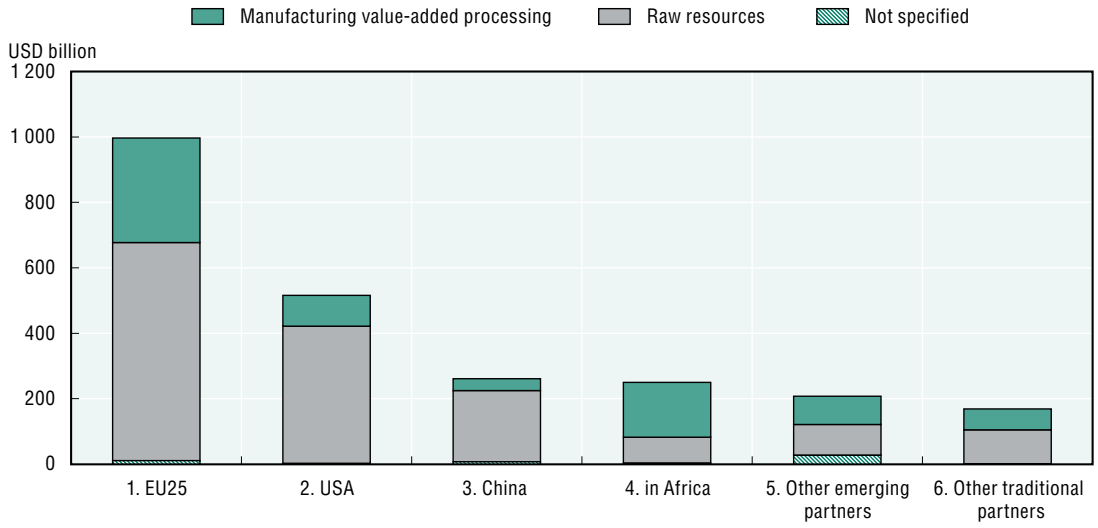
Access to markets is fundamental to structural transformation based on natural resources. Regional integration as well as better access to the markets of large partners could open new opportunities for all. The importance of market size and access is a standard finding of research aimed at understanding the drivers of growth and structural transformation in Africa. Being landlocked or small always comes with a significant burden on growth opportunities: see for example Ndulu et al. (2008) for country level evidence and Harrison, Lin and Xu (2013) for the firm level. Measures of openness to trade, on the other hand, are always correlated with positive growth and have even been shown to play an important role in mitigating the potentially negative impacts of natural resource dependence (see for example Van der Ploeg and Poelhekke, 2010). As pointed out in chapter 4, recent research on Latin America and the Caribbean shows that opportunities for structural transformation are higher for the Caribbean Community (CARICOM) as an integrated zone than for any of its members on their own (Hausmann and Klinger, 2009). The small scale of demand and supply that most African countries can muster individually has also been an important reason for the failure of past industrial policies. Natural-resource processing and advanced manufacturing often require large scale economies to be profitable. These can only be achieved where the

accessible market is sufficiently large and developed to generate the necessary demand for processed products and a sufficient supply of commodity inputs. Intra-African trade offers tremendous potential. Although it comes only fourth after Africa's trade with the EU, United States and China, it averaged more than USD 40 billion annually between 2005 and 2010 and boasts the highest share of manufactured products (Figure 18). Making the most of Africa's market requires strengthened efforts in regional integration. Stronger regional ties could also strengthen Africa's ability to negotiate better access to the markets of other regions that make up the bulk of Africa's exports. Better market access is of particular importance for structural transformation as tariffs on products escalate with increasing value added.

Figure 18. **Manufacturing intensity, by main destinations of Africa's exports (period 2005-10). Intra-African trade offers potential**



Source: Authors' calculations based on UN (2013), UN ComTrade, (database), via http://wits.worldbank.org/wits

StatLink http://dx.doi.org/10.1787/888932807835

Increasing effective market size includes the harmonisation of standards across countries. This is of particular concern for agriculture. Many African countries impose their own standards on seeds and fertilisers, arguing that they need to be adequate for the country's specific climatic and soil conditions. Given the large variety in these conditions across Africa, standards differ from country to country, preventing seed and fertiliser producers and importers from exploiting scale economies across markets. Because of the small market size of many African countries, the additional costs of meeting each country's standards are spread over a small volume of sales, in the best case increasing prices for farmers and consumers and in the worst case disrupting supply if the burden of a country-specific standard would render import or production unprofitable. This phenomenon lies behind dysfunctional fertiliser markets and high costs in many African countries (World Bank, 2012c). For standards to have a beneficial effect on exports and the development of linkages, they should ideally be international. Standards that apply to a sufficiently large market, such as the EU or a group of African countries, are a good second-best option.

4.2. *The third layer: Managing natural resources*

In brief... Layer 3 is crucial for the natural resources of countries that generate rents and can have significant impacts on the rest of the economy as well as on the environment. Resource rents can provide the revenue needed to reinforce the conditions in place for structural transformation (layers 1 and 2). At the same time, if not well managed, they can

wreak havoc through volatility and wastage as well as by replacing performance orientation with rent-seeking. Resource booms also carry the risk of crowding out other tradeable sectors by pushing up the exchange rate and the domestic price level[48] (Dutch disease). Finally, extensive exploitation also poses environmental problems that need to be managed. In the light of these challenges, this section reviews the questions of revenue optimisation and management. State ownership has not necessarily proved to be the most efficient tool of revenue optimisation. Taxing resource rents can be more effective, but comes with its own challenges, such as negotiating agreements that balance incentives for resource exploration and production with a fair take for society. Once revenues are in they must be well managed. Stable expenditures are crucial to counteract the volatility of resource-based revenues. This requires transparency and a good balance between savings, consumption and investment. The next challenge is to ensure that investments are efficient and not wasted. Layers 1, 2 and 4 of the four-layer approach to natural resource-based structural transformation provide the guidance for investment. Where investments are used to create the right conditions for productivity gains they can also help to overcome the challenges of Dutch disease.

The experience with state ownership in resource sectors is mixed and does not demonstrate that it is necessarily superior to private operations. Apart from the agricultural sector, where state involvement takes other forms than the ownership of production, large proportions of the hard and energy commodity sectors are owned and operated by states. This has mainly resulted from nationalisations in the 1960s and 1970s, driven by a perception that mining multinationals operated in an enclave fashion without paying attention to national needs and providing little opportunity for skill and technology transfer. In an attempt to speed up development, direct ownership was regarded as necessary to extract substantial portions of mineral rent, exert control over the industry and make sure it pursued national goals (Radetzki, 2008). Ample experience shows that state ownership was generally not successful in reaching those objectives.

The objective of exerting more control through nationalisation has not generally been achieved. In many cases, blurred principal-agent relationships have caused state enterprises to grow into political and economic powers outside any control and public accountability. In other cases, overlapping responsibilities and opaque structures invite rent-seeking and discourage new investments (Radetzki, 2008). This is illustrated by Cameroon's Société Nationale des Hydrocarbures (SNH), which has overall responsibility for managing the oil sector, and acts as a regulator and joint venture associate in all oil activities at the same time. In addition to that, its responsibilities overlap with those of two line ministries as well as other public agencies, a state of affairs which has led to an impenetrable and opaque web of financial flows (Akitoby and Coorey, 2012).

The objective of retaining a larger share of the rents from resource sectors has only partly been fulfilled. Even though the actual share of resource revenues accruing to the state increased after nationalisation in most cases, the overall rent has often decreased, so that public revenue in absolute terms declined. This was the case in Zambia, among others, where persistent inefficiencies and underinvestment after nationalisation, compounded by price declines, led to a reduction of public revenue from the copper sector (Box 11).

Box 11. **Capturing mining revenues in Zambia: Ownership, negotiation and legislation**

Before Zambia's revision of its fiscal regime in 2008, the country's mining industry generated limited fiscal revenue to underpin the country's development needs. Moreover, since Zambia's independence in 1964 the share of mineral revenue as a percentage of total revenue was on a long-term decline. This negative trend persisted across periods of rising prices and output (pre-1974 and from 2000 onwards). Between 1980 and 2000, the revenue in terms of royalties, corporate and other taxes generated by the mining sector as a share of total revenue was around 4%. Both internal and external factors explain this low contribution.

In an attempt to channel more revenues to the state Zambia gradually nationalised its mining sector following independence. Between the first half of the 1970s and the late 1990s, the state managed the copper sector. The lack of modernisation and investment in the sector led to lower copper output. In addition, international copper prices started a long-term decline after the 1970s. The ensuing financial difficulties of the mines, the arrival of new political forces in the 1990s and Zambia's embarking on its structural adjustment programme triggered the privatisation of the mines. Between 2001 and 2007 copper output and prices were on the rise again, yet the average share of mineral revenue in total revenue during that period was even lower, at 1.6%.

It is striking that both public and private ownership modalities of the mines have yielded so little results in terms of the fiscal revenue. Under state ownership the sector suffered from underinvestment and poor management, exacerbated by the collapse of the world copper market. Under private ownership revenue flows suffered from exceptionally favourable fiscal incentives in the form of low taxes, low royalty rates and long "stability periods" of 15-20 years. Prompted by the recovery of the copper sector, Zambia reformed its tax code in 2008 to capture a larger share of the revenue. Given the difficulties and capacity requirements involved in renegotiating bilaterally settled "Development Agreements", the government introduced new legislation, the Mines and Minerals Act 2008, to replace pre-existing agreements. A uniformly applicable legislation leaves less room for collusive behaviour and individualised contractual arrangements.

The impact of the new mining code on fiscal revenue is already being felt. In 2011 copper export earnings reached a record USD 6.7 billion in 2011 (36% of GDP), up from USD 600 million (14% of GDP) in 2003. For the period 2013-25 the additional revenues from the mining sector following the revised mining code are estimated around an average 5% to 7% of GDP. According to new estimates, if the new mining code had been in place during the boom years of 1998-2007 Zambia could have raised additional fiscal revenues estimated at around of 18% of total revenues or 3% of GDP, which could have significantly boosted the country's ability to fund its economic and social development.

Source: Simpasa et al. (2013).

Concordant forms of evidence confirm that there is a sizeable (though not unlimited) potential for improving tax collection in the extractive sector without harming investment. In general, international evidence suggests governments should be able to collect 40% to 60% of resource rents for mining and 65% to 85% for petroleum (IMF, 2012b). In a sector dominated by foreign multinationals, ensuring that a fair share of the resource rents is captured domestically has proved a problem for many African countries in the past, for reasons ranging from governance challenges to shortages of capacity to negotiate with multinational extractive companies. Tax administrations are also often at a disadvantage in handling large corporations, particularly when it comes to evaluating transfer pricing arrangements. Box 13 discusses the African Legal Support Facility which provides assistance and training.

Optimising the taxation of extractive industry consists in striking the right balance between several, sometimes conflicting, policy objectives: between collecting tax revenues and making investment attractive; between collecting revenues today versus tomorrow; between ensuring revenue stability and sharing risk and commodity price upside with private actors; and between negotiating in pecuniary terms and negotiating about real sector linkages in terms of infrastructure, technology transfers and local content requirements. The stronger the country's capacity to develop a strategy, to negotiate and to handle the volatility and unpredictability of resource revenues, the more favourable will be the deals the country will be able to extract from multinational companies. Accordingly, stronger macroeconomic policy frameworks and investment in the economic fundamentals and institutions that allow affordable access to international capital markets are the ultimate keys to upgrading the management of the natural resource sector.

Box 12. **Mozambique's most recent gas contracts: Could more have been made of them?**

Mozambique is today at a crossroads. After years of strong, yet not pro-poor, growth, recent discoveries of immense natural resources bring hope for a change of direction. The magnitude of Mozambique's recent gas discoveries represents one of the most important opportunities for the country's future socio-economic development. The country's upcoming National Development Strategy recognises the promotion and development of human capital as a fundamental issue in respect of the management of its resource wealth. Striking the right balance between investment versus consumption of future revenues could boost poverty alleviation and economic development, ranging from infrastructure to health and education.

In September 2012 the publication of the draft Gas Master Plan made possible a first assessment of the future share of profits that would accrue to the government of Mozambique. The plan presents several scenarios for utilising its share of the natural gas, ranging from revenue generation through liquefied natural gas (LNG) exports to domestic use for supporting new mega-projects.

In terms of assessing the share of profits that will accrue to the government, two basic metrics are useful: the "government take" and the "effective royalty rate" (ERR). The former is the percentage of the profits that the government receives over the lifetime of the project, while the latter represents the minimum share of gross revenues that a government will receive over the course of a single year, taking into account cost recovery deductions.

According to UNICEF's Mozambique analysis, the contracts governing natural gas production in Mozambique's Rovuma Basin (the site of gas finds which rank amongst the largest in years) provide the government with only an estimated 30% of the profits (government take), well below the global sector average of 55%. Still less promising are the timelines according to which government revenue will come on stream, exemplified by the 3.5% ERR (which compares very unfavourably to global sector averages of 25-30%). The fiscal regime for the Rovuma Basin is also an example of heavy "rear loading"; in the early years, on more than USD 2 billion in gross revenue per LNG train, the government can expect to receive less than USD 100 million.

Source: UNICEF Mozambique (2013).

In practice, radical solutions to this optimisation exercise are rare and optimal fiscal regimes for extractive industries tend to combine policy instruments responding to several policy objectives; furthermore, one size does not fit all, and framework design needs to take into consideration resource-dependence, volatility and the expected time horizon of resource exploitation. For instance, a modest *ad valorem* royalty ensures revenues whenever production is positive. Adding a regular corporate income tax guarantees that extractive

industries are taxed according to the normal return to equity at corporate level, just as in other sectors. Overlaying a specific tax on resource rents serves to exploit the particular revenue potential when prices rise above their normal trend and generate abnormal profits.

If the political economy of the country is such that periods of high commodity prices will result in severe political pressure to raise tax rates in the extractive industry, investors are better off having this political fact recognised and addressed up front. Ideally, contracts need to be designed *ex ante* to ensure that the country shares in the profits resulting from surges in commodity prices. However, countries can be locked into suboptimal contracts that are legacies of a period of weak government capacity and/or of poor governance. The country then needs to balance the risk of harming its reputation as an investment destination and the benefits from a more favourable share of commodity price rises. One policy option consists of building regular periods of renegotiation into contracts or into a framework mining law in order to improve the predictability and transparency of such processes. Another option can be to sign into law a provision that states that in the future the government will take a share of all additional profits and losses generated from rises in commodity price above a defined threshold. Such indexation has the advantage of sharing risks of gains and losses without having to renegotiate on a case-by-case basis and mitigates the damage to a country's reputation from outright renegotiating of contracts (Frankel, 2010).

Box 13. **Building capacity to negotiate fair and transparent contracts**

Why contracts matter

As this chapter recalls, successful experiences of natural-resource based development, as in Botswana, have seen strong institutions: *i)* effectively manage and allocate public revenues; *ii)* implement the right multi-sectoral policies and regulations; and *iii)* negotiate fair and transparent contracts. The latter provide the essential legal and financial basis for a long-term relationship between host states and private investors. They will:

- determine the sharing of profits between the country and the company, including issues of royalties and taxes;
- cover the issues pertaining to expenses and rent recovery costs, which are important as the parties are entering into long-term, capital-intensive projects;
- set standards in terms of local content, employment and environment, labour law, human rights, obligations and guarantees of the host state, stabilisation clauses, dispute resolution and arbitrage, competent jurisdiction and applicable law.

The case for support to negotiations and renegotiations

As a result of the lack of a capacity to enter into sophisticated transactions, cases of badly negotiated contracts are not uncommon in Africa, with negative implications for the economies at large: major delays may arise or even jeopardise the project; a change in the country's reputation may affect the volume of foreign investment; and when states deem the contract unfair, they tend to respond by terminating the agreement altogether.

Similarly, renegotiations should be carefully conducted. Many African countries entered into natural-resources contracts at a time when the prices of minerals, oil and gas were relatively low: the agreements and contracts were then structured in a way that would attract foreign investment, often to the detriment of host countries. With the lasting boom of commodity prices, a number of them have reformed laws and renegotiated contracts to secure more equitable revenue sharing and better overall deals. For example, the government of the Democratic Republic of Congo (DRC) successively adopted a new mining code (2000), reviewed mining agreements (2007) and made it compulsory by decree for all contracts in the oil, mining

and forestry sectors to be published (2011). Whether those initiatives helped improve the mining sector environment and secure long-term investment still remains to be seen; much depends on the many other aspects of public policies. Botswana, by contrast, built up the fundamentals of a strong sector by renegotiating legal and fiscal provisions on major projects in the mining sector, such as the Selebi Phikwe copper/nickel mine project. Strengthening the negotiating skills of African states is thus of paramount importance because of asymmetric technical capacities when facing major private companies. To this end, the African Development Bank set up the African Legal Support Facility (ALSF) in 2008 to assist African countries in the negotiation of contracts and complex commercial transactions related to natural resources by securing the services of competent legal support to act as government counsel. In 2012 alone, the ALSF received ten requests for legal assistance and training on natural resources contracts negotiation.

Source: African Legal Support Facility (ALSF).
www.aflsf.org/

A sustainable approach to revenue management that balances necessary investment with savings seems more appropriate for developing countries than the conventional advice that only the interest generated from revenues stored in an external sovereign wealth fund should be consumed. Managing revenues according to the permanent-income hypothesis ensures sustainability by preserving the wealth for future generations, and addresses the issue of the volatility of resource revenues which can lead to pro-cyclical spending patterns. However, the argument for front-loading consumption to match current needs is strong. Many African economies currently face problems of widespread poverty and a lack of access to capital for necessary investment (Berg et al., 2012; Baunsgaard et al., 2012). Where such investments are well placed, both incomes and consumption are likely to rise as development progresses, leaving future generations better off than the present one (Venables, 2012).

The main targets of investment for resource revenues should be the bottlenecks in the general and resource-specific environment (layers 1 and 2 in Figure 15) and the generation of additional private investment. Improving these framework conditions benefits both the resource sector and structural transformation. By enabling capability gains and productivity increases throughout the economy these investments are also a good way to enable growth in the face of worsening terms of trade in non-resource sectors as the result of Dutch disease effects (Venables, 2012; Sachs, 2007). Along similar lines, public investment can be used to boost private investment; either directly, by increasing access to finance through development banks, or indirectly, by refraining from sovereign domestic borrowing, thereby reducing interest rates for the private sector (Venables, 2012).

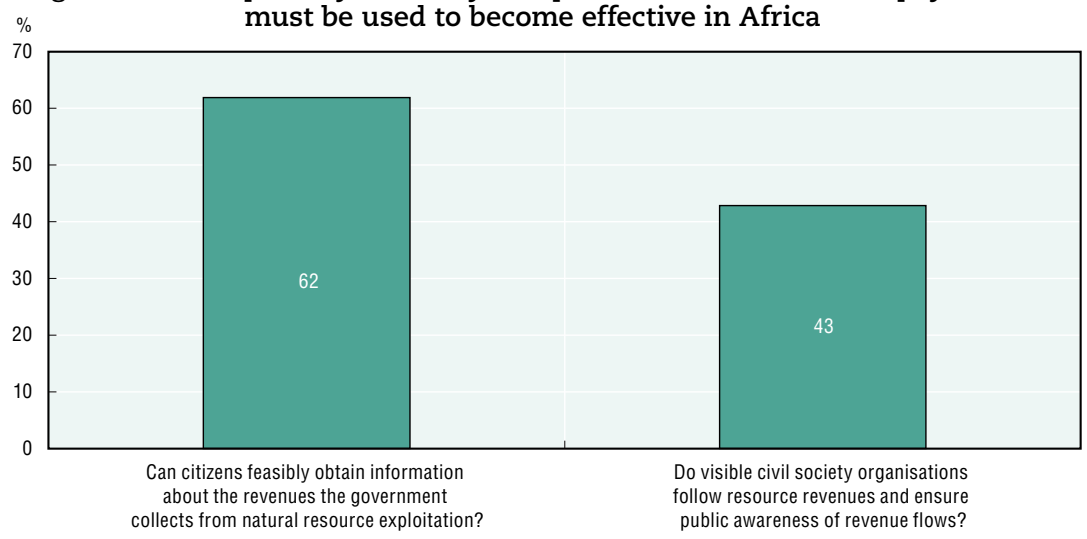
Investing resource revenues presents several challenges: efficient investment opportunities suitable for the economy's absorptive capacity need to be identified. Further, the maintenance costs associated with public investments must be accounted for. Even though the advantage of efficient up-front investment over saving has received theoretical backing (*e.g.* Takizawa, Gardner and Ueda, 2004; Venables, 2010; Van der Ploeg, 2010; Van der Ploeg and Venables, 2011a; and Araujo et al., 2012, as cited in Berg et al., 2012), the experience of many resource-rich countries shows that these investments do not necessarily have growth-enhancing effects, but on the contrary place a massive burden on a country (Gelb, 1988; Auty, 1990). The lack of investment efficiency stems from investment projects that were not well thought through (illustrated by examples of investments in processing facilities defying comparative advantage as discussed above) or lobbied for by special interest groups

in defiance of public welfare. Bottlenecks in absorptive capacity need to be accounted for when taking the investment decision. Furthermore, recurrent costs for operation and current expenditures are frequently not factored into the decision on investment projects, which can lead to a rapid decline in their productivity in the medium term (Berg et al., 2012).

To ensure that public investments are efficient and sustainable, initial revenue should be "invested in investing" (Collier, 2011). Whenever revenues cannot be invested efficiently, they should be stored in a stabilisation fund, together with the portion of revenues that is saved. Basing an investment decision on the project's efficiency thereby decouples government spending from revenue inflows and reduces the distortive effects of volatile revenue flows (Berg et al., 2012). Evaluating an investment project's efficiency and economic sustainability, while factoring maintenance costs into the investment decision, requires substantial capacity. Initial investments could therefore be targeted at increasing the capacity of governments to select, implement and evaluate future investment projects and handle the challenges constituted by sudden revenue inflows (Venables, 2012).

At the same time, transparency and accountability are crucial in constraining profligate government expenditures and ensuring truly counter-cyclical revenue management. In that respect, Chile has established a successful, innovative system. The country has a target for its budget surplus, which, at the same time, fixes a target for its deficit. To allow for some flexibility to be able to react to previously unforeseen circumstances, the government may run a deficit larger than the established target if *i*) output falls short of potential, or in the event of a recession, or *ii*) if the price of copper is lower than its ten-year equilibrium price. Two expert panels assess whether these conditions are fulfilled, which ensures the necessary flexibility to increase spending in times of crises, but reins in any attempts at explaining profligate expenses through slower-than-expected growth by formally establishing whether that has been the case. The Chilean model could be applied by other resource-rich countries and strengthened to adapt it to conditions of (potentially) weaker institutions. The procedure could be given legal force, and specific requirements for the qualifications for the experts on the panel could be fixed. Furthermore, to ensure the separation of decision-making powers and of the independence of the experts on the panel, provisions similar to those safeguarding independence for central bankers could be applied (Frankel, 2010).

Figure 19. **Transparency in theory and practice - information on payments must be used to become effective in Africa**



Note: Numbers reflect the percentage of positive answers from the AEO country experts survey.
Source: AEO country experts survey.
StatLink http://dx.doi.org/10.1787/888932807854

Several regional and international initiatives are targeting transparency as the key to better resource and revenue management. The information which thereby becomes available needs to be put to use to hold governments and multinationals accountable. Box 14 provides an overview of the wide range of international initiatives aiming to improve natural-resource management. The push for transparency has a positive impact, as the AEO country expert survey shows that in 62% of participating countries citizens can feasibly obtain information about the revenues collected by governments. However, in many countries more needs to be done to foster the ability of citizens to translate this information into action. Civil society organisations actively follow information on natural resource sectors and disseminate it to ensure public awareness in only 42% of countries for which this information is available (Figure 19).

Box 14. **"Locking in" better resource management from the outside: Regional and international initiatives**

A number of international initiatives aim to improve natural-resource management worldwide. They seek to affect the incentives of policy makers and steer their decisions in favour of a more effective management of natural resources for development, usually by strengthening domestic drivers of change. In the absence of a "silver bullet" mechanism to address governance weaknesses, so wide a range of international initiatives, public and private, binding and voluntary, may help alter the domestic political economy context and reform the dynamics of resource-rich countries.

African initiatives seek to shift incentives towards a pro-development path in resource-rich countries. The new pan-African impetus to boost development prompted the adoption of the Africa Mining Vision and its action plan. It puts emphasis on home-grown, African-driven initiatives to harness the development potential of the extractive sector. The specific role granted to the African Peer Review Mechanism (APRM) to scrutinise and advance better governance in the extractive sector is also an encouraging development. Natural resources also stand high on the agendas of other regional initiatives, such as the International Conference of the Great Lakes Region (ICGLR) and the agendas of many of the Regional Economic Communities (RECs) in Africa, such as the Economic Community of West African States (ECOWAS) directive on mining, the South African Development Community (SADC) Protocol on Mining, etc.

At the global level, a number of initiatives are particularly relevant for natural-resource exploitation in Africa by multinational enterprises. They include the Extractive Industry Transparency Initiative (EITI), the Kimberley process, the OECD Guidelines on Due Diligence for Responsible Supply Chains, and from a regulatory perspective, the US Dodd-Frank Act and the EU transparency and accounting directives. Private companies are sought to be held accountable via regulatory processes combating corruption (*e.g.* US anti-corruption legislation such as the Foreign Corrupt Practices Act), accounting disclosure obligations (*e.g.* the US Dodd Frank Act or EU Transparency and Accounting Directives), and appeals for commitment to abide by codes of conduct and due diligence principles (*e.g.* OECD guidelines or the recent Conflict-Free Gold Standard of the World Gold Council). Managing reputational risks is an increasingly important motivation of businesses and governments. The emphasis tends to be laid on making revenues more transparent, while enhancing the transparency and accountability of governments' expenditure is just as important (Kolstad and Wiig, 2008; AfDB, et al., 2010).

These initiatives focus on increasing transparency, which is supposed to lead to more accountability and in turn to better management of the resource sectors, taking into consideration the broad interests of society. The thrust of most of these initiatives is to promote transparency, as a voluntary good practice or an obligation, in the supply chains for natural resources and contracts and revenues from natural resources. The stakeholders concerned

are resource-rich governments and/or private companies. The strategy relies on the principle that greater transparency should lead to greater accountability and better management of natural resources; this can be done through naming and shaming governments mismanaging their resources, as well as through preventing them from doing so, or at least pressuring them not to divert or capture natural resources revenues. The decision by the International Monetary Fund (IMF) at the end of 2012 to withhold USD 225 million of loans to the DRC because of its failure to publish adequate details on mining contracts in 2011 illustrates the type of constraints used to promote a more transparent management of natural resources (Bloomberg, 2012b).

The approach currently emerging in Africa is one where greater emphasis is put on identifying synergies among various initiatives, and linking natural resources to broader development considerations. As a result, shifting away from the dangers of a resource curse entails not only a better management of natural resources, but also the harnessing of natural resources to the structural transformation of Africa, and to other African initiatives such as the Programme for Infrastructure Development in Africa (PIDA) and the Accelerated Industrial Development of Africa (AIDA). Provided such pan-African and parallel regional initiatives generate sufficient involvement by domestic stakeholders, the continental and regional frameworks offer a distinct avenue to altering the domestic balance of interests in resource-rich countries.

These initiatives have the potential to create new incentives, for both policy makers and economic actors, which may modify power relations and rent-seeking and patronage behaviours. The challenge remains to translate this potential into reality. That will require greater attention to the effective translation of generic policy designs into specific actions within, as well as across, policy frameworks, and in each of the countries concerned. In doing so, greater consideration should be given to how such initiatives can positively affect incentives for reforms and the balance of interests and power in resource-rich countries, i.e. the political feasibility of creating a virtuous cycle of development-oriented reforms.

Source: ECDPM
www.ecdpm.org

Where governments lack the capacity to implement fiscal regimes to optimise revenues and spend them efficiently, barter contracts might offer a possibility of acquiring desired public goods in exchange for extraction rights. The complex process of awarding the rights for resource extraction, setting up systems of taxation to capture fair shares of the rents and managing the revenue for strategic investments could be circumvented by asking for the provision of public goods and capital as a form of payment. Angola, Nigeria, Zambia and Zimbabwe have already experimented with barter-type agreements with Chinese consortia. Although many problems with the actual implementation of such deals are apparent, theoretically they offer several advantages. Low-capacity governments could bypass revenue collection, redistribution among government entities and the allocation to different projects, in the process of which significant shares of revenue are often lost. Other than that, these agreements could shift the burden of smoothing revenue fluctuations from governments to investors, channel foreign infrastructure into developing countries and facilitate government commitment to long-term projects which might otherwise be difficult to complete. To maximise the benefit for resource-rich nations, investors could be asked to offer comparable projects for the provision of public goods. The best offer would then be relatively easy to identify for governments in a competitive bidding process (Ross, 2012). In the absence of such competition and clear investment priorities on the part of the government, barter contracts risk fragmentalising the budget process through supply-driven projects.

When deciding about how to spend resource revenues optimally, expectation management is crucial. Subsidies as an instant way of letting the public share in the wealth of natural resources often lead to enormous disruptions of market mechanisms, as illustrated

by the problems in Egypt. The management of expectations has several dimensions. While spending ministries need to be aware of budget envelopes, the expectations of citizens as to what to expect from a windfall need to be realistic. On the one hand, citizens should hold government accountable for delivering the benefits of a country's resources. On the other hand, over-inflated expectations will not be met (Venables, 2012). The use of subsidies to let the public share in the resource wealth is a dangerous route to take. It can disrupt the economy enduringly and effectively limit a government's scope of action to rectify the imbalance. Egypt currently experiences distortions between very high domestic demand, existing resource wealth and insufficient production which are essentially driven by prices biased through subsidies. Originally a means to share the country's resource wealth with the population, Egypt has put in place a massive energy price subsidy scheme, which now risks undermining the very resource wealth it was meant to spread. Because of the subsidy, energy consumption is much higher than in comparable economies, and the government has incurred heavy losses from providing cheap fuel. However, the current political situation makes any revision of the system unlikely, while it keeps aggravating economic problems (see Egypt country note).

Direct distribution of resource revenues to citizens is another possible option. However, it might not generally be appropriate for the conditions in many African countries. This idea is based on the hypothesis that citizens "know how to spend their money better than does their government" (Frankel, 2010), and, at least theoretically, has several advantages. First, at least parts of the revenue are diverted from government, thereby limiting the distortion of incentives for government. Second, it gives citizens a powerful incentive to hold government accountable and monitor revenue management. Currently, a direct distribution system is in place in Alaska, where oil earnings are invested in the Alaska Permanent Fund. Half of the investment earnings from the fund are then distributed on a per capita basis. While the system is generally considered a success in Alaska, it needs to be handled with caution in countries with lower average incomes and weaker government systems. First, there is no guarantee that distribution funds will be any safer from misuse than other types of revenue management, and, second, distributive allocation potentially causes difficulties, as communities which are adversely affected by resource extraction might demand larger payments, which, if granted, could spark extensive migration of dividend seekers (Ross, 2012).

Box 15. **Managing environmental aspects of resource production**

To limit adverse effects of resource production on the environment, multi-stakeholder involvement is crucial. This ensures that a comprehensive assessment is made of potential threats to the environment and of potential for their prevention. In Kenya, effective partnerships have evolved between the state and private actors to manage the problems resulting from competing uses of water from Lake Naivasha. Commercial horticulture, agricultural smallholders and renewable energy creation use its water, and increasingly put the ecosystem's sustainability at risk. Coalitions between the public and private sectors have addressed these problems and come up with innovative solutions. These include capacity development and payments for ecosystem services by companies operating downstream to upstream smallholders to ensure more sustainable practices which have a positive influence on water quality and quantity (ODI, ECDPM and GDI/DIE ,2012).

Market-based mechanisms provide lead firms[51] with incentives to come up with innovative solutions for managing environmental hazards stemming from their activities. (Lead firms can be defined as small, medium, or large firms that have forward or backward commercial linkages with a significant number of micro, small and medium-sized enterprises). Having to pay for the full damage their activity inflicts on the environment, polluters have incentives to minimise the consequences of their actions. Leaving them the freedom to choose how to

minimise adverse effects stimulates the development of innovative solutions (Warhurst, 1994). In Morocco, best practice examples have been developed by the leading phosphate producer OCP, which has established activities for water saving, desalination and recycling to limit its use of this "scarce and costly" resource (OCP, 2012). In Benin, solar-powered drip irrigation is used to promote agricultural productivity. This innovative technology is environmentally beneficial as it replaces fuel-based pumps. Moreover, it has enabled greater and more varied agricultural production and increased farmers' incomes (OECD and UN, 2011).

The rehabilitation of production sites needs to be built in to the overall cost assessments and should be included in contracts with lead firms. Extractive industries, in particular, often leave large areas of land unfit for alternative use even after active resource production has ceased. Restoration often involves substantial costs, and therefore needs to be accounted for from the very beginning. Contracts with lead firms should therefore include regulations requiring them to rehabilitate production sites. The successful restoration of barren cement quarries in Kenya has become an international best practice case. Cement production had turned the area into industrial wasteland. Bamburi Cement, the lead commodity firm, accordingly hired an environmentalist to rehabilitate the site. The area has now been turned into Kenya's largest wildlife sanctuary and is a habitat for a large number of species (Lafarge, 2013). In Tanzania, the rehabilitation process of the Golden Pride mine includes a water management programme, rehabilitation of tailings (ore residue) and the waste dump, and a related reforestation programme (Piper, 2012). As companies have failed to fulfil their obligations to restore or transform abandoned sites, it is sensible to plan for these cases. Australia has recently legislated a new bonding mechanism to create a separate fund from which the restoration of abandoned mines will be financed (ABC News, 2012).

Continued demand for new, environmentally sustainable techniques could turn Africa's position as a latecomer to industrialisation into an advantage. Increasing environmental awareness, efforts to reduce carbon emissions and the need for a "social licence to operate" could fuel the development of innovative equipment and technology. As "latecomers" in industrialisation, African countries could be at the forefront in developing low-carbon technologies with low energy requirements for extraction and processing and mechanisms for waste management which are more environmentally friendly than existing ones in "traditional" processing hubs (UNCTAD and UN, 2012; Korinek, 2013).

4.3. Layer 4: Promoting structural transformation

In brief… Building on layers 1 to 3, the top layer comprises specific actions that governments, private sector investors and development partners can undertake to promote structural transformation through the natural resource sectors. Boosting the productivity of agriculture has proved an essential first step in most stories of successful broad-based development, be they from the distant past of OECD countries or from more recent experiences in East and South Asia. Africa stands out as the continent that is still waiting for agricultural transformation. Extractive industries offer a range of opportunities to set in motion a lasting process of structural transformation. The key is to seize the opportunities for the creation of employment and new capabilities that this sector offers. All stakeholders have a role to play in this process. Many examples have shown that this is possible.

4.3.1. Boosting the productivity of agriculture

The structure and characteristics of the agricultural sector differ markedly from those of the extractive industries. Accordingly, tailored interventions are necessary to boost agricultural productivity. For agricultural productivity to grow and drive structural transformation, farmers dispersed over a particular geographical area must be given access

to new technologies, many of which originate in the public domain but are embodied in inputs sold to farmers by investor-owned private firms. Farmers' output is also typically purchased by investor-owned private firms. Successful agriculture thus has a multilevel "hourglass" industrial structure, in which public-sector agricultural research and a few private firms provide inputs to a multitude of dispersed farmers, whose output is in turn purchased, traded and processed by a small number of private traders before being sold to a multitude of geographically dispersed consumers. In agriculture, dispersed farm households each earn small profits from their land and labour, which they reinvest in household enterprises both on and off the farm. Some farmers' savings may be mobilised through the banking system or through taxes, but most of the resource transfer to drive structural transformation occurs within farm households. The enabling conditions for this kind of success differ markedly from those for the mining sector, which is why the agricultural sector is to be discussed individually in the following section.

Agriculture is still the backbone of many African economies. Most of Africa's labour force still works in agriculture: the proportion is as high as 80% in a number of countries. Agriculture also accounts for large shares of GDP in most countries. In recent years, between 15% and 20% of GDP for the sub-Saharan region as a whole has originated in agriculture. More importantly, there is a steady rise in the number of people in Africa who have no choice but to earn their living by farming, in spite of rapid growth in non-farm employment, because the continent's total population growth is so fast and its non-farm sector is so small. In short, Africa's economies remain heavily rural and very poor, with rising numbers of farmers, in spite of rapid transformation into non-farm activity. The fate of those left behind by the transformation, including their ability to migrate and share in the benefits of structural change, depends on productivity growth within the farming sector. Recent evidence suggests that this growth did begin in the 2000s, and can continue to accelerate for a variety of crops across Africa. The implication is that if profitable, locally adapted technologies are made available and market failures can be overcome, smallholders can become more productive over time.

Large, formal firms seem to be less affected by the constraints on raising agricultural productivity, and linking them to smallholders could catalyse productivity increases. Very little is still known about the nature of the "binding" constraints on raising agricultural productivity in Africa. Four market failures are identified by Udry (forthcoming) as particularly salient: *i)* credit constraints; *ii)* imperfect insurance; *iii)* learning externalities; and *iv)* insecure property rights. The idea is that the presence of any one of these market failures could lead to underinvestment by farmers. This is, indeed, part of the story. But an equally important part of the story has to do with marketing and logistics because so much of African agriculture is landlocked, with very high transaction costs. As Collier and Dercon (2009) point out, there are good reasons to believe that large formal firms are less vulnerable to these market failures and that by partnering smallholders, they can be an important catalyst for productivity growth in agriculture. For example, formal firms are less likely to face credit constraints, for a variety of reasons. They keep records that can be audited, per unit costs of monitoring are lower, they often have collateral, and they often have access to international capital markets. Incomplete insurance is likely to lead to underinvestment in innovation by farmers. It also means that negative shocks can completely wipe out whole groups of smallholders. Large formal firms are more likely to have access to insurance for the same reasons that they can have access to credit. In addition, they will be more willing to experiment because they have deeper pockets. Learning requires costly experimentation and its benefits are impossible to internalise completely. Larger organisations are better able to internalise these costs, allowing faster learning. In addition, learning may be organised more systematically in large organisations. As a result, a larger organisation may be able to diffuse knowledge more cheaply, effectively and quickly.

Where production is reliable and of high quality, agricultural commodities offer potential for increased value-addition through processing. As UNECA's most recent Economic Report on Africa shows (UNECA, 2013), the adequate availability of high-quality raw material supply is a crucial determinant of success. This is illustrated by African experiences in the cocoa value chain. While the share of processed products of cocoa exports in Ghana has doubled since 2007, progress is much slower in Nigeria and stagnant in Cameroon, mostly due to problems with raw material availability and quality. The same is true for coffee processing in Ethiopia. Vertically integrated firms in Kenya's fresh vegetable industry demonstrate that holistic approaches, which take into account supply issues and processing, seem to be most promising.

Recent evidence from Ghana illustrates the way in which the commercialisation of agriculture can successfully link African farmers to global markets. Blue Skies was founded in 1998 and is an exporter of fresh-picked fruit to Europe. Its main innovation is that it exports all its fruit to European supermarkets within 48 hours of picking. Produce is sent from the farm to the factory in Accra, where it is cut, packaged, and then immediately shipped to Europe by air. This not only ensures the fruit's freshness and quality, but also creates more local employment as the produce is picked and packaged in Ghana. Additionally, Blue Skies has begun collecting the excess juice from the factory and selling it on the local market, to achieve an economy of scope. The company sources its produce using an outgrower scheme that has formal contracts with 146 partner farmers. One of the company's 11 agronomist team members visits each farmer on a weekly basis to monitor production and provide technical assistance, ensuring that the farmer meets strict European import standards. In addition to providing technical advice, Blue Skies also extends credit to some of its farmers at a subsidised rate of interest. This strong collaborative structure enables Blue Skies to link rural producers with global markets. Farmers also appear to have benefited significantly, as many have been able to build better houses and some villages have been connected to the national electricity grid. Blue Skies has so far expanded operations to Brazil, Egypt and South Africa, and keeps storage centres in Senegal and The Gambia as well. These different sources enable them to remain globally competitive even when a local shock occurs. However, the company still faces many challenges, especially with land issues, as their partner farmers often have dubious claims to the land they use to grow fruit for the company. Another challenge is the reliance on air transport, which is expensive and vulnerable to shocks such as the 2010 Icelandic volcano that disrupted European air travel. Tapping into local markets has also been difficult, as most of the operations are located in free trade zones, which provide benefits but require import duties to be paid if the company wants to sell fruit to the local market. However, Blue Skies still emerges as one of the strongest examples of African agriculture succeeding globally and benefiting locally.

Governments across Africa have already begun to co-operate with the private sector to facilitate a commercialisation of agriculture. Three types of interventions seem to be important: *i)* divestment from activities in which the public sector does not have comparative advantage; *ii)* co-ordination of investments in training, infrastructure, logistics and research and development; and *iii)* policies to encourage FDI.

The experience of Burkina Faso shows that divestment can be a sensible strategy where the public sector does not have a comparable advantage. Like other West African cotton producers, Burkina Faso's cotton sector has a long history of government intervention in input and output markets. Initially, successes and productivity gains were achieved based on government promotion of research and technological innovation and support to farmers' organisations. By the late 1980s, however, the inefficiencies of the system, dominated by the parastatal firm Sofitex, became more and more apparent. Audits of the cotton sector disclosed excessive costs arising from waste, overcharging, duplication of responsibilities,

suboptimal financial management and adverse incentives to control costs. The system had also given rise to accusations of corruption and opportunistic behaviour by farmers. Subsequently, substantial parts of Sofitex's profits were used to finance political parties while prices paid to producers declined. Ultimately, this led to a collapse of production in the early 1990s and started a gradual reform process which would last for the following 14 years. This, coupled with investment in local institutions, allowed a smooth transition towards market liberalisation (Kaminski, Headey and Bernard, 2009). Sofitex engaged the private sector to provide functions for which it had no comparative advantage, such as input provision, transport services and cotton ginning while the state maintained research facilities and established a professional association around the cotton sector consisting of farmers, bankers, government officials, the private sector and research institutes. Following the reforms, cotton production tripled between 1995 and 2007 resulting in increased export earnings of USD 165 million. The number of households farming cotton nearly doubled from 95 000 to 175 000 which in turn generated 235 000 new jobs that have directly and indirectly benefited around 1.8 million people. The reforms had big effects on household incomes, which grew between 19% and 43% (depending on estimates), and poverty, which declined from 62% to 47%.

The case of Ethiopia's cut-flower industry provides an example of the ability of government to help co-ordinate activities and attract FDI. Ethiopia has a number of advantages over competing African countries in the cut-flower industry including a reliable state-owned airline and closer proximity to European markets, but until as recently as 2000 there had been little initiative by the government or private sector to develop this potentially lucrative enterprise. In 2002 the newly formed Ethiopian Horticulture Producers and Exporters Association (EHPEA) approached the government for support. In response to these requests the Ethiopian government supported the new industry by way of air freight transport co-ordination through the state-owned Ethiopian Airlines, access to land and credit on favourable terms, canvassing for foreign investment in the cut flower industry, and the removal of restrictions on the bulk import of pesticides and fertilisers for the flower industry (Gebreeyesus and Sonobe, 2012). In addition, the government, with the support of the Dutch government and the EHPEA, had an active role in the development of a course to build capacity in the new cut-flower industry and has worked with the private sector to develop certification procedures to ensure the quality of exports. In response to these efforts, the number of cut-flower firms grew from ten in 2004 to 81 by the end of 2009, while earnings grew from USD 3.7 million to USD 100 million over the same period. The sector is now one of the top five foreign exchange earners in the country and a significant source of jobs for rural labour.

Madagascar has also had success in the development of the fresh vegetable industry through the creation of the Export Processing Zone in 1989 (Minten, Randrianarison and Swinnen, 2006). This zone gives investors who export 95% of their goods a corporate income tax holiday for 2 to 15 years and import duty and tax immunity. Textile and clothing manufacturers make up the bulk of the firms located in this area but in recent years there has been increased investment in high-value vegetable production destined primarily for European markets. The production of vegetables for export, primarily green beans, through micro-contracts has now grown to include almost 10 000 smallholder farmers in the highlands of Madagascar. Survey analysis has shown that these farmers on average have higher revenues and greater income stability than non-contract growers. In addition, with greater exposure to new agricultural products, and hence new farming techniques, provided through contract farming (a common arrangement for many high-value value chain developments), there have been spillovers from the development of the green bean value chain into household food production, with rice productivity 64% higher on contract farmers' plots than on those of their neighbours (Minten, Randrianarison and Swinnen, 2006). In contrast to previous studies of contract farming (Delgado, 1999; Reardon and Barrett, 2000; Reardon et al., 2003),

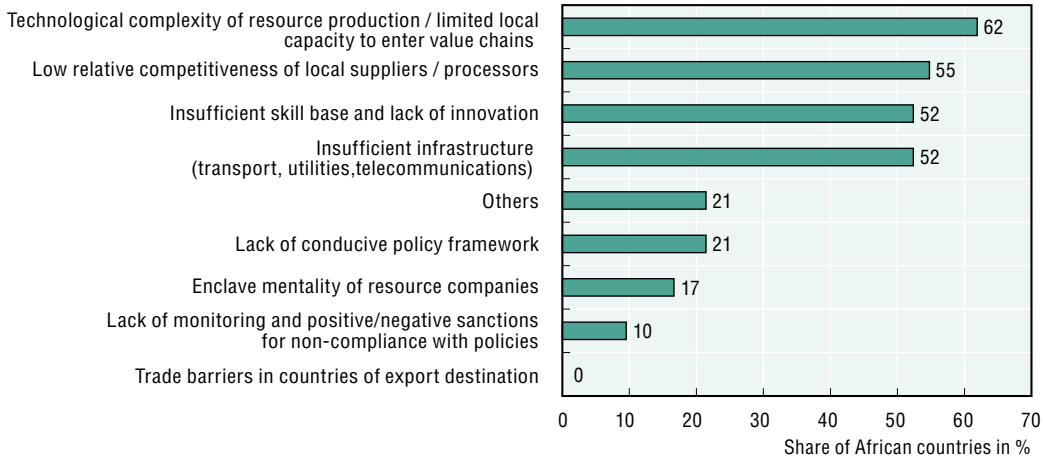
the Madagascar case also shows that smallholders are able to successfully participate in and integrate into global value chains (Minten, Randrianarison and Swinnen, 2006).

4.3.2. Promoting linkages

The resource economy can fuel the development of internationally competitive supplier industries. In the short run, the establishment of domestic supply networks can provide local jobs and stimulate technology spillovers. In the long run, these can lead to local capacity and expertise which can result in supplier industries that are competitive internationally, as demonstrated by experience from Australia and South Africa. On the topic of promoting linkages see also the latest *Economic Report on Africa* (UNECA, 2013).

Among obstacles to linkages the biggest hurdles are those of catching up on technologies, competitiveness and skills. Therefore diversification via backward linkages might be easier to realise for developing countries. Chiefly because of international competition and the complex technology and economies of scale by which resource processing is often characterised, the establishment of downstream linkages has proved challenging for developing economies (Ascher, 1999). This is confirmed by the AEO's country experts survey (Figure 20), in which technological complexity, low competitiveness and a lack of skills and innovation are named as the main obstacles to linkage development. As processing industries are often intensive in energy and capital while usually offering lower returns, the development of mining-related services and intermediate goods by focusing on backward linkages offers more opportunities, with greater multiplier effects and lower capital requirements (Korinek, 2013). Nevertheless, forward linkages can be an option if the conditions are right. The latest *Economic Report on Africa* (UNECA, 2013) explores this in more detail.

Figure 20. **Obstacles to linkages: Catching up on technologies, competitiveness and skills are the biggest hurdles in Africa**



Note: Several answers were possible.
Source: AEO country experts survey.
StatLink http://dx.doi.org/10.1787/888932807873

In terms of jobs, backward linkages into the supply chains of resource producers offer significant potential for employment creation. An examination of the mining sector in Zambia shows that for every ten direct jobs in mining, approximately seven are created in first-tier mining suppliers. The incomes generated in mining and supplier industries stimulate non-mining industries, which grow and hire new employees. That way, the total number of jobs created in connection with mining in Zambia is almost five times as high as the direct

employment in the sector (McMahon and Tracy, 2012). A study of the gold sector in Ghana, where 2.8 jobs were created in supply for each direct job in mining, confirms these results. Counting employment created in supply industries, their suppliers and industries which grew because of increased demand from people employed in mining and mining supply, the total employment (including informal employment) generated was 28 times as much as in the gold-mining operations themselves (Kapstein and Kim, 2011). A study by the World Bank investigating the employment effects of mines in Latin America, Canada and Spain found a range from 0.03 to 3.1 jobs created in mining supply firms for every direct job in the lead firms (McMahon and Remy, 2001).

Backward linkages are one channel for technological spillovers from lead commodity firms. The traditional assumption, based on Singer (1950), that there is little opportunity for technology transfer from commodity sectors is incorrect. This misunderstanding limited their promotion through targeted policies in the past. However, deposits of hard and energy commodities in particular have location-specific characteristics which require tailored know-how and technology. These can be developed domestically and supplied to international resource producers. Further, the need to comply with global standards, the demand for differentiated products and fast diffusion of information technology contribute to dynamic technological upgrading (Kaplinsky, 2011).

A focus on indigenisation has led to weak backward linkages in Angola, Tanzania and Zambia. Zambia is an example of significant breadth but little depth of upstream linkages. Large mines source between 60% and 86% of goods and services required for their operations domestically. Even though that looks promising, many of these local suppliers are in reality mere importing intermediaries. The level of local value-added in these operations is minimal. In Angola domestic value-addition due to backward linkages has mainly been limited to local labour. The government puts a strong emphasis on the employment of Angolan nationals and the upgrading of their skills to meet these targets. This is accompanied by preferential treatment of national suppliers. Resource producers are required to source exclusively from national firms all goods and services that do not require high capital value or specialised know-how, if their price does not exceed that of imports by more than 10%. While local procurement initially remained limited to basic goods and services, there was a significant increase in the share of Angolan labour in domestic value-added between 2003 and 2009. In Tanzania limited legislation on local content, inconsistent policies and weak monitoring have led to poor development of backward linkages. There are no provisions that limit imports of supplies by lead firms or require them to employ or train nationals. Quite to the contrary, mines have access to duty-free imports, whereas suppliers do not, which highlights the importance of policy harmonisation. Even though requirements for mining companies to source supplies locally have been introduced recently, no clear targets were established, there are no provisions for monitoring and incentives and sanctions do not exist. This has resulted in weak upstream activity, which is mainly limited to three companies providing geochemical services, which had set up their operations during the time that the state had exclusive control over the gold-mining industry (Morris, Kaplinsky and Kaplan, 2013).

A specific focus on local value-addition has rendered Nigeria's efforts more successful. Nigeria has been successful in achieving considerable local value-added. The importance of differentiating between indigenisation and addition of local value has long been recognised in its policies. The Nigerian Content Act from 2010, for example, explicitly requires any operators in the Nigerian oil and gas industry to provide a Nigerian content plan. The quality of this proposal is factored into the bids for licences. They are not allocated based only on price criteria but might be awarded to companies with superior local content proposals if their price does not exceed the lowest bid by more than 10% (Morris, Kaplinsky and Kaplan, 2013; UNECA, 2013).

Opportunities for developing backward linkages arise from a market-driven process of increased outsourcing and can be supported by active co-operation between government and the private sector. Increased global competition forces firms to concentrate on core activities. At the same time, increasingly developed local competences adapt to the needs of the resource industry. In that way both the breadth and the depth of local supplier networks can increase. This has happened in Ghana, South Africa and Zambia to differing extents, reflecting the time elapsed since the introduction of resource production in the country. This market-driven process can be complemented by government policy to improve the business environment (Kaplinsky, 2011).

To be an engine of structural transformation, backward linkages should exhibit three major components. First, local businesses in the supply chain of lead firms have to be commercially viable and able to operate independently. Second, they have to fulfil their purpose of employment creation, technological upgrading and economic diversification. And third, backward linkages have to involve substantial local value-added instead of simply indigenising the import functions of lead firms. The development of supply industries exhibiting those characteristics can be supported by close co-operation between government and lead firms to provide the necessary framework conditions. These entail the competitiveness of local firms, availability of skills and a system of innovation, and a favourable business environment in general. Further, the commitment of foreign investors to integrate local supplier networks and build up local capacities is crucial.

Government plays a major role in shaping framework conditions for upstream linkages by eliminating common market failures. This is illustrated by the successful participation of local government in the development of a commercial potato sector in China, where local government intervention at almost every stage of the process facilitated this development. Local government played a role in infrastructure development, researching new varieties of potato, establishing a potato trade association, lobbying the central government for increasing freight car quotas, and attracting processing firms (Zhang and Hu, 2011). Thanks to the constant intervention of local government, many of the constraints on smallholder development which arose continuously throughout the process could be circumvented as they developed.

Local content provisions can be an effective policy tool to foster backward linkages. Especially in the case of foreign firms investing in commodity sectors, governments can use their bargaining power to force them to further the development of local supplier networks. The strategies of lead companies, which are major determinants of the successful development of backward linkages, can thereby be influenced in favour of national interests.

Local suppliers can be promoted through preferential treatment regulations. In this way, commodity firms are forced to source their supplies exclusively from domestic firms where their prices do not exceed those on the international market by more than a pre-specified margin. For that purpose it is important, clearly, to define domestic firms as businesses in which nationals own at least 51% of share capital. Furthermore, lead firms can be obliged to provide plans for increasing local value-added in their input chains. That way the risk of simply promoting the outsourcing of import functions is reduced. In order to ensure realistic conditions, these regulations have to be tailored to the state of domestic supply networks. Therefore, it can be useful to state clearly in which cases inputs may be sourced from international markets if they are not available locally (Morris, Kaplinsky and Kaplan, 2013). In that event, provision can be made for firms to engage in supplier development programmes to ensure further progress in building up an upstream industry.

Promoting the introduction of common standards reduces transaction costs and benefits the upstream industry. Harmonisation is crucial to prevent adverse effects on trade. If standards in respect of safety and security or information technology can be harmonised among different lead commodity firms in a country, the cost of access for local suppliers can be reduced and profitability raised. As individual efforts to promote common standards are costly and slow for suppliers themselves, government has a strong role to play in facilitating co-operation among suppliers and lead firms (Korinek, 2013). However, given the small market size of most African countries, diverging national standards can inflict significant costs when applied to tradeable goods. Harmonisation across countries is therefore crucial.

Box 16. **Namibia's experience**

The infrastructure, institutions and expertise Namibia has established by upgrading the standards for its meat production will be useful for further diversification. Namibia managed to upgrade the quality of its meat to the highest international standards and was thereby able to increase its unit value and market share in the EU (Stevens and Kennan, 2005). This was achieved mainly through a process led and managed by the government-owned, privately financed Meat Board of Namibia. The board introduced a scheme of full traceability and strict veterinary and animal welfare standards conforming to EU requirements. As a result, Namibia now produces meat that is "... hormone-free, hygienic and reared according to higher welfare standards", (Bowles et al., 2005) and is accordingly of a quality suitable for supply to foreign commodity firms operating in Namibia as well as catering businesses in the United Kingdom. The expertise in product upgrading to meet international standards could make it easier to upgrade other domestic agricultural goods with potential for the international bio trade sector (UNEP, 2012).

Infrastructure development integrating the needs of lead firms and suppliers could particularly promote cross-linkages between mining and agriculture. The deployment of multi-use infrastructure could provide new opportunities for agricultural producers to supply firms in the mining sector. At the same time, the infrastructure might facilitate their entry into export markets. In Mozambique, the Beira Agricultural Growth Corridor (BAGC) has been established in a partnership between the government, the private sector, local farmers and the international community. The initiative is meant to increase agricultural productivity and enhance the incomes of local farmers through marketing subsistence farming and channelling private investment to the region, which is home to rich coal reserves. It will thereby address the issues of low labour productivity and a lack of skills, which are the reasons why most supplies are currently sourced from Maputo which in turn are primarily imported (Doepel and Bolton, 2013).

The formation of relationships between lead firms and suppliers can be facilitated by provision of information such as enterprise maps. As many international commodity firms have little knowledge about existing suppliers in developing countries, the provision of information about them via enterprise maps or databases helps facilitate exchange and the initiation of contact. The same is true for potential suppliers, who can benefit from information on the requirements of lead commodity producers and current sourcing structures. Enterprise maps containing information on firms active in resource sectors can make the development of linkages easier. Such enterprise maps have been developed for Ethiopia, Ghana and Tanzania by the International Growth Centre. The maps contain sector profiles, detailed supply chains, and in-depth information on major companies within each sector as well as their sources of inputs. This information can be very useful both for

governments seeking to identify potential areas for the promotion of backward linkages as well as for domestic firms aiming to enter supply chains (Sutton and Kellow, 2010; Sutton and Kpentey, 2012; and Sutton and Olomi, 2012). Further supplier databases have been set up by Small Business Enterprises (SBE) in South Africa and Exxon Mobil in Chad (Jenkins et al., 2007). As the enterprise maps have public-good characteristics, it makes sense to provide them centrally.

Enhancing the competitiveness of small and medium-sized enterprises (SMEs) in the supply chain by improving their access to finance and upgrading their capabilities can establish the necessary preconditions for the development of upstream linkages. In internationally integrated markets, lead commodity firms cannot downgrade their needs and requirements, as they have to remain competitive themselves. So the capacity of local suppliers needs to be upgraded for them to become viable partners for outsourcing or viable alternatives to internationally established suppliers (Baxter, Isaiah and Shen Xiaofang, 1996). For this to happen the public and private sectors should co-operate to minimise costs and maximise the outcomes of such programmes by tailoring them to the actual needs of the lead firms.

To enable local SMEs to become part of supply chains, their access to finance needs to be increased. Especially in developing countries, suppliers are mainly firms in the upper size range of SMEs (Baxter, Isaiah and Shen Xiaofang, 1996). Small suppliers usually have limited access to working capital, and therefore often fail to provide inputs at competitive prices. Especially in resource-rich countries, exchange rate fluctuations weaken their competitive position. Contracts with international firms are often denominated in US dollars. Appreciation of the domestic currency coupled with strong demand often leads to rising input prices. Small suppliers in particular are often forced to pass these increases on to their clients, which undermines their competitiveness. A widespread practice of input parity pricing instead of local competitive prices is another disadvantage for domestic manufacturers relative to their international competitors (Lydall, 2009). Increased access to finance can strengthen local suppliers and help them to cushion these adverse effects. In Nigeria this was done via the Nigerian Content Support Fund (NCSF). This fund, worth USD 350 million, was set up exclusively to provide domestic supplier companies with capital, explicitly focusing on procurement and fabrication, engineering and construction services. In combination with aligned local content provision, this expansion of funding opportunities enabled Nigeria to raise its local content from 5% in 2004 to 35% in 2010 (Otti, 2011).

Local capabilities can be enhanced by requirements for local employment, thereby giving lead firms incentives to participate in training programmes to upgrade the capabilities of suppliers. Local participation in the value chain can be achieved through requirements to train and employ locals both in the lead firms and their supplier networks. This can be implemented by regulating preferential employment of domestic workers by law wherever a lack of local workers cannot be proved. That provides employment to locals and exposes them to technologies in use by lead firms. A dynamic process of skills transfer and linkage development can thereby be initiated as local employees become familiar with the operations and supply needs of lead firms. Foreign firms active in developing countries often say that local suppliers cannot meet their requirements because they lack managerial and technological capacity (Baxter, Isaiah and Shen Xiaofang, 1996). This process brings their interests into line with regulations requiring the provision of plans to recruit and train locals. Provision of such plans can be required at predetermined intervals in order to track progress and monitor compliance. Furthermore, companies can be required to contribute financially to national programmes of technical training focused on skills needed in upstream sectors (Morris, Kaplinksy and Kaplan, 2013; Saggi, 2002). This investment in building up domestic supplier networks can pay off in the long term for lead firms through reduced input costs and

improved reputation (IFC, 2013). According to lessons learned in a successful SME training programme in Mozambique, the process should be planned and implemented in several phases. After a general preparation stage, training plans should be developed according to the skill gaps identified. In implementation of these plans, business and technical training should be provided to close those gaps. Individual improvement plans should reinforce those efforts. After an intermediate assessment of progress, further targeted mentoring should be provided. The training phase concludes with a final appraisal to provide a basis for continuous improvement of the training programme (Jaspers and Mehta, 2008).

Box 17. **Examples for SME training**

In Mozambique, efforts by a lead commodity firm to upgrade the capabilities of local suppliers have proved very successful. The government realised the risk of using a capital-intensive, single-site project to foster development, and so put heavy emphasis on the development of linkages from the outset (UNECA and AU, 2011). The Mozlink programme, run by the lead commodity firm Mozal, an aluminium smelter, together with the International Finance Corporation (IFC) and the Investment Promotion Centre of Mozambique, was set up to build the capacity of local suppliers so they could successfully compete for procurement contracts with Mozal and other international companies. Between 2002 and 2007 45 SMEs were trained. Over the course of the project, Mozal's operational spending on Mozambican companies increased from USD 5 million to USD 17 million per month. The number of domestic companies which supplied inputs to Mozal increased from 40 to 250, and the quality of management, maintenance and safety in SMEs was increased by 20% on average. Because of the great success of the programme, a successor will be implemented by Mozal, Sasol, Cervejas de Mocambique and Coca Cola in co-operation with the IFC to create opportunities for local companies to enter the value chains of big multinational companies operating in the country (Jaspers and Mehta, 2008).

In Ghana, the capabilities of mining supply firms were upgraded to increase their access to capital markets. Training was provided by the Renaissance Africa Group (RA), a private investment bank, to diversify the bank's portfolio. Domestic Ghanaian firms are usually small-sized and face constraints in technical and management capabilities, which in turn limit their access to finance. To gain access to the mining supply chain, however, the capacity to deliver on new contracts, as well as funding possibilities, is necessary. RA therefore supports upgrading processes of local supply firms, and trains their staff for negotiations with financial institutions. It also assists in the due diligence process. Throughout the process, firms are made familiar with the requirements of international markets in respect of their creditworthiness and the soundness of their business model. At the same time, they receive support in addressing any weaknesses identified (Gidi, 2011).

Efforts by lead firms to increase local procurement can benefit all parties. The development of local supplier networks benefits not only the domestic economy through employment creation and technology spillovers, it is also advantageous for the lead commodity firms themselves. By actively co-operating with governments, they can make it easier to co-ordinate policies for the effective promotion of reliable, competitive supply networks in their vicinity. In the long run, these supplier networks will lead to cost reductions for lead firms. Furthermore, commodity firms become more socially responsible companies and thereby improve their reputation internationally and locally (IFC, 2013).

To set up successful local procurement programmes, the commitment of lead firms and a well thought out approach are necessary. Lead firms can use their purchasing power to support local suppliers by adapting their procurement strategies. Usually the procurement processes of lead firms aim to source goods and services at the lowest possible cost and with the highest possible reliability. This strategy puts developing suppliers at a disadvantage, as they are not as well-known and are less predictable, and innovative solutions do not meet standardised specifications. To facilitate the development of world-class local suppliers, these standard procurement practices have to be adapted (Korinek, 2013). To be effective, local supplier development must be reflected in the lead firm's vision and driven and supported from the top of the organisation (Morris, Kaplinsky and Kaplan, 2013). To support the process, the establishment of a local development unit for suppliers and contractors as well as a steering committee is useful. It is important to identify an entity to take over the programme from the very beginning, and to involve local organisations and local government closely to ensure sustainability beyond the programme's lifetime. Ideally, an assessment of the potential for linkage development should be undertaken as early as possible in the lead firm's operations. This will help bring major contractors into line with the firm's local-content strategy and help manage community expectations. To make sure local conditions are adequately taken into account, a local expert should be involved in the design of the programme. Early feedback will help to tailor the programme to location-specific characteristics. For successful implementation and involvement, management support at all levels is necessary. For communications and expectation management, it is important to be aware of local culture and to allow time for adaptation (Newmont and IFC, 2009).

Major elements of effective programmes include rigorous conditions for supplier identification, training programmes, access to finance, favourable payment conditions and transparent communication of procurement requirements. The provision of tailored training to potential suppliers to help them meet the requirements of lead firms has proved successful in many cases. In addition, local suppliers have to be granted access to funding opportunities for them to grow and to improve their performance. For the same reason, payment mechanisms have to be designed to favour local companies and increase their cash flow. For the identification of potential suppliers, a targeted approach to optimise resources, in combination with rigorous selection criteria for entry into the database to guarantee quality, is to be recommended. Upcoming procurement opportunities should be communicated transparently and as early as possible to allow realistic budgeting and preparation for bids. And finally, there needs to be an awareness that local SMEs are usually only willing to pay fees for training and mentoring after their effects have been demonstrated (Newmont and IFC, 2009).

Box 18. **Examples of lead firm support to supplier development**

Zimele is an example of a private sector initiative to promote supplier development in South Africa's mining industry. Zimele is a corporation which evolved in 2000 from the small enterprise initiative set up by Anglo-American and DeBeers in 1989. It looks for opportunities for local SMEs managed or owned by previously disadvantaged people to supply goods or services to the Anglo group. Furthermore, it supports SMEs more broadly by providing finance, skills transfer and technical assistance. These objectives are pursued by identifying needs in Anglo's purchasing departments and sourcing required inputs from local SMEs. SMEs receive tenders they can handle, are paid promptly and supported with training. Zimele also provides loans and takes minority stakes in SMEs, always with clear exit strategies. As a result, the amount Anglo spends on inputs sourced from SMEs has been increasing rapidly. By 2006 Zimele had invested

in 100 companies and disinvested from 70 of them. Of those, 90% survived. Success factors of the project include, as evaluation criteria, clear exit strategies, signalling the need to become profitable, the focus on the creation of viable businesses instead of jobs, and commercial sustainability (Van Rendsburg, 2006).

In Madagascar, the Ambatovy nickel and cobalt mine established a local supplier network via its Ambatovy Local Business Initiative (ALBI). Following a "buy locally, hire locally" policy, the ALBI programme seeks to maximise local procurement. Accordingly local businesses able to respond to the company's needs are registered in a database used by the lead company and its suppliers, which currently has 2 000 entries. Furthermore, ALBI provides mentoring and training to local SMEs focusing on areas such as accounting, project management, leadership, quality control, contract administration, procurement, environment, health and safety, industrial relations, and change and growth management. By the end of 2010, more than 500 local SMEs across 54 sectors had received purchasing orders from Ambatovy worth USD 1.2 billion. In addition, training and assistance are given to the local farmers from whom the mine purchases inputs for its catering facilities. In addition, farmers have benefited from roads established along pipelines (Ambatovy, 2010).[52]

Experience from the Nigerian oil industry shows that transparent communication and effective management of expectations are crucial for mutual buy-in. In a survey from 2010, 75% of the oil firms claimed to have supply development programmes for local firms. These include different forms of vertical co-operation such as information exchange; assistance in improving quality, delivery times and reliability; joint product development; technological upgrading; and training. Only 27.5% of the suppliers themselves, however, perceived the lead firms to be making any efforts to promote the emergence and development of local firms. Moreover, that was mainly attributed to lead firms being compelled to do so by local content requirements. The suppliers assumed that multinational firms could not support local providers of input because of their objectives of maximising profits and some even assumed that standards were raised unnecessarily to prevent locals from making successful bids (Morris, Kaplinsky and Kaplan, 2013).

In Zambia, lead firms in the copper sector engage with suppliers in various ways. Some developed forward purchasing agreements (FPAs) with capable suppliers. In this way, buyers commit themselves to purchase specified amounts of goods and services from one supplier over a long term. Suppliers in turn have to meet short lead times. In combination with advance payment systems this fostered upgrading processes as suppliers were enabled to base their investments on longer-ranging revenue flow. Support from lead firms also included logistics arrangements through which supplies were picked up from predefined collection points, which reduced suppliers' transport costs and lead times. Furthermore, lead firms exchanged information, and provided quality feedback (Morris, Kaplinsky and Kaplan, 2013).

Conclusion

This chapter started with the proposition that African economies today are facing nothing less than the formidable challenge of creating more and better jobs, not just by sustaining the pace of growth, but also by making it more inclusive. Compared to Africa's historical trend, the pace of GDP growth has indeed been impressive and is likely to continue. Growth has averaged 5.1% since 2000, doubling the average growth rate of the 1990s and this report predicts a continued favourable outlook for the coming years (Chapter 1). However, the employment-to-population ratio, which measures the share of the working-age population in active employment, has remained virtually unchanged over the last 20 years. It reached 60% in 2011, compared with 59% in 1991.

To be job-intensive growth must be accompanied by structural transformation: that is, the reallocation of economic resources from activities with low productivity to more productive ones. This contains two elements: the rise of new, more productive activities and the movement of resources and labour from traditional activities to these newer ones, raising overall productivity and with it wages and the quality of jobs. Africa's record of structural transformation is mixed. Productivity growth has been slower than in other regions of the world, but, after a decade of readjustment, labour has started moving in the right direction since 2000 – from less to more productive activities. Africa thus compares well with Latin America, which continues to experience net movements of labour into less productive activities, but the gap with Asia is widening.

To accelerate this nascent structural transformation, African countries must make the most of existing sectors and capabilities. With a few exceptions (notably the small island states) natural resources of agricultural and extractive origin account for an important share of economic activity and exports in most African countries. Several countries around the globe have shown that natural resource sectors can drive structural transformation when governments put in place the right conditions and policies and focus on managing their resource wealth for the common good. From past mistakes it is also known that pushing for structural transformation without regard for existing capabilities and a strong primary sector is unsustainable. Strong demand from emerging partners and historically favourable terms of trade of natural resources offer a great opportunity for African countries to seize.

However, only a few African countries can claim to have developed a primary sector that lives up to its potential. Agriculture, in particular, has long been penalised for its perceived backwardness instead of receiving the support that could have turned it into a driver of structural transformation as in China or India. But extractive resources have not faced an optimal environment, either. Despite the last decade's global resource boom, Africa's resource wealth grew more slowly than elsewhere, indicating that there is much room for improvement.

The key message of this chapter is that structural transformation towards more productive activities and better jobs is closely linked with a strong natural resource sector. While dependence on any set of products, but especially dependence on high-rent extractive commodities, can stand in the way of diversification and inclusive growth, countries with a diversified commodity sector also tend to have more diversified activities in other sectors. Many of the crucial ingredients for structural transformation such as infrastructure, education and skills, good institutions and regulations, government capacity, a balanced tax system, financial access, and sufficiently large effective markets are also necessary conditions for strong agriculture and extractive industries, with off-shore oil being an exception.

The four layers of policies for natural resource-based structural transformation laid out in this report are challenging, but can help African countries choose the right path. Evidently, each country differs in its endowments and level of development so that a broad-brush analysis such as the one presented here necessarily requires adaptation. The more diversified African economies need to worry less about overcoming dependence and more about providing the research, skills and regulatory environment that allow natural resources to further drive structural transformation. Countries such as Uganda, Tanzania, Mozambique and Kenya, where significant production of hydrocarbons will start soon, have the opportunity to learn the lessons of failure and success of their peers and build a policy framework that takes into account all four layers of natural-resource based structural transformation. This includes putting in place the right conditions for diversification and strong natural-resource sectors; optimising revenue from resources through taxation and negotiation managing its investment, taking into account absorptive capacity; actively pushing structural transformation through support to agriculture; and working with foreign investors and domestic firms to create strong linkages and learning opportunities around commodities.

Africa's natural resources also require commitment from its partners. Rising global demand for natural resources has boosted Africa's exports and brought large amounts of foreign investment to the continent (Chapter 2). Yet not all foreign involvement has been unequivocally positive, especially where done without regard to transparency and sustainability. Investors and partner countries can do much to improve this state of affairs. Transparency initiatives and multi-stakeholder dialogues are a positive force in this respect. Further, international firms can do much to partner local firms and schools to ensure that local jobs and capabilities are created. Partner countries can do more to allow for African exports of processed goods. As global trade negotiations are stuck and regional agreements flourish, care must be taken to ensure that Africa receives the access to traditional and emerging markets it needs for structural transformation to become a reality.

Finally, strong co-operation among African nations themselves is fundamental to natural resource-based structural transformation towards economic structures that can provide income and employment for all. The African market promises immense opportunities but suffers from limited access. Similarly, to get the best deal from investors it is important to agree on minimum standards and preventing races to the bottom.

Where partners and African countries work together towards the common goal of making Africa's structural transformation happen, the chances are better that they will succeed.

Notes

1. See Herrendorf, Rogerson and Valentinyi (2011) for an overview of and many references on this subject.

2. Herrendorf, Rogerson and Valentinyi (2011) document this pattern for a panel of mostly developed countries over the past two centuries, and Duarte and Restuccia (2010) document a similar process of structural change among 29 countries over the period 1956-2004.

3. The converse is not true, however: not all countries with structural change also achieve poverty reduction. Structural change into protected or subsidised sectors comes at the expense of other activities, and is therefore not associated with sustained growth out of poverty for the population as a whole. Structural change is effective at reducing poverty only when people move from lower into higher productivity activities.

4. For comparability with the results in M&R (2011) the sample of African countries here was restricted to the nine countries in their original sample (namely Ethiopia, Ghana, Kenya, Malawi, Mauritius, Nigeria, Senegal, South Africa and Zambia).

5. Algeria, Angola, Cameroon, Egypt, Ethiopia, Ghana, Kenya, Malawi, Mali, Mauritius, Morocco, Mozambique, Nigeria, Rwanda, Senegal, South Africa, Tanzania, Uganda, Zambia.

6. After adjusting for the Balassa-Samuelson effect; see Rodrik (2008).

7. The productivity gaps described refer to differences in average labour productivity. When markets work well and structural constraints do not bind, it is productivities at the margin that should be equalised. Under a Cobb–Douglas production function specification, the marginal productivity of labour is the average productivity multiplied by the labour share. So, if labour shares differ greatly across economic activities, then comparing average labour productivities can be misleading. The fact that average productivity in mining is so high, for example, simply indicates that the labour share of value added in this capital-intensive sector is quite small. In the case of other sectors, however, there does not appear to be a clearly significant bias. Once the share of land is taken into account, for example, it is not obvious that the labour share in agriculture is significantly lower than in manufacturing (Mundlak, Butzer and Larson, 2008). So the sixfold difference in average labour productivity between manufacturing and agriculture does point to large gaps in marginal productivity.

8. Hirschmann (1981) argued along similar lines, noting that the degree of technological "strangeness" relative to ongoing activities determines how easily linkages can be developed.

9. See for example the IMF's most recent *Economic Outlook for Africa* (IMF, 2012a).

10. Note that Rodrik uses industry data beginning in the 1990s for his analysis of unconditional convergence. Import substitution policies had largely been abandoned by then.

11. The raw material input, for example in the form of ore, is evidently essential, but only one of many inputs into the processed product. Energy is another one. In the United States aluminium smelting alone consumes 5% of total electricity production, which is equivalent to a third of Africa's electricity production (Emsley, 2011). In most of Africa, however, electricity is a scarce good. At about 28 MW the energy capacity required to refine 10 000 tonnes of copper, roughly 2% of Zambia's annual production, for example, would be equivalent to two times Benin's current electricity- generating capacity.

12. For example distance to markets: the higher the manufacturing value-added of a product, the higher the transport costs and the more important proximity to the customer. Chile decided against a copper-processing industry because the additional transport costs for copper products such as wire and sheets from Chile to consumer markets in Europe and the US would have been higher than the price difference between these products and simple copper concentrate

13. Barely one quarter of industrial exports are true manufactures, and two major categories, automotive products from South Africa and clothing exports from low-income countries, are both supported by special incentive programmes (Gelb, 2009). In 2011, however, Africa's most important manufactured export products were floating platforms for off-shore oil extraction, a product type directly related to natural-resource extraction, not processing.

14. See Ramachandran, Gelb and Shah 2009 for an overview. The 2012 edition of this report (AfDB et al., 2012) highlighted the links between Africa's business environment and the youth employment challenge. Most analyses are based on the *World Bank Enterprise Surveys* (World Bank, 2013a).

15. Note that the party monopoly finding might be reflecting other underlying country-specific factors as it is measured as a dummy and a significant number of African countries exhibit party monopolies.

16. compared to 60% in Brazil, 40% in India and 14% in China (all 2011).

17. See Hidalgo (2011) for an analysis of the East Africa product space and opportunities for diversification based on the capabilities present in the region.

18. Coal is ambiguous as it could arguably also be included in the hard commodity category, based on its physical properties and method of extraction. Nevertheless, it is classified as an energy resource in the international trade statistics that are the basis for this classification.

19. The inputs for renewable energy (sun, wind, water and biomass) differ considerably in terms of their inherent characteristics and are therefore only treated tangentially.

20. Counting a range of sectors that can be related to natural resource use (*i.e.* including first processing steps such as textiles, basic chemicals, food processing and basic metals, but also energy generation), total greenfield FDI into

21. The link between primary completion and these resources is also positive, but not significant. The reasons could be simply a lack of observations, or the fact that other human capital measures than primary completion are more relevant to per capita resource production.

22. The overall size of the economy plays an important role. The smaller the economy relative to the resources it produces the higher the share of resources in the economy will remain even as the rest of the economy develops. The core of the argument made here is the decreasing relative position of the resource economy.

23. Between 1995 and 2005 subsoil assets in high-income OECD countries, which as a group exhibit very low dependence on natural resources, more than doubled in value (World Bank, 2012a)

24. Unfortunately, in the case of timber, most exploitation in Africa goes far beyond the natural rate of regeneration and threatens severely to reduce, if not entirely destroy, many tropical forests. See World Bank (2012a) for an assessment of net savings and resource exploitation beyond sustainable rates.

25. The worse the existing level of infrastructure, public services and the regulatory environment, the higher the costs incurred by resource extractors to make up for these shortcomings in the form of investment in new roads or railway lines or high expenses in transaction costs and security personnel.

26. This is especially true for offshore oil production, which is largely independent of infrastructure or other conditions in the country. The only regulation that matters is the tax regime.

27. Ascher (1999) provides a vivid account of the degeneration of Ghana's cocoa sector as a result of the capturing of the marketing board by urban-based political interests.

28. "Proven" reserves are those that can be extracted given geology, technology and market conditions (Gelb, Kaiser and Vinuela, 2012).

29. In terms of new discoveries Africa managed to outpace world growth. African proven oil reserves increased by 59% between 2000 and 2010 compared to a world average of 33%.

30. Although the investment needs for oil exploration and exploitation are enormous, production costs usually remain significantly below market prices.

31. Stijns (2005) confirms the negative impact of resource dependence but finds no relationship between resource abundance and growth. Van der Ploeg and Poelhekke (2010) confirm this result, but find abundance to be good for growth once they control for volatility.

32. An apartment rents for USD 10 000 to USD 15 000 a month, while a labourer makes USD 50 a month (*The Economist*, 2011)).

33. "Aghion et al. (2009) show that with macroeconomic volatility driven by nominal exchange rate movements, firms are more likely to hit liquidity constraints and thus cannot afford to innovate which depresses growth, especially in economies with poorly developed financial institutions" (quoted from Van der Ploeg and Poelhekke, 2009).

34. a)Inflation discourages people from holding liquid financial assets which are the basis for banking (Gylfason, 2004). b) In volatile countries, lending to natural resources is more attractive as other sectors carry higher risks, limiting the incentives for financial sector development (Besley and Persson, 2011; Maino, Imam and Ojima, 2013)

35. The relationship between agricultural productivity and structural transformation is the subject of a large literature. The key points are the following: *i*) in models assuming non-homothetic preferences and a closed economy (*e.g.* Matsuyama, 1992; Gollin, Parente and Rogerson, 2002 and 2007), a rise in agricultural productivity releases labour for the modern sector (effect A), as people get richer, they spend more on manufactured goods and services, and higher wages in these sectors attract rural migrants; *ii*) in models assuming homothetic preferences but a constant elasticity of substitution below one (*e.g.* Ngai and Pissarides, 2007), any relative increase in the productivity of a sector leads to a relative decrease in its employment share because its relative price decreases (effect B) and thus, in a closed economy, the agricultural sector shrinks as productivity increases; iii) in an open economy, there is an additional effect which works through trade (effect C) - a rise in the productivity of a sector can make this sector grow in size if the country now has a comparative advantage in this sector.

36. Such as the Kimberly process for diamonds and the OECD Council Recommendation on Due Diligence Guidance for Responsible Supply Chains of Minerals from Conflict-Affected and High-Risk Areas (OECD, 2011).

37. fDiMarkets estimates the number of jobs created for each project by extrapolating known job figures from existing greenfield FDI projects that have similar characteristics. The estimate of 600,000 jobs is an upper bound estimate. Job creation is not known for every project. The "known" figure of created jobs by greenfield FDI in natural resource sectors is about 100 000 jobs.

38. Although FDI projects in soft resources and in manufacturing industries are significantly more employment-intensive, investment volumes in these sectors were smaller and job creation lower.

39. "For example, analysts estimate that the highest cost Canadian heavy-oil producers need Brent crude to be trading at least at USD 85 a barrel to cover their costs. In September 2012 prices fell close to the USD 85 level, triggering talk in the market of imminent output cuts. The role of high-cost producers is also evident in the iron ore market. About a third of Chinese miners need prices to stay above USD 100 a tonne to remain profitable, but prices this year fell as low as $90.75 a tonne, forcing some miners to shut down production." (*Financial Times*, 2012)

40. Some uncertainty remains. At the time of writing (March 2013) Vale's massive investment project into iron ore in Guinea was suspended.

41. Oil is much less dependent on general infrastructure. Onshore it relies on pipelines, offshore on boats.

42. Collier (2011) confirms that more than USD 6 billion has been spent on electricity infrastructure while generating capacity remained at more or less the same level.

43. As part of the implementation of the Africa Mining Vision an African Minerals Skills Initiative has been created to address some of these issues.

44. It is useful to distinguish between skills and knowledge. Both are important, but skills are harder to obtain. Knowledge can be acquired through learning materials such as books, the Internet etc. Skills, on the other hand, are abilities that can best be obtained through practice. Schools and universities are best adapted to instilling knowledge, but learning skills requires a high practical content such as in vocational training, internships or on-the-job learning.

45. Private conversation with Marc-Antoine Audet, CEO, Sama Resources Inc., Côte d'Ivoire in December 2012.

46. The superior performance of competitively elected governments holds only for the African sample of countries.

47. See the 2010 edition of this report (AfDB et al., 2010) for an explanation of the methodology

48. Directly estimating the impact of exports of extractive resources, Harding and Venables (2013) find that one dollar of such exports on average decreases non-resource exports by 65 cents, increases imports by 20 cents and leaves 15 cents for savings. For a sub-Saharan Africa sub-sample they find the effects to be 55 cents fewer exports, 35 more imports and only 10 cents into savings.References.

49. This has been interestingly referred to as "fox type" approach by Galvao Ferreira (2012), an uncoordinated and flexible approach to addressing complex and context specific challenges in natural resources.

50. Such required broadening of focus is to some degree reflected in an initiative such as Publish What You Pay (PWYP), which now also encompasses issues such as Publish What You Earn and How You Spend as well as Publish What You Pay and What You Extract (see www.publishwhatyoupay.org/about/publish-what-you-earn-and-how-you-spend).

51. Lead firms can be defined as small, medium, or large firms that have forward or backward commercial linkages with a significant number of micro, small and medium-sized enterprises.

52. In September 2012, however, local farmers accused Ambatovy of destroying agricultural produce through its widespread use of toxic pesticides to protect its workers from mosquitoes (AFP, 2012).

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Part Two

Country case studies

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ALGERIA

The Algerian economy has not experienced deep economic transformations in the past 20 years, as evidenced by the evolutions in the contribution to GDP of the different sectors. It is set instead in a slow evolution process where the weight of oil is expected to be gradually reduced in the context of a controlled shift to a market economy. The oil and gas sector has gradually taken a prominent place in the economy, to the tune of 43.6% in 2007, but the trend has taken a slightly downward course to about 37% of GDP in 2011. Public services are still a considerable share of GDP and growing, which is characteristic of a centrally managed economy. The distribution of other sectors as share of GDP in 2012 is as follows: market-related services 21.8%; non-market-related services 17%; agriculture 8.6%; construction 9%; etc.

The country has significant fossil resources (hydrocarbons: oil and gas), renewable resources (water and land) and raw materials (iron, phosphate, zinc, barium, marble, gold, tin and precious stones), not all of them having the same exploitation potential. Hydrocarbons, phosphates and iron ores have been the critical factors in the country's economic structural transformation in the sense that energy is the country's industrialisation vector under the motto "sow oil to reap development". This option entailed concentrating all fossil resources in the hands of the government, which defines and implements the development policy for the country's energy resources.

Four national public enterprises are in charge of applying this policy: Sonatrach and its subsidiaries, in charge of marketing and distributing petroleum products and derivatives; the national geophysics enterprise; the national civil-engineering and construction enterprise; and the national well-drilling enterprise. Sonatrach remains the backbone of the economy and manages upstream activities in the sector (exploration, development drilling, primary commercial hydrocarbon production, investments, transportation via pipeline and international development) and downstream activities (refining, production of liquefied natural gas, separation of liquefied petroleum gas [LPG], petrochemicals and downstream investment and distribution of petroleum products). The sector is regulated by the hydrocarbons-regulation authority (under the Ministry of Energy and Mines), which is responsible, amongst others, for regulating the domestic market of petroleum products, for the pricing of infrastructure access by third parties and for submitting recommendations to the ministry in charge of hydrocarbons. For protection and preservation, the national enterprise for well-drilling and the upkeep of existing wells, is an important agent in drilling and in the renovation of existing wells to increase their production life.

The country holds 2.37% and 1% of the world's proven natural-gas and oil reserves, respectively. Algerian oil reserves are estimated at more than 4 billion toe. More than 50% of this production potential are gross gas reserves at 1.3 billion toe, and the rest is made up of LPG and condensates. Sonatrach has emphasised further exploration efforts to strengthen production capacities; the goal is to have 160 wells running in 2013, up from to the current average of 70 to 80 wells. According to the 2012 Organization of the Petroleum Exporting Countries' Annual Statistical Bulletin, the country's proven oil reserves are stagnating; this is notably true at the Hassi Messaoud and Hassi R'Mel deposits, which have been operating for about 50 years. Hydrocarbons production declined from 233.30 million toe in 2007 to 205.82 million toe in 2011, or 3.1% per year. On the other hand, in terms of value, revenues from hydrocarbons increased from USD 59.6 billion in 2007 to USD 71.7 billion, or 5% per year. The country can also count on 1.610 million tonnes of iron and 2 billion tonnes of phosphate.

The share of the urban population connected to the drinking water supply was 94% in 2011 with an average allocation of 185 litres per day per capita. Available and usable water resources are estimated at 17.2 billion cubic metres, including 12 billion in surface water, and 2 billion in groundwater in the north and 5.2 billion in the south. Algeria has 66 dams for a storage capacity of nearly 7 billion cubic metres. This number is expected to rise (19 new dams are scheduled under the 2010-14 five-year plan) to improve the water supply. About 21% of the country's total surface area is occupied by farmland. The 929 000 hectares of irrigated land are equal to 11% of the utilised agricultural area; the per capita ratio of land availability was 0.23 hectares per capita in 2012. In addition to provisions in support of agricultural production from the rural development fund *Fonds national de régulation et développement agricole*, the south of the country benefits from electrification of the farming lands, subsidies to the price of energy and government financing to open trails. Despite these incentives, the country remains a net importer of agricultural products.

Thanks to the increase in the price of oil, starting in the early 2000s, the country recommenced its institution of five-year plans to develop economic and social infrastructure, reduce poverty and the unemployment rate, in particular amongst the young. These choices are assets to put the country on the path of progress. The benefits of natural resources (those of hydrocarbons) have allowed major structural projects to be completed, namely the East-West motorway, the Algiers underground, the tram (in Algiers, Oran and Constantine), sea-water desalination and the achievement of an ambitious housing programme. These public investments have helped in income redistribution and generated jobs, contributing to bringing down unemployment to its lowest level of 10% in 2011. Profits from its natural resources have allowed early repayment of the country's debt and consolidated its official exchange reserves. To meet the challenge of structural transformation of the Algerian economy, the government will have to continue and deepen the reforms aimed at modernising and diversifying the economy. Accordingly, the country has made the strategic choice: to encourage national and foreign investment with a special focus on developing economic-partnership networks; to use its significant natural resources efficiently, in both the non-hydrocarbons and the hydrocarbons sectors; and to promote entrepreneurship. The strategic direction is to invigorate all sectors of the economy, with particular emphasis on agriculture and the manufacturing industry. On the hydrocarbons front, Sonatrach began making significant investments these past two years for the upkeep of refineries and the expansion of their capacities to 4 million additional tonnes, as well as for downstream petrochemical refining projects. The development of renewable and non-conventional energies such as shale gas constitutes an important source for the country's harmonious development.

Strong growth will be needed to provide a sustainable response to reducing unemployment, amongst the young in particular, and to the persistent housing shortage. The national strategic option is to stimulate recovery in all sectors – in non-hydrocarbon sectors by diversifying the sources of growth and in the hydrocarbons sector by generating greater value. To achieve these objectives, the country will have to pursue its efforts in preserving public investment and enhancing its effectiveness, improving competitiveness, continuing its structural reforms geared toward growth driven by the private sector, improving the business climate and increasing overall productivity.

ANGOLA

Angola has rich unexploited deposits of copper, gold, iron ore, lead, lignite, manganese, mica, nickel, phosphate rock, quartz, silver, tungsten, uranium, vanadium, wolfram, and zinc. The country produces over 650 million barrels of oil per year, the second largest in Africa, after Nigeria, 10 million carats of diamonds, the fourth largest in Africa, 15 000 tons of fisheries per year, 12 000 tons of coffee and is endowed with large water reserves (184 km^3/year). The petroleum sector is the backbone of the Angolan economy, accounting for 90% of exports and 47% of the country's GDP but less than 1% of total employment. Moreover, the wealth generated from the petroleum sector has not trickled down to ordinary Angolans, mainly because of its capital intensive nature. Furthermore, the industry is operating as an enclave, with untapped upstream and downstream activities which, if exploited could create broad-based employment opportunities.

Since 2001, the government has offered incentives to entice foreign investment in other sectors of the economy, including agriculture, fishing, transportation infrastructure, energy, water, telecommunications and tourism. The aim of these incentives is to promote the re-industrialisation of the country, diversification of the economy and increase of internal production. The government's efforts already appear to be yielding results as the substantial proportion of the heavy investment in infrastructure development being channelled to construction, social housing and transportation links between rural areas and the cities, has led to a significant reduction of the share of oil sector contribution to GDP from 57.9% in 2008 to 47.0% in 2011. This holds out the promise that Angola's poorest citizens will begin to benefit more from the country's economic resurgence. The Angolan government's goal to spread the spoils of the country's growing prosperity among the wider population is based on the fact that the past three years have seen an unprecedented number of public protests, prompted in part by the great disparities in income distribution. Therefore, efforts aimed at stimulating the non-oil sector and generating more jobs will be essential to distribute wealth more equitably.

In the meantime, the state-owned enterprise Sonangol, established in 1976, is the national oil company and sole concessionaire for oil and gas exploration and production. Sonangol holds at least a 20% stake in each oil block and has partnered with several international oil companies, including, among others: British Petroleum (UK), Chevron (USA), Petrobras (Brazil), ExxonMobil (USA), Total (France), Pluspetrol (Argentina), GALP (Portugal/Angola), Sinopec (China), ENI (Italy), Maersk (Denmark) and Statoil (Norway). Sonangol is also involved in banking, air transport, telecommunications, catering, insurance and offshore financing with a total portfolio of non-oil interests amounting to some USD 4.2 billion. The government has conducted some auctions of deepwater offshore oil blocks in 1999 to major oil firms such as Amoco, Elf, Exxon, Marathon, and Statoil. In the diamonds sector, the mining giant De Beers left in 2001 after the breakdown of an agreement with the state-owned diamond company, Endiama, but returned in 2005 in a joint venture with Endiama once the court battles over an outstanding loan had been resolved.

From 2004 onwards, the Angolan Ministry of Finance has been publishing details on its website of oil production by oil block and the revenues accrued to the government but the data are inconsistent, unreliable and unaudited. One illustration of the challenges faced in the disclosure of natural resource revenues is given by the massive gap between the figures for oil production and exports published by the Ministry of Petroleum, the Ministry of Finance and Sonangol, the state oil company. In fact, in December 2011, the International Monetary Fund reported there was an unexplained USD 32 billion discrepancy in the Angolan government's 2007/10 fiscal accounts linked to Sonangol – this amounts to one fourth of the country's total GDP.

In September 2011, the government introduced a new Mining Law in an effort to stimulate exploration and extraction of natural resources (including diamonds). The law covers all mineral deposits and contains two key regulatory changes designed to encourage investment. First, exploration and extraction rights are now granted simultaneously, whereas in the past these were negotiated separately and sequentially, resulting in high degrees of uncertainty for investors. Second, the new law reduces the government of Angola's mandatory minimum stake in mining enterprises from 50% to 10%, thereby allowing investors to capture a significantly larger share of potential profits. These changes are expected to spur interest and investment in the sector in the years ahead. However, production costs remain very high due to inadequate energy and transport infrastructure outside of major settlements. As a result, growth in the sector is likely to remain muted until these infrastructural deficits are alleviated.

A new Foreign Exchange Law for oil companies is being implemented. The volume and size of oil sector related transactions going through the domestic banking system will increase significantly, providing an impetus for financial market development. The diversification of the country's financing sources and instruments, in particular through the development of a local currency bond market and the adoption of best practices for first-time bond issuers in international markets in terms of transparency and disclosure of information to potential creditors, is being considered by the executive.

Going forward, the strategic objective of economic diversification will require effective programmes to close the infrastructure gap, develop human capital, and lower the cost of doing business in Angola. To this effect, the Angolan government announced the creation of a Sovereign Wealth Fund that will invest profits from oil sales in business in an effort to diversify the country's economy and spread prosperity. Focus has been put on upgrading the country's infrastructure network and broadening the production base to better position the country in the regional markets of Central and Southern Africa. Strategies to promote entrepreneurship and small- or medium-sized entreprises (SMEs) in order to enhance economic competitiveness, job creation and incomes are among the ongoing priorities.

BENIN

The structure of the Beninese economy, which is poorly diversified and mainly agricultural, has not changed significantly over the past 20 years. It is dominated by agricultural production starting with cotton, its main export crop. But cotton production, which had yielded more than 400 000 tonnes a year in the early 2000s, fell to about 200 000 tonnes for the 2011/12 crop. There are three main reasons for this sharp decline in production: *i)* bad governance of the cotton chain compounded by falling cotton prices; *ii)* the pre-eminence of informal activities, which are 68% of the GDP and in which the majority of jobs are concentrated; and *iii)* the country's heavy dependence on re-export trade to its neighbouring countries (50% of total exports), especially Nigeria, which weakens the Beninese economy.

Although the country has enormous potential, especially in the agricultural sector, only 17% of the usable agricultural areas is exploited annually. Similarly, out of more than 205 000 hectares of available lowlands and 117 000 hectares of available flood plains, only 7 000 hectares are exploited. Regarding water resources, Benin has a large water network consisting of 2 000 hectares of rivers, 1 900 hectares of lakes and a lagoon system covering more than 2 800 hectares. Of the surrounding areas of this water system, 1 500 hectares have been developed for partial exploitation and there are 20 000 hectares of river banks that can still be used.

The main agricultural products are cotton, cashews, pineapples and lumber. Cotton, however, is currently the only truly organised sector, generating about 8% of the GDP. Cashew nuts and timber, mainly exported to China and India, account for about 3% and 1% of exports respectively. Production of these two products went into accelerated development in the early 2000s thanks to foreign private investments that allowed small processing units to be introduced, and thanks to strong demand from India and China.

In addition to the agricultural sector, Benin has mining resources including limestone, sand, granite and gravel. These resources are exploited primarily for the local market. Limestone, sand and granite are raw materials for cement factories and for enterprises producing building materials. Exploitation of lagoon sand was developed after the marine-sand quarries were closed in 2007, and this helped to attract some investment to the sector. Nonetheless, the contribution of mining to government revenues is low at approximately XOF 1 billion per year, *i.e.* 0.1% of government revenues.

Benin is still at the exploration stage for fossil fuels, both oil and gas. Five companies have signed agreements with the government for more intensive exploration. The terms of these exploration contracts provide for revenue sharing as follows: for 100 barrels of oil, the government is to collect 10%, 70% to 75% are to be allocated to the repayment of exploration-related loans and 15-20% are to be shared between the company and the state. Once the bank loans are reimbursed, new terms for sharing are to be defined between the government and each company. The various oil-exploration operations have led to the identification of sites that could hold enormous potential for hydrocarbons, both onshore and offshore. These discoveries are all the more important that Benin exported crude oil until 1995, with production at 653.6 million barrels per year, before stopping its oil production in 1999 because the oil fields were exhausted. According to the Beninese hydrocarbons bureau, exploitation of these new sources could begin in 2013, with oil reserves currently estimated at around 5 billion barrels.

The poor exploitation of Benin's agricultural potential and natural resources has made it impossible to undertake a structural change in the economy. The country is facing significant obstacles to developing the exploitation of its natural resources: *i)* dependence of the agricultural sector on the vagaries of the weather and non-management of water; *ii)* poor organisation of the supply chain for agricultural inputs, and little use of specific inputs and of adequate mechanised agricultural equipment; *iii)* absence of public funding to carry out further exploration of existing and new resources; *iv)* the advanced age of the infrastructure and services required for the exploitation of resources; *v)* low competitiveness of local firms, especially in the field of mining; *vi)* absence of a framework favourable to policy making; and *vii)* insufficiency of basic skills and lack of innovation in local industries.

Seeking to remedy the weak exploitation and processing of natural resources, the Government of Benin has built its structural-transformation policy around a key strategy: modernising and diversifying agriculture, coupled with establishing value chains in agriculture and mining. To this end, several goals have been set to help these activity sectors: *i)* improvement of the business climate to attract investments; *ii)* establishment of an institutional and legal framework to facilitate PPPs for building and running major infrastructure projects; and *iii)* provision of appropriate services such as direct financing for physical infrastructure, support in finding refinancing, tax incentives, or consulting services on access to domestic, regional and international markets, to technology and to training of human resources.

The government would also like to take advantage of the country's geographical position, in particular its access to the sea, to accelerate its strategic transformation. The medium-term objective is to turn Benin into a regional hub for trading and services with a high added value, complete with an upgraded and extended port infrastructure, a rehabilitated and lengthened railway system, newly built dry ports and a second deep-water port at Sèmè.

BOTSWANA

Botswana today claims its place of pride as the world's leading diamond producer. The diamond sector continues to be the mainstay of the economy. It accounts for about one-third of GDP, more than 45% of government revenue, and about 70% of export earnings. In 2011, Botswana produced 28% of the global value in diamonds, with sales at USD 3.9 billion. The expansion in diamond output, currently at capacity, combined with the exploitation of copper-nickel deposits, has enabled Botswana to amass foreign-exchange reserves equal to more than two years of import cover.

There is vast literature on the exemplary performance of Botswana's diamond sector, in which there is a consensus that various factors have been at play to explain its resounding success. Many analysts agree that in the case of Botswana, the discovery of diamonds turned out to be a lucky phenomenon, and that the country avoided the "resource curse" mainly because other key ingredients in the recipe for success were already present, including good governance and sound economic management. It is pointed out that on the social front, Botswana has a relatively homogeneous population making ethnic polarisation virtually absent. The reality of good governance cannot be ignored, however, and the country's leadership deserves credit for designing and fostering conditions of governance that have ensured stability, and social and economic progress. The government established respect for property rights and the rule of law. It maintained a high degree of transparency, which was reinforced by perpetuating the Tswana tribal tradition of consultation. These consultative institutions, known as "*kgotla*", inculcated and created a degree of trust in the government by the population such that the authorities were seen as serving the people and promoting development and not as the instruments of one group or individuals for the purpose of amassing wealth. The Tswana tradition also respected private property, and it has been argued that the fact that many of the tribal leaders who helped usher in modern government were also large cattle owners may have reinforced this aspect.

Another outstanding feature that explains the country's success emanates from prudent economic management that has made it possible to avoid the "Dutch disease", which describes a situation where the exploitation of natural resources is associated with a decline in the manufacturing sector. Revenues from diamonds were invested in public goods and infrastructure, and the government also took measures to help boost productivity by limiting parastatals and avoiding import-substitution policies. The government also pursued policies that avoided the "volatility curse" by disassociating public expenditure from revenue. Instead, the government established savings funds, thus avoiding typical pro-cyclical behaviour and real exchange-rate volatility.

It is also laudable that the government understands the finite nature of the diamond resources and over the years has put in place appropriate policies to prepare for the depletion of its mineral base. Main actions to this end involve accumulating funds for the future, building infrastructure, and investing in health and education. Such policies have left the government in a relatively strong position to facilitate a soft landing once the diamond reserves are depleted, possibly by 2029. In line with this approach, for most years, domestic saving has been above 40% and investment about 35% of GDP. In addition, the government has been undertaking efforts to promote economic diversification dating back to 1968, with the enactment the Industrial Development Act. Since then, the authorities have put in place diverse policies, strategies and incentive schemes to promote economic diversification over the years. The most recent strategy, which stands out as the most comprehensive, is the Economic Diversification Drive (EDD) initiative. The short-term strategy of the EDD initiative is to use administrative interventions to use local procurement and government-preference margins to promote the development of local companies, while the long-term strategy is

to develop a vibrant and globally competitive private sector, independent of government support and protection. The master action plan has six notable thematic areas: *i)* Sectoral Development and Linkages; *ii)* Investment and Finance; *iii)* Research, Innovation, Technology Development and Transfer; *iv)* Export Development and Promotion; *v)* Entrepreneurship Development; and *v)* Quality Control, Standards and Production. While it may be too early to assess the success of the EDD, it is praiseworthy that the government takes this as a very critical initiative, as evidenced by the establishment of a National Strategy Office under the Office of the President to co-ordinate its implementation.

At independence, Botswana was one of the poorest countries in Africa, ranking amongst the least developed countries of the world, with a per capita GDP of about USD 70. Thirty years later, Botswana had transformed itself into an upper-middle-income country thanks to mineral (diamond) discoveries and effective use of its revenues, and into one of the fastest growing economies in the world, with an average annual growth rate of about 9% between 1966 and 1999.

Per capita GDP at current prices more than doubled at current prices from USD 3 204 in 2000 to USD 6 877 in 2008, before the recession-induced decline to USD 5 822 in 2009 as demand for diamonds and other minerals slumped. In 2010 and 2011, per capita GDP at current prices was USD 7 427 and USD 8 680, respectively. Per capita income grew at an average annual rate of 7% during the 1980s, decelerating to around 3% in the 1990s, still higher than its comparators in Africa. That this could be achieved without incurring the "resource curse" often associated with mineral-led economic growth emphasises that the critical factors to harness natural resources for sustainable human development are political stability, good governance, prudent macroeconomic policies, government expenditure geared towards promoting investment in infrastructure, education and health, and avoidance of an overvalued and excessively volatile exchange rate. The major policy lessons are: *i)* the importance of social policies to translate mineral wealth into broad-based development results; *ii)* the need to strengthen institutions and state capacity early on as a key objective of development strategies; *iii)* developing fiscal regimes for rent capture and fiscal expenditure based on a transparent and fair system, preferably managed at a central level in order to minimise distributional conflicts and regional disparities; *iv)* maintaining flexibility for negotiating mutually advantageous contracts with multinational corporations; and *v)* putting in place savings and stabilisation funds to manage large and volatile resource flows, while minimising the Dutch-disease effects and pro-cyclical fiscal policies.

BURKINA FASO

Burkina Faso has significant natural resources. Eight industrial mines are currently operational. In addition to gold, the country has many other minerals it can exploit, such as nearly 20 million tonnes of manganese at Tambao. There is also bauxite at Kaya and Kongoursi, with a 1.5 million tonne capacity. The phosphate capacity is estimated at more than 63 million tonnes at Kodjari. The country also has copper, zinc, lead, iron, nickel and other minerals.

The first private industrial mines emerged over the last decade. Gold exports totalled 31.7 tonnes in 2012, contributing the equivalent of XOF 862.2 billion in foreign currency in 2012. Gold helped increase the amount of foreign direct investment (FDI) in the country, from an average of XOF 3.8 billion between 1985 and 2002 to 37.8 billion between 2003 and 2012 (about ten times the amount). More than sixty international firms (Australian, Canadian, South African, etc.) are involved in exploration activities. In the coming years, gold exports are expected to rise substantially with the opening of new gold, zinc and manganese mines.

Although its contribution is still relatively weak, the exploitation of natural resources is gradually helping transform the economy. In 2012, the exploitation of mining resources represented 12.5% of GDP, compared to less than 1% in 2005.

The exploitation of natural resources still has a very limited impact on the economy as a whole, and even less of an impact on the local areas of the sites and the people living in those areas. Taxes and royalties must be paid for mining, and in 2012 the government collected XOF 188.69 billion,[1] less than 20% of total government revenue. This mining revenue is injected straight into the national or municipal resources, and can be used for any budget stream. There is no specific mechanism to allocate resources obtained from gold.

Production is exported without any local processing. Some local inputs are used in the production of gold. These include water, fuel, land, labour and technical services (geophysics, geochemistry and sampling). The technical services are often insufficient in terms of quality, quantity or both. In total, mining contributes to creating only 5,000 jobs, most of which are low skilled.

The structural transformation of the economy remains slow. Gold and cotton are the main export products, accounting respectively for 69% and 18% of total exports in 2012. Other products with a strong potential include livestock products, fruits and vegetables, shea butter, peanuts and sesame. Very little processing of these products is done locally before export, although there are investment opportunities and possibilities to subcontract to local or foreign companies. Gold, for instance, is refined to 18 carats before export; all further refinement taking place outside Africa. Cotton is exported immediately after ginning. About 1% is used locally by the local spinning company. By-products (cottonseed cakes, oil, etc.) are used by other companies to produce animal feed and soap. Although exported raw, cotton has helped structure local economies. It has boosted trade and enabled a series of industries to develop, including oil mills and soap factories. Cottonseed cakes are an important food supplement for livestock and play an essential role in intensive livestock farming in Burkina Faso. Cotton farming has created more than 250 000 jobs, and almost 3 million people in Burkina Faso live directly or indirectly from the cotton industry. As a result of the cotton-sector crisis of the past five years, production has diversified somewhat towards cereals (maize), sesame and cowpeas.

The government has recognised the need to strengthen policies to diversify and transform the economy by improving the value chains of agricultural, forestry and livestock products with a high potential. For this reason, as part of its SCADD adopted in late 2010 for the period 2011-2015, the government is focusing on creating growth poles. The Bagré pole is currently in the experimental phase.

Gold production has reduced the country's heavy dependence on a single export commodity (cotton). It has not resulted in "Dutch disease", and therefore has not damaged agricultural production. Gold mining sites are supposed to be closed during the rainy season, so in theory mining complements agriculture. Nevertheless, sometimes fields are spoilt by gold prospecting. Schools are also deserted in certain areas where gold has been discovered.

The main challenges for Burkina Faso in the area of natural resources are:

- Developing value adding services for natural resources: the country loses revenue because of the lack of skilled labour;
- Safeguarding production: the economy loses about 1.5 tonnes through fraud in artisanal mining;
- Improving information on mineral resources and the sector's legal and regulatory framework.

Gold is not a renewable resource, and revenue from this activity could be used to help local development by building infrastructure to improve road access and connections, and by fostering the enhancement of the value of agricultural, forestry and livestock products with a high potential.

A special infrastructure fund that will collect contributions from the extractive industries could be set up to make the management of revenue from natural resources more transparent. This fund would serve to finance basic infrastructure for Burkina Faso's future (paved roads, electrification, ICTs, railways).

Burkina Faso's development prospects depend on the creation of adequate infrastructure, better youth training and competent monitoring and control systems. Burkina Faso also needs to intensify its research to grow its exploitable deposits and diversify its production of minerals (zinc, silver, lead, copper, manganese and limestone cement).

1. However, in terms of quantities already produced, there is growing criticism of how little goes to the central and local authorities. The environmental impact and health and safety of some sites is also criticised. To help restore the environment, an environmental restoration fund was created in 2011, to which seven companies contributed around XOF 3 billion.

BURUNDI

Burundi has substantial natural resources, especially minerals and hydroelectric potential, but its landlocked position is aggravated by a lack of infrastructure, a poor business climate and a relatively unskilled labour force. Population density, one of the highest in Africa (about 310 people per km2) brought about by high annual population growth (2.6% in 2010) is a burden on its natural resources.

These pressures, combined with traditional farming methods, constantly degrade the country's eco-systems and this trend is now accelerating, with farmland shrinking each year (from an average 1.04 ha per family in 1973 to 0.50 ha in 2012). Farming on smaller plots is partly responsible for weak agricultural performance and slowing modernisation. It causes soil exhaustion and erosion and also rules out agricultural practices like leaving land fallow and crop rotation.

Another major result is exhaustion of forest and agro-forestry areas which have shrunk since 1992 from 211 000 ha (8% of the total land area) to an estimated 133 500 ha (5% of the land area). This sub-sector provides about 95% of the country's energy and is being deforested by about 2% a year. Despite government measures, the trend is socially and economically disastrous, especially for the poor who live off the land.

The government is trying to encourage investment in agro-food. Over the last decade, traditional cash crops, especially coffee and tea, have been hard hit by lawlessness, quality of services and low farm-gate prices. This led to inadequate husbandry, and coffee bushes now need to be renewed to boost productivity. Reforms to open up coffee and tea farming are lagging and output remains low, with erratic world prices a big challenge to producers in search of adequate income.

Several surveys highlight the medium- and long-term potential of mining, which is presently only a small sector. Burundi has large reserves of lateritic nickel, vanadium, phosphates, carbonatites, peat and limestone, along with the world's second largest reserves of coltan (colombite-tantalite) – some 200 million tonnes (6% of the total). National refining of nickel ore is planned to add value before export and to provide jobs.

The government has begun reforming mining law, introducing the certification of ore for export so as to encourage big producers to invest. Meanwhile, and for lack of proper resources, mining is done by individuals for subsistence leading to environmental degradation and also by children, at the risk of their health. Despite the tough working conditions and the shady nature of the operations, individual mining does supplement agricultural incomes for families. It also increases commercial activity in mining areas and adds to the volume of financial transactions.

Burundi is linked to two watersheds – the Nile (13 800 km²) and the Congo River basin (14 034 km²) – which produces a dense network inside the country of permanent rivers and lakes, which enables the cultivation of irrigated crops and livestock farming. Hydroelectric potential is estimated at 1 300 mW, of which only some 32 mW is produced. Even though the country's average annual energy consumption is one of Africa's lowest (only 23 kWh per person), local output is not enough to meet long-term local demand. The planned nickel refinery in the southeastern town of Musongati would need 200 mW alone, apart from the need for rehabilitation, creating other production units and the electrification of rural areas.

To meet the expected energy shortfall, the government has begun sectoral projects with support from the TFP (AfDB, the European Union, the World Bank, the German KfW and others) and with private investors. These include hydroelectric plants at Mpanda (10.4 mW) and on the Kaburantwa River (20 mW) and a new thermal plant in Bujumbura (5 mW). Work is under way on a hydroelectric plant on the River Kagunuzi (12 mW). Burundi will also get 49 mW from the Ruiz III hydroelectric plant (out of 145 mW), built under the ECGLC, and 27 mW from the plant at Rusomo Falls (out of 80 mW), which will also supply neighbouring Tanzania and Rwanda.

Progress in managing Burundi's natural resources is still uneven and the extractive sector accounts for less than 1% of GDP. Transparency is also a key issue even though the country has pledged to respect and apply the rules and measures for the minerals trade as agreed in the December 2010 Lusaka Protocol on the illegal extraction of natural resources. Among the instruments planned under the regional initiative are: the monitoring and certification of ore; harmonisation of national mining laws; and the establishment of a database for regional trade. The TFP are also urging Burundi to join the Extractive Industries Transparency Initiative (EITI).

CAMEROON

The structure of the Cameroonian economy has changed over the past decade, with a relatively large fall in the contribution of the primary sector to GDP, to the benefit of the tertiary sector. Every sector has experienced structural changes: thus, the contribution of agriculture (food or industrial agriculture, livestock, fisheries and forestry) has gradually but drastically diminished, falling from 33% to 17% between 1998/99 and 2012. Inversely, the oil sub-sector rose although to a lesser extent, with a 9% contribution to GDP in 2012, versus 5% at the end of the 1990s. In the service sector, trade, hotels and restaurants experienced major development while, over the same period, transportation and communication fell significantly.

Cameroon has plentiful natural resources – oil, wood, coffee, cotton, cocoa, rubber and aluminium – which drive exports. It also has enormous untapped potential in natural gas, iron, bauxite and cobalt.

Oil has an important place in the economy: over the past decade, it has represented on average 40% of exports in terms of value and contributed 25% of budget income. Since the 1994 devaluation and until the recent recovery of the sector, Cameroon has experienced weak growth, specifically reflecting the gradual depletion of oil resources. But the sector continues to play an important role in public finances and in the balance of external accounts.

Despite the underlying fall in oil production over the past ten years, the price of Cameroonian crude has continuously increased (except in 2009), explaining the good performance of oil revenues. Investment spending however was stuck at very low levels, at around 2.8% of GDP until 2006, the date at which the Heavily Indebted Poor Countries (HIPC) Initiative completion point was reached. Economic growth has increasingly suffered from the negative performance of transportation, a decline in forestry activities and breakdowns in the energy sector. Since the 1990s, the falling off of efforts at upkeep, maintenance and expansion of roads, ports, airports and railways became a major factor in the decline in the stock and quality of infrastructure. In energy, this disinvestment led to recurring power cuts and electricity rationing for companies. Lastly, in the forestry sector, formerly the largest source of jobs, a decline in activity has led to the closure of numerous companies.

Given these challenges and thanks to lesser budgetary pressure resulting from debt relief, since 2006 the Cameroonian state has committed to a new initiative aimed at upgrading and extending energy, port and transport infrastructure. It also sought to revive oil production by opening new fields and reopening a number of wells. Thus 2012 marked the revival of oil production, with an estimated rise of 9.7%. This trend should continue in 2013, with production expected to grow by 15.6%. Lastly, scheduled liquefied gas production in 2015 opens new and important prospects in the hydrocarbon sector.

In an attempt to maximise oil profits, the authorities have concentrated on producing broad regulatory texts, including: *i)* the mining code; *ii)* a national investment code; *iii)* the community investment charter; *iv)* EITI standards; and, *v)* the GESP. The mining code regulates all extractive activity and invested the SNH with the task of promoting the oil sector. In addition to granting prospecting licences and permits, the SNH must both attract investors and enjoin them to respect current regulations.

The State does not have a stabilisation fund as such to invest oil and gas revenues in long-term assets. Oil receipts are generally injected into the overall budget. When a surplus exists, a specific budget line is adopted or the money is allocated to building up central bank reserves.

Natural resource revenues have not been channelled sufficiently towards structural investments in infrastructure or productive sectors. However, for some time now the State has been involved in a programme to revive the productive sectors, specifically via strengthening key infrastructure. At the same time, it is attempting to increase the mobilisation of non-oil resources and thus to improve the budget structure. Overall, while the authorities have succeeded in maintaining a degree of macroeconomic stability, administrative dysfunctions persist reflecting governance failings – which hamper the optimal use of public resources towards the country's socio-economic development.

Drawn up in 2009, the GESP reflects the government's ambition to make Cameroon an emerging economy by 2035. With this strategy, which amplifies the political will to diversify the economy, the public authorities intend to work towards a deep transformation of the structure of the productive industries. The share of manufacturing in GDP should thus reach at least 23%. This policy also aims at boosting the role of manufacturing products in foreign trade, to the detriment of primary materials. This underlies the importance placed on activities relating to industrial transformation in general and the extractive industry in particular in the GESP.

Logically, the local transformation of hydrocarbons is key in the country's investment code. This code clearly states the multiple advantages – administrative, economic, customs and tax – from which local and foreign companies transforming the sector's products *in situ* will benefit. The main changes introduced these past years focus primarily on giving local companies access to distribution activities of petrol products. These henceforth will compete strongly with Western multinationals, which traditionally monopolised distribution.

The PACD/PME programme also aims to support the creation and development of small- and medium-sized enterprises (SMEs) through more efficient processing and conserving of local mass market goods. The Ministry for Small and Medium Enterprises, the Social Economy and Crafts has been active in this task. Through a multipronged approach of direct and indirect support, the PACD/PME facilitates SME access to technology, finance and essential services (including feasibility studies, incorporation, training, drawing up technical construction plans, and technical and administrative support, etc.).

Regionally, the authorities are also focused on promoting local processing through the creation of the 'CEMAC product' label under the Community Investment Charter. Products originating in the CEMAC are given substantial tax advantages over other foreign goods.

CAPE VERDE

Cape Verde lacks non-renewable natural resources and therefore does not export energy or hard commodities. Extractive industries accounted for less than 1% of GDP in 2007-10, and the country relies heavily on fuel imports. The country's marine potential remains largely untapped. Whereas fisheries provided more than three quarters of total exports in 2010, the sector is relatively small in the Cape Verdean service-driven economy and accounted for only 1% of GDP that year.[1] The country's lack of sizable arable land and dry climate make it unsuitable for large-scale agriculture, and about 90% of the food it consumes is imported. The dry climate also means that a lot of the water for irrigation and national private consumption comes from oil-fueled desalination plants. Cape Verde, however, has capitalised on its biodiversity and landscape through the development of tourism, which has become the country's economic engine.

A recent study estimates that natural resources in a broad sense contribute about 35% of GDP, about half of which comes from tourism. However, the study points out that this contribution could reach more than 56%, if losses from environmental degradation were avoided and potential gains from natural resources exploitation, such as the promotion of eco-tourism, were maximised. The largest loss from degradation comes from beach sand extraction for construction, which costs the country 4% of GDP. While more attention has been given to the problem since 2009, sand extraction from beaches and saline intrusion in farmlands persist (PEMFAR 2011). In addition, about a third of Cape Verde's precious rainwater goes unharvested every year.[2] The country, on the other hand, has been successfully harnessing its wind and solar potential, thereby reducing its dependence on oil-fueled stations. Renewable energy penetration was estimated at 25% in 2012, up from only 3% in 2009 (PEMFAR 2011).

The development of tourism has underpinned Cape Verde's process of economic and social transition in the last few decades, which culminated in the country's graduation out of the LDC category in 2008. The economy grew by an average of about 6% in real terms over the decade ending in 2010, despite the sharp decline recorded in 2008 and in 2009, a result of the global economic and financial crisis. Limited available data suggests that the hotels and restaurants sector increased its contribution to growth significantly: between 2006 and 2007, this sector contributed the most, about 30%, to the country's growth followed by the trade sector (23%). This is in contrast to the average contribution of less than 5% during 1992-2002 and of about 14% during 2003-06. Yet tourism's substantial contribution to economic growth has failed to translate into a significant change in the structure of employment in the country: hotels and restaurants accounted for about 4.6% of total jobs in 2010, only 2.1 percentage points higher than in 2000.

The nature of Cape Verde's tourism partly explains why such a dynamic sector has had little impact on job creation. Investment in all-inclusive hotels has been the most dynamic feature of the sector in recent years. About 76% of tourist beds in Cape Verde are concentrated in all-inclusive hotels and on two of the nine inhabited islands. This model of tourism, however, generally has little impact on local development because its value chain tends to be controlled and managed by foreigners, with limited local involvement. Most profits are funneled abroad (see, for instance, Akama and Kieti 2007 in their study of the Mombasa resort in Kenya that also discusses similar dynamics in Cape Verde). Indeed, the total repatriation of profits increased substantially (more than 23 times) between 1999 and 2010, suggesting that the positive impact of higher foreign investment was mitigated by significant financial outflows. Profits repatriated in 2010 were equivalent to 42% of goods exports and to about half of incoming remittances. While it is not possible to determine from available data

how much of these outflows are directly associated to tourism-related sectors (including construction), the high correlation between unprecedented outflows of profits and growth in these sectors suggests that the all-inclusive model of tourism generates high leakage rates and narrow economic benefits.

1. "Boletim de Estatísticas 20 anos," Cape Verde Central Bank, accessed in 13 September 2012 and GDP 2007-2010 data, INE 2013, www.ine.cv/actualise/destaques/files/53d5516d-527a-4971-b408-a56fb67aaad5Contas%20Nacionais_2007-2010_VF.pdf, accessed on January 30 2013
2. Public Expenditures Management and Financial Accountability Report (PEMFAR) in the Environment Sector in Cape Verde, 2011

CENTRAL AFRICAN REPUBLIC

The country has vast natural resources that have not yet been exploited. Only 700 000 of the 15 million hectares of useful farmland are cultivated. Dense tropical forest covers 34 million hectares, offering great potential for forestry. Mineral resources including diamonds, gold, uranium, iron, calcium and copper are just as significant. These natural resources, however, have not enabled the country to experience economic development involving structural transformation. Instead, agricultural has continued to focus essentially on subsistence food crops and unprocessed cash crops for export. The only mineral resources exploited are diamonds and gold, and they have always been mined by artisanal miners. Only the timber industry has begun to process goods, albeit on a small scale.

Political and strategic errors and poor governance have been compounded by the country's isolation and vast size. Similarly, mediocre infrastructure, the small domestic market and the weak private business sector all contribute to the poorly diversified economy. Manufacturing value added per capita (VAM) fell from USD 21 to 16 between 1990 and 2010, affected by political unrest. This contributed to the Central African Republic's classification as a country in the first phase of industrialisation.

Progress has been made in improving the institutional framework. The mining and forestry codes have been revised to adapt them to international standards and foster the processing of natural resources. Measures taken over the past few years enabled the country to become EITI compliant in March 2011 just two years after being admitted as a candidate country. The government signed a Voluntary Partnership Agreement on Forest Law Enforcement, Governance and Trade (FLEGT) with the European Union in 2010. It also joined the United Nations Collaborative Programme on Reducing Emissions from Deforestation and Forest Degradation in Developing Countries (UN-REDD) for the management of the Congo Basin Forest in 2010. In May 2012, the country's parliament passed a law to create an agency to manage forestry resources, the *Agence autonome de gestion des ressources forestières*.

CHAD

The discovery of oil and its extraction beginning in 2003 have changed the economic direction of Chad, and extractive activity is increasing. The considerable taxes paid by the oil sector have speeded up the country's growth. GDP at current prices doubled between 2003 and 2005, and the country's annual growth rate averaged nearly 8% between 2000 and 2011.

The money collected from the oil industry, along with foreign loans, has been used for priority funding of large-scale investment in the key sectors of infrastructure, hydrocarbons and transport, to build a solid national economic base, in order make up for 40 years of political instability and wars and to make the economy more attractive. Another aim of the investment programme is to develop the country's natural resources through major industrial investment in the traded productive sector. The decision to produce goods in heavy local and regional demand testifies to the government's keenness to replace imports with factories processing local raw materials.

In the oil sector, the main project along these lines was the construction of an oil refinery at Djermaya, in partnership with China. The refinery, which began operating in July 2011, has a capacity of 1 million tonnes, about twice what is needed to meet local demand. The government owns 40% of the plant and the CNPC 60%.

The development of the cotton sector, which predates that of oil, was accomplished through a sectoral structure dominated by the firm Cotontchad, which played a leading role in ginning, technical help and marketing. The cotton sector was the mainstay of the economy before oil, earning some 65% of export revenue and employing directly or indirectly about a quarter of the population. Its collapse, due to longstanding low world cotton prices and to the technical, financial and production problems of Cotontchad, prevented consolidation of efforts to develop it and preserve the economic gains. The government decided in 2012 to invest XAF 5 billion to revive Cotontchad.

Structural transformation through the primary sector, through industrialisation or progress towards a services economy has been hampered partly by the predominance of agriculture (52% of GDP), which continues to employ more than half the working-age population. It has low productivity, in contrast to the farm sectors of other sub-Saharan economies that have changed more substantially. An IMF survey shows that between 1995 and 2010 Chad's overall agricultural productivity grew only 0.8% , compared with 4.5% in Angola, 2.7% in Gabon, 5.3% in Niger and 2.3% in Nigeria.

The development of the oil sector, and to a lesser extent the cotton sector, is obstructed as in many developing countries by small domestic markets and by regional competition, chiefly in refining. Most CEMAC countries now have their own refineries, but Chad's economy has not seen all the spillover effects usually expected from oil prospecting and production. This is particularly true of local outsourcing, because Chad lacks the highly skilled labour needed in a sector dependent on sophisticated technology. The slow development of the oil and cotton sectors is also due to the way they operate, with the strong government presence in productive traded goods industries inevitably causing conflict between market forces and profit-seeking on one hand and social goals on the other. This situation can make it difficult to make certain hard choices in management and strategic decision-making and can ultimately hamper the running of a company.

One example is the Djarmaya refinery, which opened on 29 June 2011 but temporarily closed on 19 January 2012 after a disagreement between the government and its Chinese partner over what price the oil should be sold for. The dispute was soon solved, and the refinery

reopened on 6 February. Such industrial facilities in which the state has a majority stake will require substantial short-term (and even medium- and long-term) resources if social rather than market considerations prevail in their long-term operation and maintenance.

Chad's economy has undergone little structural change, to judge by the development of its two main natural resources (oil and cotton). Yet this process of value creation is a key instrument for promoting strong and diversified economic growth in Chad. It could be speeded up through greater attention to market forces, which would require a shift in public policies. Private sector support and a good business climate are also vital in order to take greater advantage of oil and cotton resources.

COMOROS

Although the Comoros is a small archipelago measuring 1 660 km², natural resources constitute a major potential for the Comorian economy. Good average rainfall (1 500-8 000 mm) provides surface water and groundwater to develop hydroelectric power. There is also sufficient solar radiation to run thermal and photovoltaic power stations. Finally, energy can be generated from geothermal reservoirs around the Karthala and La Grille volcanoes.

The country also enjoys a rich natural heritage and biodiversity, which it could potentially use as part of an ambitious, environmentally friendly tourism strategy. Such a strategy could combine top-quality infrastructure with small ecotourism units based on the model adopted by English-speaking East African countries such as Kenya and Tanzania (mainland and Zanzibar).

Agriculture, livestock and fisheries is the main contributor to the economy of the Comoros. The country is one of the world's leading producers of several cash crops: ylang-ylang (50 tonnes in 2011), bourbon vanilla[1] (40 tonnes in 2011) and cloves (4 500 tonnes in 2011). Because cash-crop prices fluctuate so much, with no stabilisation mechanisms, Comorian farmers have gradually turned to the more profitable food crops instead.

Agriculture in the Comoros consists of small, traditionally run family farms. Productivity is extremely low because farmers use outdated technologies, lack training, do not have access to credit and because the limited public resources available are not used efficiently. There is no land registry and land management is dictated by individual rather than collective interests, which holds back land consolidation, the first step towards modernisation and development of a commercial focus.[2]

Demersal and pelagic species provide the Comoros with waves of potential fish resources estimated at 33 000 tonnes a year.[3] The sector provides about 16 000 direct and indirect jobs and has an impact on more than 10% of the population. It contributes an estimated 21% to GDP and provides 5% of government revenue in foreign currency through European Union payments for licences to European fishing companies. Most fishing is done on a small scale, but some semi-industrial fishing also takes place. Like agriculture, however, the fisheries sector receives too little government support.

Since the Comoros gained independence in 1975, there has been no structural change to the economy. Agriculture and services (small-scale retail, banking services) still make up the bulk of economic activity. Industrial activities are still a bare minimum. Almost all domestic consumption (95%) is imported. The country's membership to the franc zone and the strong Comorian franc favour imports over local goods. Moreover, low taxes on imports and the absence of financial incentives to support investors hinders the development of local manufacturing based on rational exploitation of natural resources, especially in the agribusiness sector.

In addition to the lack of structural changes there is no long-term perspective[4] and a lack of institutional and regulatory frameworks for sectors of the economy to support and guide them in exploiting natural resources in a sustainable manner. Without a strategic vision, the economic foundations of the economy of the Comoros (especially agriculture and fisheries) will be unable to envisage the professionalisation and modernisation needed to boost growth and create jobs

1. The other two producers are Madagascar and Réunion.
2. The land problems are less of an issue on Anjouan, especially on the Nioumakélé plateau, the island's main agricultural production area, where pooling land is traditional as part of hedging practices.
3. This figure was an estimate made by the Food and Agriculture Organization of the United Nations (FAO) in 1970 based on water productivity estimates in regions similar to the Comoros. The figure has never been updated.
4. The planning commission (Commissariat général au Plan) does not currently have the means to carry out this mission for which it is responsible.

CONGO, DEM. REP.

Agriculture and mining have been the economy's main pillars since 1960 and still account for about half of GDP (in 2012, agriculture 40% and extractive industries 12%). About 70% of the population live in rural areas and depend on the two sectors. Export earnings also come chiefly from mining (88% in 2012).

The country has substantial agricultural, oil and mining potential. Its water resources can provide great amounts of electricity and safe water and 60 million of its 100 million hectares of dense tropical forest can be sustainably used. Its sedimentary basins contain more than 1 100 minerals, including 30% of the world's diamond reserves, 60% of its cobalt and 10% of its copper. These riches have not led to the country's development but have on the contrary fed wars between 1990 and 2000, which themselves encouraged fraud and so limited the contribution of these resources to the economy. About 60% of the minerals mined in eastern DRC are smuggled out and appear in the export statistics of neighbouring countries.

Economic progress between 1967 and 1974 was driven by mining which contributed 12% to GDP and provided 40% of government revenue. The sharp fall in copper and cobalt prices after the first oil crisis in 1974 caused the collapse of the biggest mining firm, Gécamines. In the 1980s, the sector was 25% of GDP, provided 25% of tax revenue and 75% of exports (60% from Gécamines). Two percentage points of the 5.5% drop in GDP between 1990 and 2000 were caused by the extractive industries and state mining firms suffered heavy losses because of their bad governance and heavy tax burden. The drop was also due to a hostile environment for private firms.

Promulgation in 2002 of new agriculture, forestry and mining laws and regulations amid high world prices helped persuade several big multinational firms (BHP Billiton, De Beers and Phelps) to set up in the DRC and revived forestry and mining activity. The 2008-09 world recession caused a big drop in prices of the country's main exports and thus a big fall in tax revenue. More than 40 mining firms shut down in Katanga province with the loss of about 300 000 jobs. Mineral prices rose again with the world economic recovery in 2010 and the country's extractive industries revived once more.

Oil exploration and output is still very small because of structural problems that have slowed down reforms needed for the sector to grow. Results are also poor because of low investment and outdated equipment which has led to closing some wells. Production fell between 2010 and 2012 because the firm Perenco was upgrading its equipment, but output should rise in the next few years as potential new oilfields are brought on stream by Soco International (in Virunga National Park) and Total (Lake Albert). Congolese oil is heavy-grade and not refined much before export and so does not yield much revenue for the government.

The energy sector has performed poorly since 1960 because of the outdated network and equipment of the national water firm Regideso and electricity company SNEL and their technical and financial problems. Their equipment is badly maintained and new investment is virtually non-existent. The sector is a drag on growth and very costly to industry and households. SNEL serves only 10% of the population, service is poor and it cannot meet demand, with lines in Kinshasa and from Inga to Katanga overloaded. Drinking water supply is steadily getting worse, with only 46% of the population having access.

The government has sold shares in mining and forestry operations to firms where the structure of the management is not clear. It signed contracts in 2008 worth USD 9 billion with a group of Chinese firms granting mining concessions in exchange for providing basic infrastructure. Gécamines and Sodimico sold their shares in four large mines without

making public the details of the deals. These deals are very controversial and some involved knockdown prices to owners of firms based in tax-havens whose real identities are hidden. The risk of embezzlement and loss of revenue is very great and the authorities should ban secret talks with such firms

To promote good management of natural resources, the DRC set up a national committee on the Extractive Industries Transparency Initiative (EITI)) in 2009. Under a UN security and stabilisation support strategy, five offices each offering full national mining services have been set up in North and South Kivu to improve traceability of products and maintain close links with the mining areas. The government decided in 2012 to review the mining and oil laws and regulations to make them much more transparent and stricter about bidding for contracts and protecting local communities. Such measures should combat corruption and help get the best possible prices for the country's natural resources.

CONGO, REP.

Congo's substantial natural resources, mainly oil, are a solid base for structural reform of the economy. The importance of oil has steadily increased since deposits were discovered and production began in 1957 and world prices began to rise. Output rose to 269 300 barrels a day in 2012 (from 65 000 in 1980) through new investment and full production of initial deposits. Congo is now the fifth largest producer in sub-Saharan Africa and oil is 70% of its nominal GDP and 90% of total exports. The oil ministry predicts output will peak at 140 million barrels in 2012 before declining to 40 million by 2029 unless new deposits are found. Recent estimates say the country has reserves that would last for another 40 years at the present rate of production.

Oil revenue (about 80% of government income) funds a great deal of public investment, which was USD 1.2 million between 2009 and 2012. (More than 70% of infrastructure spending is from domestic resources.) Oil income allowed the government to launch a bold programme to upgrade energy and transport infrastructure that should help economic diversification. A special "oil reserves fund" has been opened at the BEAC to receive unbudgeted surplus revenue from higher oil prices.

The country has other substantial mineral reserves, along with forestry resources, natural gas and good agricultural potential. Gas reserves are estimated at between 1.7 trillion and 2.6 trillion cubic metres (20 years of production at the current rate). Iron reserves are put at more than 2 billion tonnes and Congo has the world's second biggest forestry reserves after the Amazon. The forestry sector is 10% of non-oil GDP and generates XAF 100 billion in exports of wood (the country's second biggest export) and more than XAF 20 billion annually in tax revenue. Sustainable production of wood is estimated at 5 million cubic metres (1 million in 2011). Congo also has 10 million hectares of arable land. The huge mining potential is beginning to be exploited, with four projects under way, including one expected to start production in late 2013 and another in 2016, as part of the Congo Iron and Mining Project Development. But development of all these resources is hampered by serious structural constraints.

Congo has not yet managed to take best advantage of its natural resources. Management transparency has however improved with quarterly certification of oil resources by foreign auditors and posting of verification reports on the finance ministry website, new laws to improve management transparency in forestry and in mining (especially granting concessions) and signing up to the FLEGT action plan, which guarantees the origin and sustainability of wood products.

But natural resources management needs to be greatly improved with more and better information on extractable resources to conform with EITI standards, better management of the extractive-industry value chain (including maximising oil revenue through good contracts with oil companies) and better use of government resources through improved public finance management.

Profits from natural resources development have enabled the government to speed up its national transport programme and quadruple energy supplies over the past three years. Revenue from natural resources, especially oil, has also funded anti-poverty efforts and economic growth. Oil prospection and production has generated spillover activity, especially in metal industries, maintenance, technical assistance for drilling, seismic exploration and other services for oil companies. Other sectors, however, have benefited little from natural resources, so structural change to the economy over the last two decades has been limited.

Economic growth in recent years seems to have been more balanced but has not really changed structures. Oil has been the pillar of the economy since the 1980s. It provides 70% of nominal GDP, making the economy vulnerable to external shocks. Also, because the oil industry is capital-intensive, it provides few jobs. The non-oil sector has shrunk, with the tertiary sector contributing 18% of GDP, the secondary sector only 7% and the non-oil primary sector less than 5%. The weakness of the primary and secondary sectors contrasts with the importance of the country's natural resources, showing a potential for economic transformation undeveloped because of major structural impediments.

The main obstacles to this are poor infrastructure, a largely unskilled labour force and an unfavourable business climate. The lack of good infrastructure is marked in the energy and transport sectors, with only 10% of roads surfaced and only 38% of these in good or fair condition. Despite increased energy production capacity, inadequate electricity supply comes at the top of a list of ten complaints by businesses. Infrastructure services are still very costly, undermining competitiveness and productivity. Ill-trained labour and unsuitable skills (as shown by 17% unemployment among higher-education graduates) prevent the huge needs of the economy's promising sectors from being met. Serious problems with the business climate, as shown by the country's low rankings in the *Doing Business 2013* report, are other big obstacles to economic diversification. Legal unreliability is a major barrier to the private investment that is so vital for transforming the economy. These weaknesses are exacerbated by poor management of natural resources.

The government knows how important the country's natural resources can be for structurally transforming the economy and intends to step up its efforts to create the best conditions for this to happen. It plans to speed up building competitive infrastructure, especially the current upgrading of the road and rail corridor between the expanding port of Pointe-Noire and Brazzaville. It intends to create (with the help of several emerging countries) special economic zones (SEZ) and an investment promotion office to boost key economic sectors, a development bank for SMEs and vocational training colleges for skills needed in high-growth economic sectors (like two such centres in Pointe-Noire and Brazzaville specialising in construction and industrial maintenance). It will also encourage local processing of resources with subsidies and tax breaks and speed up the global action plan to improve the business climate. Finally, the government has launched a forestry and environmental programme to assess resources and improve the management of concessions.

CÔTE D'IVOIRE

The extractive energies (oil and gas) and information and communications technologies (ICT) sectors have generated positive developments in the nation's economy. The discovery of new deposits (the Foxtrot field in 1991, Panthère-Lion in 1993 and Baobab in 2001) and the rise in the price of hydrocarbons on world markets have stimulated the oil and gas sectors. ICTs have taken advantage of an ever-increasing demand and the existence of suitable infrastructure. The contribution of the telecommunications sub-sector to GDP is put at around 6% over the last five years.

With Nigeria and Chad, Côte d'Ivoire is among the chief oil producers in the West African region. Production of crude oil and natural gas rose continually between 2001 and 2005. In 2006 export earnings from crude oil and oil products were greater than those from the main export crop, cocoa, of which Côte d'Ivoire has been the world's biggest producer for decades.

Nevertheless, overall the benefits in terms of jobs and competitiveness of the structural changes that have taken place in these sectors remain very limited due to the socio-political crisis that affected the country for more than ten years (1999-2011).

Yet the country's substantial natural resources still represent potential engines of growth and job creation over the next ten years. Mineral raw materials at present only account for 1% of GDP but are a sector of the future. The country's subsoil contains estimated wealth in the form of 3 billion tonnes of iron ore, 390 million tonnes of nickel, 1.2 billion tonnes of bauxite, 3 million tonnes of manganese and 100 000 carats of diamonds. Prospects for fossil resources (crude oil and natural gas) are equally promising in the light of recent oil and gas discoveries. There are plans for more intensive exploration in deep territorial waters beyond the continental shelf.

Plans to intensify mining research involve: the awarding of licences to operators equipped with the greatest technical and financial capacities; improving the geological and mining information system; and, launching prospection and evaluation work on the deposits of reserves of iron at Monogaga and phosphates at Eboinda.

Côte d'Ivoire has major plant and marine resources. About 75% of the country's land is arable. The quality of the soil and the agro-climatic conditions make possible the cultivation of a wide variety of tropical plants, including cashews, rubber, bananas and pineapples, which, together with coffee and cocoa, are major cash crops.

These natural resources provide the state with a major source of income. Revenues from some of them (oil, natural gas, coal, minerals, forest products) amounted to 7% of GDP in 2010, according to the national council of the Extractive Industries Transparency Initiative (EITI). Taxes, duties, dividends and other income from the energy sector (oil, gas and electricity) accounted on average for about 14% of state revenues in 2008 and 2009.

These major natural resources suggest a favourable outlook for the nation's economy but bottlenecks continue to hamper management and put a brake on structural transformation efforts of the country.

First, relationships between the natural resources sector, and in particular fossil fuel and mineral resources, and the other sectors of the economy are very weak. Furthermore, the industrial processing of agricultural raw materials and fisheries' products is still inadequate for the generation of strong economic growth. During the last decade the rate of local processing was 2% for rubber, 5% for cashew nuts, 10% for coffee, 20% for cotton

and 27% for cocoa. In addition, the lack of clarity that characterises the contracts for the sharing of production between the government and the oil companies through different confidentiality clauses means transparent management of the resources is impossible. Yet again, the country has no specific instrument to manage income from natural resources, which is pooled with other resources in the general budget. Finally, the country's ability to conduct good governance of its natural resources is still relatively weak.

Côte d'Ivoire should make full use of its natural resources with a view to supporting structural transformation of the economy and achieving sustained growth. With this in mind it should first strengthen the links between the natural resources sector (fossil fuels and minerals) and the other branches of the economy, in particular through refining and marketing, as well as a greater use of local services and equipment. Furthermore, the state should adopt specific policies to train staff suited to the needs of natural resource management. These needs concern: *i)* better capacity in the conception and negotiation of exploration and exploitation contracts to maximise public revenues while not discouraging private investment in the natural resources sector; *ii)* the creation of a framework of participatory and transparent revenue management from the exploitation of natural resources; and, *iii)* management of the environmental and social aspects with a view to promoting sustainable development.

In regard to agricultural raw materials and fisheries' products, the authorities need to reallocate economic activity from the primary to the secondary and tertiary sectors, which are relatively more productive, resulting in exports of products with high capital intensity. In this respect the free zones created by the government are to be encouraged. The fish processing businesses in these zones have made an appreciable effort in taking on more than 2 800 new staff in 2011, 98% of them Ivorians, in spite of the crisis. The fish processing industry is a key sector of the economy since it alone accounts for around 15% of income from the country's exports to the European Union.

DJIBOUTI

The most important structural changes in Djibouti between 2004 and 2009 were the result of a massive influx of FDI, which expanded the transport sector and related services. Most of the investment came from the Gulf states, especially Dubai, and focused on capital-intensive sectors: building port, airport and road infrastructure, a free-trade zone, and also real estate and tourism.

The biggest investments were by the port operator Dubai Port World, especially the building of an oil terminal at Doraleh in 2006 and a container port in 2009, a luxury hotel (the Kempinski), residential housing and a free-trade zone. The firm also won contracts to manage the airport, sea ports, the oil terminal, the container port and the customs department.

These investments increased the importance of transport and logistics in the economy and boosted growth of related sectors such as tourism and construction.

Port activity, commerce, haulage and logistics still dominate the tertiary sector, which accounts for 73% of GDP. Transport provides some 15 000 direct and indirect jobs, which is 15% of the working population and which (with the civil service) remains the chief source of employment. These investments have improved the country's competitiveness in cross-border trade, for which Djibouti ranks 41st in the World Bank report *Doing Business 2013* but 171st out of 185 countries overall.

Politics also significantly helped the transport sector to expand, as after the 1997-2000 war between Ethiopia and Eritrea, Djibouti became Ethiopia's main access to the sea.

The country has few natural resources and most are not exploited. Energy sources are mostly geothermal and to some extent oil. The government is trying to raise funding for new test bores in 2013 to find and assess geothermal potential. If proven, extraction could start in 2014.

Four prospection contracts were signed in September 2011 with Oyster Oil & Gas, but results are not yet available. The country could also benefit from oil extraction in South Sudan with the laying of a pipeline from there and by building a refinery in Djibouti.

The country has mineral resources, but most have not been assessed. Vast sediments in the southeast could be mined in 2013 to make cement, and geothermal development could enable extraction of minerals such as zinc.

Djibouti also has reserves of diatomite, silica, gypsum, ignimbrite and perlite, which have industrial uses, as well as volcanogenic massive sulphides, which contain high concentrations of both base and precious metals. No studies have yet clearly identified and quantified these deposits.

The firm Stratex Djibouti is prospecting for gold (in 10 concessions) and first results are promising. A dozen more prospection permits have been requested (but not yet granted), and production could begin in 2013.

Salt and fisheries are agricultural raw materials. A concession to mine salt deposits at Lake Assal was granted to a US firm in 2008. Production of an estimated potential of 1.2 million tonnes a year was halted for technical reasons but should resume in 2013 with the arrival of a new investor.

Djibouti has 372 kilometres of coastline with large quantities of fish that could provide an annual catch of 50 000 tonnes without hindering natural rebuilding of stocks. Current annual production is between 1 500 and 2 000 tonnes, mainly because small-scale fishing was originally promoted to protect resources and marine life. The sector is entering a new stage with the signing of a contract in October 2012 with an Algerian firm.

Development of natural resources has been too small (or nonexistent) to have brought growth-boosting structural change to Djibouti. Such change is emerging, however, with projects to resolve the energy and water constraints and gradual government efforts to develop these resources. The opening of the electricity line from Ethiopia, geothermal power prospects and building a desalination plant should help reduce still very high production costs. The business climate is hampered by small and costly supplies of water, electricity and labour. Apart from production costs, the general running of the country still needs improving to make it more attractive to foreign investors.

EGYPT

Egypt's economy is among the most diversified in Africa and does not depend on a single abundant natural resource for future growth. Nevertheless, energy resources have played an increasingly important role over the last decade relative to agriculture, manufacturing and services. Between 2000 and 2011, agriculture, manufacturing and services each lost 2 to 3 percentage points of their contribution to Egypt's GDP, whereas extractive activities gained 7.6 percentage points. The weak performance of services is largely explained by the sharp decline in tourism following the revolution. Financial services gained about 1 percentage point of GDP and telecommunications doubled its contribution to 4%. Public administration gained 2 percentage points.

Structural reforms that opened the country up for investment and improved the business climate drove economic expansion before the revolution. FDI reached USD 10 billion in 2006, up from USD 1 billion in 2000. Investments largely went into oil and gas exploration and extraction, leading to a significant expansion of reserves, as well as into various service industries, especially tourism, finance and telecommunications. In contrast, much of the manufacturing sector suffered from trade liberalisation following Egypt's accession to the World Trade Organization in the late 1990s. The textile sector in particular suffered heavily, as this largely inefficient state-owned sector began to face competition from cheaper imports, in both domestic and export markets. Egypt has also managed to attract a significant car manufacturing industry, but it produces largely for the domestic market, which enjoys high import barriers.

Oil, natural gas and derivative products are the most important items in Egypt's natural resource basket. Egypt has also begun to mine and export gold, but so far only in small quantities. Extractive industries accounted for 15.6% of GDP in 2011/12. Exports of oil products and derivatives amounted to USD 13.5 billion in 2011/12, accounting for just over half of all exports. Soft commodities come a far second, with USD 2.5 billion in agricultural exports in 2010. The biggest line items are oranges (16% of exports in 2010), onions (7%) and cotton (6%). Gas production has expanded significantly over the last decade, thanks to foreign investment into the sector. In 2011, gas production reached 2.17 trillion cubic feet (tcf), up from 0.74 tcf in 2000. According to the Egyptian Natural Gas Holding Company (EGAS), known reserves increased from 53 tcf in 2000 to 77 tcf in 2011 (quoted in Oxford Business Group). Yet-to-find reserves that should be discovered by 2040 are estimated at 90 tcf. Despite this strong growth, existing production capacity is insufficient to meet both export and domestic demand. As its export commitments to European and Asian markets are set in long-term contracts, Egypt intends to build infrastructure for gas imports.

The oil sector presents a similar, if more mature, picture. Proven reserves increased from 3.7 billion barrels (bbl) in 2010 to 4.4 billion barrels in 2012, due to exploration activity by international investors (*Oil and Gas Journal*, January 2012 estimate). Despite these new finds, Egypt's oil production has been in decline. The US Energy Information Administration (EIA) reports that production in 2011 (727 000 bbl/day) was only 78% of its 1996 peak (EIA, International Energy Statistics). Domestic oil consumption, in contrast, has grown by over 30% over the last decade and reached 815 000 bbl/d in 2011 (www.eia.gov/cabs/Egypt/Full.html), surpassing production since 2008.

The puzzling contradictions of high and growing domestic demand, abundant natural resources and insufficient production are explained by artificially distorted prices. Egypt has established a massive energy price subsidy scheme that now carries the risk of undermining the very resource wealth whose benefits it was meant to spread. As a result of the subsidy, Egypt's energy consumption is well above that found in comparable economies and continues

to grow much faster than elsewhere. Consumption of natural gas grew by 15% in 2011, a year of economic contraction. As world market prices for oil have risen, the government's losses from providing cheap fuel to industry and households have become increasingly heavy, exceeding USD 1 billion per year as of 2010 (*Egypt Independent*, www.egyptindependent.com/news/egypt-joins-list-mazut-importers). The supply-side instrument of the energy pricing system is the monopsony of Egyptian Petroleum Corporation (EGPC). Oil producers are required to sell their production to EGPC at a price below the world market price. EGPC then feeds the crude oil into its refineries or sells it on international markets. Existing oil fields have delivered sufficient margins under this system, but these fields are maturing and newly discovered reserves are increasingly difficult and expensive to access. As a result, investment in new production has been insufficient, as potential investors expect better returns. This situation is exacerbated by the current economic and political uncertainty, which further deters investment.

Up the value chain, Egypt prides itself on having the largest petroleum refining sector in Africa. Refining crude oil to higher-grade petroleum products is the first step in the petroleum value chain and could be an important stepping-stone to other higher value-added industries in the sector. Like most government-run industries in Egypt, however, refining suffers from underinvestment and outdated capital. Most of Egypt's refining capacity is at a low technological level and cannot meet domestic demand for refined petroleum products such as diesel and fuel oil. An important improvement to the situation will be Egyptian Refining Corporation, the first internationally financed (USD 3.7 billion) and privately run refining plant on a modern scale, which will supply 50% of Egypt's diesel demand. Construction of the refinery began in 2012. Given Egypt's sizeable domestic market for refined petroleum products, further upgrading of the refining sector through public-private partnerships (PPPs) could ensure the sector's survival.

Egypt boasts substantial potential for both structural transformation towards more productive activities and for making the most of its immense resource wealth. To achieve these goals, it must tackle two challenges. First, liberalising the energy prices facing producers, refiners, households and businesses would do much to bring incentives back into line with the long-run objective of sustainable investment-driven growth. Second, attracting much-needed investment to upgrade capital-intensive industries is crucial to making Egyptian industry competitive. The biggest obstacles are the ossified market structures in these sectors, which are often dominated by a few oligopolistic or monopolistic firms that are either government-owned or in the hands of oligarchs following privatisation during the former regime.

EQUATORIAL GUINEA

Equatorial Guinea is very rich in natural resources: oil, gas, mines and forest. The main one is crude oil with proven reserves estimated in 2011 at 1.8 billion barrels, followed by natural gas and especially methanol with reserves of 396 million m^3.

The country's new economic status dates back to 1991, when the Alba oil condensate field was discovered, offshore from Bioko. The economic value of the discoveries became clear in 1994, with a substantial rise in production, which brought the country unprecedented revenues. Equatorial Guinea became the third largest oil producer in sub-Saharan Africa after Nigeria and Angola. It holds the record on the African continent for the number of barrels per capita. Oil and gas production driven by three big offshore fields (Zafiro, Alba and Ceiba) has enabled it to achieve double-digit economic growth for about ten years (in 2001 its growth was 70%) and to become one of the biggest beneficiaries in Africa of foreign investment.

Driven by oil, the country's GDP thus recorded on average an annual growth of 60% between 1993 and 2012. Arising out of an increase in oil production and more recently in gas production, and out of the surge in the price per barrel, growth has led to a rapid rise in gross national income per capita, estimated at USD 21 715 in PPP terms according to the most recent figures from 2011. Many offshore oil companies are active in Equatorial Guinea, foremost amongst them American companies like ExxonMobil, Marathon, Amerada Hess, Chevron-Texaco. The state has issued exploration permits to non-American companies like: China Petroleum and & Chemical Corporation (China), Petrobras (Brazil), Repsol (Spain), Atlas Petroleum (Nigeria) and Petronas (Malaysia). This diversification has given the country an opportunity to have different technologies to facilitate better exploitation of its energy sources.

Equatorial Guinea has substantial forestry resources, which were its main natural resource for export prior to the discovery of oil and gas. Since the beginning of the 2000s, production has fallen considerably due to a crisis in the world timber market and a certain anarchy in the granting and management of concessions. At end-2010, a mere 20% of felled timber was exploited in the country, with the remainder exported as logs. To preserve the national forestry heritage, the authorities restricted the area available to logging from 1.2 million hectares in 1994 to 400 000 hectares in 2011, and reduced the number of licenced enterprises from 52 in 1994 to 15 or so in 2011.

The substantial revenues from oil and gas explain the significant structural changes seen since the 1990s. The country has entered an unprecedented phase of modernisation of its basic infrastructure such as roads, airports, social and economic establishments, which has made it possible to attract substantial foreign direct investment.

Co-operation with new partners, mainly China, made possible by oil revenues, enabled huge infrastructure projects like the new city Malabo II, the building of several thousand units of social housing in Malabo and Bata, construction of the CAEMC parliament and the completion of roads linking all parts of the country, especially on the mainland.

Conversely, in terms of human development, the country seems unable to reach any of the eight MDGs. This inability shows the inefficiency of the economic and social model adopted since the discovery of oil. Equatorial Guinea is a textbook example of the Dutch disease, despite efforts to diversify the economy through the introduction of long- and medium-term development plans (country vision for 2020) or the organisation of conferences, like the one in 2011, devoted to an industrialisation programme. These projects never get off the drawing board through the failure to mobilise adequate resources, financial and human, to ensure their success.

ERITREA

Eritrea, part of the Arabian-Nubian Shield, possesses a geological setting that is favourable for both the exploration and the production of minerals. Notable mineral deposits in Eritrea include gold, silver, copper, zinc and potash. Others are nickel and chromite. In 2011, activities in the mining sector picked up with the onset of commercial mining and exports of gold and silver at the Bisha mine operated by Canada's Nevsun Resources Ltd. According to Capitaleritrea news records, the Bisha mine is expected to produce 30.05 million grams of gold, 266.48 million grams of silver, 332.93 million kilogrammes of copper, and more than 450 billion grams of zinc over its 10-year mine life. Another landmark milestone is the Colluli Potash Project being run by South Boulder Mines, an Australia-based company. The potash project is expected to commence production of potash in 2016. In addition, the UK's Andiamo Exploration Ltd. (gold) and the Chinese Beijing Donia Resources Co. and Land Energy Group and many others are very active in the sector. In 2012 and for the foreseeable future, the mining sector was and will be the main driver of the country's economic growth.

Contrary to expectations, the 2009 and 2011 UN Security Council sanctions imposed on Eritrea have not had a negative impact on operations and investments in the mining and agriculture sector. While the 2009 sanction consists of an arms embargo as well as asset freezes and travel bans on a number of Eritrean political and military leaders, the 2011 sanction requires international companies operating in the country's mining sector to ensure that funds from the sector are not used to destabilise the region. It also demands that member states ensure that no illicit means are used to collect the 2% "Diaspora tax" that Eritrea levies on its citizens working abroad.

Hitherto, the government's stake in any mining project has been 10% with an option to buy a further 30% of shares. Recent negotiations by the government-owned Eritrean National Mining Corporation for a 50-50 profit share on the Colluli Potash Project with the Australia-based South Boulder Mines may, however, further scare investors due to policy uncertainty. The government's desire for a 50-50 profit share at Colluli may be connected to the high profit potential and the low capital cost of the project. This unprecedented transaction implies that contracts with investors can now be negotiated on a project-by-project basis. Overall, however, there has been limited value addition to Eritrean natural resources. The majority of Eritrea's mineral and other tradable commodities are exported in their raw form. The country is therefore foregoing numerous economic and social opportunities that can be derived from the local processing of natural resources.

Recognising some of these impediments, the government has implemented plans to put in place far-reaching measures to address the issues. For example, the agreement signed in 2012 with the neighbouring Sudan's Gold Refinery will cut production costs for gold and silver refinery, currently shipped to foreign countries in Europe and Asia at huge expense.

The contribution of agriculture to the economy is minimal, though the sector engages about 80% of the workforce. In addition, Eritrea's suitable endowments in animal husbandry and livestock have not been profitably harnessed. The main obstacles lie in: infrastructure constraints; the absence of modern techniques and equipment for farming; and inadequate rainfall and resources for expansion and investment. With modern production techniques and the development of irrigated agriculture, high investment returns can be obtained. Investment opportunities abound in dairy and meat products, live-animal exports, hides, skin and leather exports, horticulture and cash crops such as coffee, cotton and flowers. Presently, crops grown in Eritrea include wheat, sorghum, lintels, beans, millet, barley and teff.

Another sub-sector with good but unexplored potential is fisheries. While the maximum yield is around 80 000 tonnes, only 14 000 tonnes are currently being traded. Meanwhile, analysis of the evolution of GDP in a longer-term perspective has revealed that the share of the agriculture sector in GDP, which stood at 15.1% in 2000, increased to 17% in 2011 with significant fluctuations recorded between the two periods. Similarly, the industry share of GDP grew marginally from 23% in 2000 to 24.1% in 2011. Two main items that drove the industry expansion are the mining and construction sub-sectors. The services sector remains the mainstay of Eritrea's economy, accounting for more than half of GDP throughout the period. Its contribution to GDP has however followed a downward trend from 61.9% in 2000 to 58.9% in 2011. Overall, structural transformation driven by natural resources is a prerequisite to unlock Eritrea's economic potential.

ETHIOPIA

Ethiopia's basic natural resources are its people and its agriculture. Ethiopia has a young population, great biodiversity and distinctive ecosystems. With 18 major agro-ecological zones, more than 146 different crops can be grown and nearly half of the potentially cultivable land is still available. In addition, the number of livestock, including cattle, in Ethiopia is one of the highest in Africa. Agriculture accounts for almost 40% of Ethiopia's GDP and 83% of employment. Livestock, with better management of grazing lands and breeding, has significant potential.

The country has never had major forestry and fishing industries and minerals account for less than one percent of GDP. Only gold is of significance. It earned the country about USD 1.7 billion in 2012. A recent survey increased estimates of gold reserves to 500 tons. The government estimated that production could rise to 40 tons a year from just over four tons in 2012. Ethiopia also has gemstones such as diamonds and sapphires; industrial minerals including potash; and other precious and base metals. Development of these resources is a cornerstone of the government's export-oriented growth strategy and means there is less reliance on agriculture for diversifying the economy. Ethiopia has licensed 250 foreign firms to prospect for minerals.

Furthermore, Ethiopia could have significant energy resources, including biomass, water, natural gas and other fossil fuels, geothermal and solar energy. Ethiopia's largest renewable energy resource is hydropower. The gross hydro-energy potential is estimated at 650 Terawatt hours (Twh) per year, of which 25% is exploitable for power. Studies on domestic fossil fuel resources have confirmed the existence of about 2.7 million cubic feet of commercial quantities of natural gas. More than 100 megawatts (MW) of geothermal power has been discovered. Total geothermal-based electricity generation capacity is estimated at 700 MW. Solar energy and wind resources are other potential sources of energy in Ethiopia. The total solar radiation reaching the territory is about 2.3 million Twh per year. Few coal deposits have been found.

On the one hand, soil erosion, overgrazing, and deforestation have seriously damaged Ethiopia's plateau region, endangering valuable agricultural productivity. On the other hand, natural mineral resources have been under-exploited.

Ethiopia's double digit economic growth over the past eight years has defied standard thinking that it should significantly reduce reliance on agriculture. The share of agriculture in GDP has fallen from 46% in 2003/04 to 40% in 2010/11, but the share of industry, including manufacturing, has also declined marginally. The share of the service sector has increased by the decline in agriculture. There is no sign of positive structural transformation of the economy.

Services are the major source of growth, rather than agriculture. This unintended structural transformation does not generate the foreign exchange which is required to sustain recent high growth levels and poverty reduction. The lack of transformation from agriculture to industry is also mirrored by the structure of trade and the population. Ethiopia's exports are still dominated by primary commodities. The economy largely depends on this sector for foreign exchange. Urban dwellers make up less than 20% of the population.

The government's development strategy has played a key role in this economic state of affairs. The government's Agricultural Development Led Industrialization strategy assumes that industrialisation, and with it urbanisation, will come naturally from the rapid development of the agricultural sector. Yet, Ethiopian agriculture remains stubbornly low

input, low value, subsistence oriented and subject to frequent climatic shocks. It cannot generate the desperately needed rural transformation. The government has now launched a strategy to change the source of growth, or at least to lay the foundation for a positive structural transformation. It seeks an economy that has modern technology with the industrial sector playing a leading role. Expanding industry could help other sectors, particularly agriculture. Efforts are being concentrated on the industrial sector through a comprehensive industrial development policy and incentive packages. By 2015, the government projects the share of the industrial sector to reach 19% of GDP, from the current 13%.

GABON

Sustainable management of forest ecosystems and the development of biodiversity are major components of Gabon's economic development strategy. The authorities have promoted the idea of turning Gabon into an emerging economy based on three development pillars: "Green Gabon" , "Industrial Gabon" and "Service-Industry Gabon". These sectors are seen as ways of diversifying and offering sustainable potential economic alternatives to oil.

Oil is the main resource of the economy. It has enabled Gabon, as the fifth largest producer in Africa, to become a middle-income country, with a per capita income among the highest south of the Sahara. However, this resource is beginning to run out. Yearly production, of the order of 12 million tonnes (235 000 barrels a day), has been slowing since 1998 and some experts even think the country's fields will have run dry in 30 years or so. Doubts remain, however, over the size of identified reserves. Whatever the truth, efforts to escape from the stranglehold of oil are necessary, taking into account the desire to establish a balance in the future, whether in terms of employment, of public finances or of international trade. Even taking the most optimistic view of the future for oil, the need to diversify is real, even if only to satisfy the expectations of the public at large, many of whom are in search of work. Oil does not provide many jobs.

According to figures from the *Direction générale de l'économie* (general directorate of the economy), 123 000 people worked in the modern sector in 2010. This figure rose to 149 000 in 2012, as a result of rising numbers in the public sector. The oil industry employs a little over 2 400 Gabonese, which is less than 2% of the total workforce. Its contribution is mainly indirect, generating jobs in services, in retail and elsewhere. Oil also provides a regular income for social purposes, especially by creating jobs in public administration. However, none of that is enough to meet the expectations of the country's people, roughly 50% of whom are under 20 years of age. The national work and unemployment survey undertaken by the government in 2012, with funding from the AfDB, puts the unemployment rate for those under 25 at 46% in the broad sense. That is to say that it takes into account people who are out of work but who have not actively sought employment in the month of the survey. The overall unemployment rate is 20% according to the International Labour Organization (ILO) definition, and 27% in the broader sense. Employment is a major challenge in Gabon. To meet it the authorities want to create a diversified economic fabric based on the processing of natural resources to bring a relatively young population into the workforce.

This transformation requires the removal of obstacles that businesses find prohibitive. The state has already taken steps along this road: it has created a genuine industrial policy that involves the setting up of special economic zones (SEZs), and it has taken a share in local subsidiaries of big multinationals. Gabon has also engaged in a process to optimise oil resources, with explorations of deep offshore fields. It has done the same for natural gas, by launching a project to build a petrochemical and metallurgical complex in partnership with the Singaporean company Olam. In this context the AfDB is supporting the Gabon Fertilizer Company SA (GFC) project, which aims to finance the construction and operation of a modern and efficient industrial complex to produce ammonia and urea. This complex is expected to produce 1.3 million tonnes of granular urea a year at the SEZ of Île de Mandji, at Port-Gentil. The authorities also mean to continue the exploitation of other mining resources. Over 900 sites have been listed, the most high-profile being at Belinga, where more than 1 billion tonnes of iron ore have been identified.

After oil and gas, forestry is the second most important industry, as well as the country's main employer. The ban on trade in unfinished timber since May 2010 ought to increase local added value by giving Gabon a role in timber processing. The "Green Gabon" of the

PSGE relies on this target of adding value to forestry, which presupposes building plants for secondary and tertiary processing. It is still hard to assess the effectiveness of the ban on the export of lumber. Businesses complain this measure was not thought through and that they incur extra costs from delays in adding value to a significant proportion of exported timber. The export restrictions do indeed give rise to transitional costs, but do not prejudice the ability subsequently to become more competitive, subject to investment. The SEZs, which are very attractive, could provide a framework from within which processing industries could take off. An example is the Nkok zone opened in September 2011, 40% of which is used for timber processing.

As of 2012, 90% of workers in most timber processing plants in Gabon were unskilled or partially skilled. The plants are in urgent need of skilled workers to maintain production machinery, and this is confirmed by ministry of water and forests officials, who assessed the need for high-quality human resources. Some plants have no skilled workers at all and this lack makes itself felt in productivity and management of resources. In 2012 the government therefore initiated a project to re-examine and harmonise the technical training of skilled workers and engineers specialised in the timber industry. It fits into the broader framework of training and natural resource management programmes in the Congo basin, financed by the Congo Basin Forest Partnership and managed by the Network of Environmental and Forest Training Institutions of Central Africa. Canada's *Centre d'enseignement et de recherche en foresterie* (Centre for Forestry Teaching and Research) is responsible for the technical component.

Ore extraction, especially manganese, is the third industry where output has a strong impact on foreign trade. Manganese is the only mineral really exploited, and Gabon is one of the main world exporters. It is mined by COMILOG, a company 66% owned by the French group Eramet. It intends to set up plants for the production of silicomanganese and manganese metal close to its Moanda site. But the city authorities, fearing the pollution this might cause, have banned the consumption of water and fish from the river downstream from the manganese mine. The health risks in the short, medium and long term, the authorities claim, concern cardiovascular disease for the most at-risk groups – the young and the elderly. They intend to adopt a proper natural resources management policy.

In conclusion, the PSGE must orchestrate structural processing in the long term to achieve a precise goal: to stop selling primary resources in their raw state, but rather to add value, so as to diversify economic activity and create jobs. Over time, the authorities expect the supply of jobs to meet demand. The success of this development strategy depends in large part on the dynamics of investment, especially in the local and foreign private sector. The opportunities Gabon offers are considerable: they include mining, forestry, tourism, agri-food, and new information and communication technologies. To attract investors, reduce risks to entrepreneurs and create conditions for profitability, the authorities must improve the economic and institutional environment still further.

GAMBIA

The Gambia has experienced some structural transformation, albeit modest. It has led to a shift of labour from agriculture to the lower productivity sector of services, rather than to manufacturing where higher productivity could be achieved easily.

Agriculture is considered the sole means of income generation for the majority of rural households. While agriculture and fishing employ 75% of the population, account for 70% of domestic exports and contribute substantially to the country's foreign exchange earnings, their contribution to GDP has stagnated around 25% for the last decade. The development of the sector has been a priority for the government. Several measures have been taken since the 1990s to achieve food security and upgrade the sector to a modern, market-led one with an efficient value chain.

However, several factors such as weak capacity, reliance on rain-fed agriculture, land tenure problems and use of traditional and inappropriate fishing methods, have slowed the development of the sector and reduced its productivity. This has provoked a diversion effect and shifted labour from agriculture to other, less productive sectors with smaller value added.

By contrast, the service sector has flourished and become the main driver of GDP. Its contribution has grown from 53% of GDP in 2004 to over 60% in 2012 where it is expected to stabilise for the next few years. Tourism, which is a high-potential sector, has increased its contribution to the GDP from 2.5% in 2004 to 3.8% in 2007 to decelerate to 3.0% in 2012 as a result of the economic slowdown, especially in Europe. Tourism became an important source of foreign earnings and improved the country's competitiveness. The sector has grown by over 7% in 2012 as compared to 2011, and employment in tourism is expected to increase by 2.5% per year over the next few years.

Similarly, the financial sector's contribution to economic activity has increased from 6% of GDP in 2004 to 10% in 2012. The sector has expanded to support trade, investment and re-export. Transport and telecommunication have also improved and their contribution to GDP has grown from 11.1% in 2004 to 13.9% in 2012 as a consequence of international technological developments.

The manufacturing sector, which is supposed to be the most productive sector, continues to be the weakest. Its contribution to the GDP has accelerated slightly from 5.6% in 2004 to 6.1% in 2011. It decelerated to 4.9% in 2012, however, and is expected to continue this downward trend to reach 4.4% in 2018 according to IMF projections.

In addition to soft commodities (*e.g.* fisheries, cereals), the Gambia is endowed with hard commodities such as water, arable land, forest and mineral products (clay, silica sand, titanium, tin and zircon) discovered recently during explorations that are ongoing. Exports are not well diversified and remain concentrated on products where the Gambia has comparative advantages such as groundnuts and fish. This, in turn, amplifies the vulnerability of the country to external shocks and changes in international prices.

Natural resources constitute between 15 and 20% of government revenues. This offers opportunities to: enhance economic development through increased investment in sectors such as agro-industry; enhance domestic participation in mineral exploitation, reducing unemployment; improve education and align it to resource-related skills needs; improve infrastructure, especially when related to trade and export activities; and create instruments to fuel the general budget. For instance, PRSP expenditures are partially funded by forestry resources in the Gambia.

To improve resource management and upgrade agriculture to improve productivity and attract farmers, the government has prepared a National Agriculture Investment Plan (GNAIP). The Plan is based on: *i)* the improvement of agricultural land and water management to increase food security, income generating capacity and the nutritional status of farmer beneficiaries, especially women and youth; *ii)* improved management of other shared resources to improve livelihoods and food security, and reduce poverty among populations that depend on these resources; *iii)* development of agricultural chains and market promotion to transform agriculture from a traditional subsistence economy to a modern market-oriented commercial sector; *iv)* national food and nutritional security aimed at providing adequate nutritional levels and targeting the most vulnerable groups; *v)* sustainable farm development aiming at increasing and sustaining agricultural production and productivity growth; and *vi)* GNAIP co-ordination, monitoring and evaluation.

In addition to GNAIP, the government is enhancing structural changes within the sector by offering grants to small farmers, facilitating access to credit to finance agricultural equipment, and modernising the fishing and agro-industry. In a controversial move to encourage people to "return to the land", the president has reduced the work week to four days. It is a decision that has not been well received by Gambians due to the absence of popular consultation prior to the announcement.

GHANA

Ghana is richly endowed with mineral resources. It one of the world's top ten gold producers and the second-largest in Africa, and its mineral potential includes diamonds, bauxite and manganese. In 2004, Ghana discovered offshore oil and gas[1], and commercial oil production started in 2010. Ghana is the world's second-largest cocoa producer and has extensive arable land, forests, fishing and hydroelectric potential. The government aims to diversify its minerals base into limestone, aggregates, clay and base metals.

Ghana has experienced less structural transformation than would be expected given its sustained average annual economic growth of 5% since 1990. Agriculture, although its contribution to growth has declined, still accounts for over 20% of GDP and 50% of total employment. The industrial sector has remained stable at around 25% of GDP for the past 15 years. However, the share of manufacturing in industrial GDP has declined from 36% to below 30%. Construction, driven by an urban housing boom and infrastructure development, is now the largest sub-sector. Services compensated for the slight decrease in agriculture's share and became the largest contributor to GDP. Growth in services is driven by Ghana's emerging middle class. Oil and gas discoveries and their potential for power generation, coupled with the government's industrial development strategy, could drive structural change in the near future.

Economic transformation is hampered by the weak transformation of the agricultural sector. Land tenure issues deter investments in more productive commercial agriculture that could provide competitive inputs for developing local agro-processing. As a result, domestic demand is met through cheaper imports of processed food, rice and meat. Gradual diversification into non-traditional exports, such as palm oil, cotton, rubber and fruit, has slowly driven agricultural transformation. The government's disease and pest control programmes and fertiliser use tripled cocoa production from 340 000 tonnes in 2002 to 1 024 000 tonnes in 2011.

A second set of constraints on the development of manufacturing activities consists of high labour and electricity costs, expensive raw materials, low access to finance and obsolete machinery. These structural problems are compounded by strong upward pressure on the exchange rate due to commodity exports (cocoa, gold and oil), large development assistance inflows and remittances. The high cost of finance, small tracts of land and stringent labour regulation further deter competitiveness. Agriculture-related activities such as food, wood processing and textiles account for about two-thirds of total manufacturing in Ghana.

The government's new industrialisation strategy builds on the oil and gas industry to transform Ghana's economy. The gas sector is likely to provide cheap energy to the future benefit of manufacturing and agriculture and to serve as an input for fertiliser production. Oil revenues should finance public investment in infrastructure, although these revenues were disappointing in 2012 due to technical difficulties that lowered production.

The Ghana National Petroleum Corporation (GNPC), responsible for the commercial exploitation and exploration of Ghana's oil resources, aims at becoming an operator and owning a full oil block in the long term. According to the GNPC, the government intends to keep minority equity stakes ranging from 5% to 10% in all exploration activities. However, the country's shallow financial markets limit GNPC's ability to raise its stakes in the national oil industry quickly without resorting to foreign capital. GNPC estimates that 40% of Ghana's oil is onshore, but exploration of these resources is currently not planned.

Ghana's Petroleum Revenue Management Act (2010) is considered strong and transparent by international observers. It provides for the creation of a Stabilization Fund and a Heritage Fund. The former cushions the impact of potential oil revenue shortfalls, while the latter provides an endowment to support the welfare of future generations. In addition, since 2011 Ghana's Ministry of Finance has been successfully hedging oil imports and exports against volatile oil prices in order to preserve macroeconomic stability.

The PIAC was inaugurated on 15 September 2012 with a mandate to monitor and evaluate the management of oil revenues. The committee faces funding constraints, and its reports are not properly embedded in parliamentary processes to ensure the follow-up of its audits and recommendations. Oil contracts are still not published, except for that of Tullow Oil. The government plans to use a competitive bidding process for future licensing rounds.

Mining in Ghana has the reputation of an "enclave industry", attracting substantial FDI but not generating many employment opportunities for Ghanaians. However, recent research (Bloch and Owusu, "Linkages in Ghana's gold mining industry: Challenging the enclave thesis", *Resources Policy*, 2012) indicates the emergence of Ghanaian component manufacturers and input providers servicing the mining industry, most of which are located close to the headquarters of the large mining companies in Accra and Tema. They provide local manufactures and intermediate inputs in the following areas: metals, chemicals and plastics, civil engineering, business services and logistics. Local companies increasingly engage in services such as construction, maintenance, catering, landscaping, haulage, transportation and security. These emerging clusters may increasingly service West Africa's growing regional gold industry.

The government's Local Content Bill, submitted to parliament in October 2012, aims at mainstreaming local supply and service provision in mining companies' procurement policies. Employment and training requirements, among others, will increase in line with the country's capacity to meet the mining industries' procurement and staff requirements. By 2020, the country aims to provide 90% of mining inputs locally. The bill includes a "mining community development scheme" financed through the proceeds from mining companies' royalty payments and development funds. In addition, the Ghana Chamber of Mines identified 27 product categories with "import substitution potential", ranging from clothing and wood products to chemicals and explosives, plastics and metal products. Weak human capital and low productivity of local small- and medium-sized enterprises (SMEs) continue to constrain local economic development around mining areas.

The 2010 revision of the mining code is likely to increase the government's tax take. Key revisions include the renegotiation of stability agreements, a 5% flat-rate royalty (compared to the current 3-6% range), an increase in corporate tax from 25% to 35% and a 10% windfall tax on mining profits (this proposal was announced in the 2012 budget but had not yet received parliamentary approval at the end of the first quarter of 2013). Mineral royalties currently contribute up to 80% of mining revenues, compared to 15% for corporate taxes. Mining companies can opt for accelerated depreciation and the carry forward of losses, which limits the potential for corporate tax revenue[2]. Implementation of a more balanced fiscal framework is hindered by capacity constraints in the Ghana Revenue Authority and asymmetrical information. The industry has warned, however, that the increasing tax burden may deter future exploration investments.

1. As at December 2012, the Ghana National Petroleum Company had announced 16 additional offshore oil and gas discoveries.
2. The oil companies operating in the Jubilee field have not paid corporate taxes since 2010 due to this provision. The Ministry of Finance and Economic Planning has set up a committee to work with the industry to resolve this issue.

GUINEA

Guinea's main mining resources of economic interest are bauxite, iron ore, gold and diamonds. While iron ore has only recently been exploited, bauxite, gold and diamonds make up almost 88% of exports of goods and produce 20.57% of internal revenues. Local added value is put at 14.2%. The sector is the main destination of foreign direct investment (FDI) and is made up of semi-private companies, which have run into difficulties in the past ten years because equipment and infrastructure have become antiquated and as a result of competition in world markets.

There are estimated to be more than 9.4 billion tonnes of iron ore deposits with 350 million tonnes at Mount Nimba with a 66.5% content, but bauxite is the major mineral with proven and probable reserves of more than 20 billion tonnes, or two-thirds of world reserves.

The mining sector has a limited impact on economic activity, both upstream and downstream. The goods and equipment used to extract bauxite and to process it are not produced in Guinea. Any rise in mine production or exports does not stimulate production in other sectors but increases imports. The downstream impact depends on the degree to which mining products can be processed locally, but apart from the case of the Rusal alumina plant, there are no local mineral processing industries, which are generally regarded as sources of substantial added value, on which increased production could have an impact.

In addition mining exploitation and exports are highly capital-intensive. The two activities use a large amount of capital but relatively little labour, with the result that the sector's ability to create jobs and induce structural change, even at a time of growth, is necessarily limited. It becomes clear, accordingly, that the modern mining sector has not helped act as a driver of inclusive growth or substantially reduce poverty, two essential conditions for carrying out deep structural change.

The weak involvement of mining activities with the rest of the economy has not produced knock-on effects that could generate major structural changes in the country over the past 30 years. The problems of governance linked to the management of the sector have contributed substantially to this state of affairs.

One of the conclusions concerning the mining sector that emerged at the Guinea economic forum in September 2012 was that there are no close ties between it and the other sectors of the economy, a point of view confirmed by its especially outward-looking character. A greater integration of the mining sector into the rest of the economy could have a more intensive ripple effect on the other sectors as investment in mining increases.

In tax terms, until the institution of the Second Republic, the mining sector used to be the greatest contributor to the public purse (82.4% of revenues in 1986) thanks to the increase in bauxite exports and high prices on the world market. A change in conditions on the world market for aluminium saw a sharp drop in public revenues, to 24.7% in 2000 and 20.6% in 2012. The implementation of a policy to diversify non-mining fiscal resources led to a change in the structure of taxation.

Guinea devised measures to confer on certain businesses tax exemptions under the October 1984 investment code, which was revised in 1995, specific tax and customs regimes, special conventions and so on. Until quite recently, the mining sector benefited from exemptions in respect of the ordinary tax provisions. The 1995 mining code abolished value added tax (VAT) on mining exports and cut import and export duties because of their negative effect on the competitiveness of the mining industry.

In 2012 the government instituted a standard mining convention, to which all existing and future conventions will be adapted. It has also decided to take a stake in all mining programmes.

The "fair value", or share of production that the country gets back, is the indicator used to calculate the fiscal revenues from the mining sector. The mining companies keep 65% to 85% of their export earnings in foreign accounts. Those operating under a concession-contract regime do not repatriate their foreign-exchange earnings and pay instead a tax in foreign exchange to the BCRG. The licence fees and financial contributions benefiting communities where mining companies are based have risen by around an average of 3% over the last 20 years.

Surveys of poverty and inequality conducted in 2012 showed that the Boké and Kindia regions, the main areas where bauxite-producing companies operate, are among those hardest hit by poverty with rates of 58.9% and 62.5%, respectively. The regions of Kindia and N'zérékoré are the greatest contributors to overall poverty: respectively 18% and 21.4%. The resurgence of poverty and the lack of infrastructure in these places indicate that the use of local resources has little impact on the economies and well-being of local populations.

The government is relying on strengthening its relationships with partners to be able to develop the country's potential, the strategy being to enhance the role of the private sector and ensure that market forces are respected.

In 2012 it undertook a review of the 1995 mining code to encourage more investment in the sector and tried to improve the law relating to mining, which needs variously to be clarified, completed or adapted. It restricted the mining tax rate and base to make the sector more attractive and hopes to see an increase in the level of revenues.

The government is aware of the major importance of the mining sector, regarded as the chief source of the resources needed to restructure the economy and accelerate growth.

One of the aims of the mining code is to expand and diversify in the long term the exploration, exploitation and processing of mineral resources. The government acts as a guarantor of mining exploitation and exploration as long as regulations are respected and has made support for the private sector a basic element of its mining policy. Its role is restricted to setting the policy framework, in particular in regard to imports, licences, titles, jobs, the environment, and extracting value from resources, as well as ensuring that the steps implemented are monitored and the necessary support forthcoming.

The process of deriving real, major and supervised value of the country's mining potential will make it possible, in the long run, to make the sector the engine of economic growth on condition that future investment has implications and impacts in respect of the other sectors of the economy. It is possible to imagine investment of USD 70 billion in the mining sector in the years to come with a resulting perceptible rise in GDP and the direct or indirect creation of 600 000 jobs.

The plan to build an alumina plant at Kabatade should generate 3 000 jobs during construction and 1 000 in exploitation. The integrated project at Dian-Dian with a capacity of 15 million tonnes a year of bauxite and 2.8 million tonnes of alumina should produce 7 000 construction jobs and 2 000 operational jobs. The alumina project at Sangarédi with a capacity of 3.2 million to 5.6 million tonnes should generate 7 000 to 10 000 jobs in the building phase and 1 500 when it becomes operational. According to the department responsible for prospective studies at the ministry in charge of mining "the CBG (Compagnie

des bauxites de Guinée), with exports of 12.5 million tonnes of bauxite and a turnover of around USD 300 million would earn almost USD 2 billion if it processed it into alumina and around USD 5 billion if it processed it into aluminium".

The Bellzone Kalia project with a capacity of 50 million tonnes of iron ore could generate 9 000 construction jobs and 3 500 operational jobs and it is worth noting the iron-deposit exploitation project at Simandou, which should lead to the building of a trans-Guinean railway and of a deep-water seaport at Benty.

Building these installations will require more energy. The development of a potential estimated at 6 000 megawatts (MW) has begun with the forthcoming construction of a dam at Kaléta, which should produce 200 MW and for which the government plans to train 1 000 young people.

These huge projects are of vital importance for the economic and social future of the country, but if they are to be realised there has to be an improvement in Guinea's business climate, in particular in terms of security of investments, and an upturn in the global economy. If circumstances are less favourable, in the medium term the country could remain at its current pace of development with annual growth rates of between 4% and 5% and only a limited impact on the social dimension.

GUINEA-BISSAU

Guinea-Bissau's economy is mainly agricultural and dominated by cashew-nut cash crops, its chief source of foreign exchange. It is not very diversified and industrial processing is very basic. Minerals and oil have not yet been extracted, except for quarries and a few small alluvial gold mining operations. Potentially large reserves of bauxite and phosphates were discovered in the 1970s but have never been mined for lack of infrastructure, and because of low world prices and persistent political instability. In recent years, however, mining concessions have been granted for bauxite (2007) and phosphates (1997).

Phosphate reserves were discovered in 1978 by a UNDP survey, and pre-viability studies seven years later by the firm Sofremines confirmed their presence at Farim, in the north. Exploration in 1997 by a Canadian firm, Champion, showed an estimated 100 million tonnes of high-grade clay and 400 million tonnes of low-grade limestone, but government efforts since then to sign national or international contracts to mine these reserves have not been very successful due to systematic violation of contracts and social and political unrest since 1998. High-grade mineral extraction could last some 40 years and lower-grade minerals 200 years.

Bauxite was found by the Dutch in the early 1950s and then by the Soviet Union in the late 1970s. Five reserves were discovered at Boé, in the southwest, and surveys showed reserves of 113 million tonnes (44.9% of which of alumina and 3.7% of silica). Little progress was made in mining until 2007, when the government signed a concession with the Angolan firm Bauxite Angola, which announced it would invest USD 321 million in the region, including USD 200 million for roads and ports before it began operations. The mine is owned by Bauxite Angola (70%), the Angolan government (20%) and Guinea-Bissau (10%). After the April 2012 coup, work stopped and the parties are renegotiating how to share the resources.

The opening of these two mining centres (Farim and Boé) is likely to have significant effects on the country's economy. Even if 86% of the goods and services needed come from abroad, the projects could generate 20 000 direct jobs, in addition to the spinoffs linked to upgrading the related infrastructure, and produce annual tax revenue of USD 40 million, according to the World Bank. The country could count on USD 70-80 million in export earnings (equivalent to 60-70% of current exports) and a GDP volume increase from USD 90 million to 170 million USD (or from 11% to 21% of estimated 2010 GDP).

Oil has been discovered in several places offshore, but no assessment of its commercial viability has been announced. The north and south of the country could also have oil reserves, shared with neighbouring Senegal. Several oil firms, including Italy's Eni, Britain's Sterling Energy and Malaysia's Marmore, have test-bored in the north. Large reserves of oil have been found, but more tests are needed to determine their commercial worth before they are exploited. Several foreign companies have become involved in the oil sector in recent years through joint ventures with the local firm Petroquim. Some industry experts think Guinea-Bissau could produce between 30 000 and 60 000 barrels a day.

The only extractive industries in the country at present are small firms quarrying for construction materials such as limestone, clay and sand. Instability and lack of political will mostly account for delays in developing all Guinea-Bissau's mineral resources. Political stability, a strategic vision, strong institutions and viable programmes are needed to develop the sector better and ensure social and economic benefits for the country.

In the late 1980s, the government launched a programme that set up an institutional framework with the directorate of geology and mining (DGGM), provided an inventory of

12 minerals, produced a mining policy and trained local managers. The government also instituted an environmental-impact assessment body the *Cellule d'évaluation de l'impact environnemental* – initially under the prime minister but then transferred to the environment ministry – to require or conduct impact studies previous to any prospection or mining. Its structure is however flimsy. Neither does civil society play much of a role, though it did demand that the government halt operations at the Saliquinhé (Farim) phosphate mine until measures were taken to protect local inhabitants and offer them resettlement.

A law governing mining, quarrying, oil and oil derivatives was recently passed, and the authorities also want to work with the EITI to improve good practices and management in the sector. Recommendations have also been made to set up a mining fund, boost tax collection from mining companies, continue development of the Boé bauxite reserves jointly with neighbouring Guinea, develop mineral resources for construction (quartzite and dolerite) and continue prospecting for diamonds and gold. Unfortunately, political instability has so far prevented all this.

KENYA

As developing countries grow, they experience a large-scale shift of resources from traditional sectors to relatively new and modern sectors resulting from fundamental changes in national policies and objectives. Development economists argue that this kind of transformation involves four main features: a falling share of agriculture in economic output and employment; a rising share of urban economic activity in industry and modern services; migration of rural workers to urban settings; and a demographic transition in birth and death rates that always leads to a surge in population growth before a new equilibrium is reached.

According to the Centre for Global Development, structural transformation has resultant challenges for the poor. First, evidence suggests an existing pattern of worsening income distribution between rural and urban economies during the initial stages of structural transformation. Secondly, sectoral income distribution tends to worsen during the early stages of structural transformation and this has been found to extend much later into the development process. With little prospect of reaching the turning point quickly, many poor countries turn to agricultural protection and farming subsidies sooner rather than later in their development process. These actions tend to create many more rural poor in the early stages.

Kenya's economy has undergone a noticeable transformation. While the country experienced remarkable growth in the post-independence years, growth in later years has been slow to moderate. However, in the last ten years Kenya's seemingly focused development objectives have placed it once again on a growth trajectory and its economic structure has responded equally well.

Government expenditure on agriculture, forestry, fishing and hunting was KES 9.5 billion in FY 1998/99, increasing gradually to KES 44.3 billion in FY 2010/11. Compared to expenditure on fuel and energy, transport and education, agriculture seems to be performing dismally in terms of government allocation and spending. It is worth nothing that fuel and energy, transport and education are key sectors a developing country should emphasise, as Kenya seems to be doing. This appears more clearly in Table 2.

Expenditure on fuel and energy increased significantly, from 0.89% of total expenditure in FY 1998/99 to 3.45% in FY 2010/11. Expenditure on transport increased from 3.64% in FY 1998/99 to 9.22% in FY 2010/11. Expenditure on agriculture, forestry, fishing and hunting dropped consistently from 3.90% in FY 1998/99 to 2.78% in FY 2006/07, before rising slightly to 4.43% in FY 2010/11. This analysis indicates that resources in the economy are being transferred from traditional sectors (agriculture, forestry, fishing and hunting) to more economically rewarding sectors such as fuel and energy, transport and education.

The agricultural sector's share of total employment in Kenya has declined persistently, from 18.46% in 1998 to 16.26% in 2011. On the other hand, the share of lucrative non-traditional sectors (such as building and construction, transport and communication) has increased persistently over 1998-2011.

LESOTHO

Lesotho is endowed with significant water and mineral resources. The mining sector's contribution to GDP remained marginal until 2002, but subsequently increased to peak at 8.5% in 2008, sustained by the booming international price of diamonds, which led to the re-opening of some mines. Hit by the global recession, the sector rebounded in 2010 and 2011 and now accounts for about 9.5% of GDP. Although Lesotho is believed to have other significant mineral deposits, commercial interest has mainly been limited to diamonds which are exported with little or no value added. The government is encouraging the exploration of additional minerals and is keen to promote mineral beneficiation. Besides minerals, the country is banking on its water resources through the development of the LHWP, which is expected to supply water and hydroelectric power to South Africa and the wider region.

A small mountainous country surrounded by South Africa, Lesotho faces significant structural challenges. Until 2002, the majority of Basotho relied on subsistence agriculture and employment in South African mines and industries. South African mines still employ over 41 000 Basotho today. The adoption of AGOA in 2000 and the rising prices of diamonds changed the face of the country's economy, however, and the textile and diamond industries joined agriculture as main employers and sources of livelihood. The AGOA trade preference system catalyzed the development of high-volume, low-value garment manufacturing in Lesotho. The textile industry became the largest employer, generating nearly 50% of the country's formal sector jobs. In mid-2004, it employed over 50 000 workers, mainly female, and for the first time, manufacturing workers outnumbered government employees. Thereafter, the manufacturing sector suffered from the threat of the end of the TCFP under AGOA, as well as from the global economic crises. Following the removal of WTO protection, employment in the sector was reduced to about 45 000 in 2011, owing to stiff international competition in the garment sector. Yet the kingdom has become sub-Saharan Africa's largest exporter of apparel to the United States, surpassing Kenya and Madagascar.

Lesotho's garment industry, however, is largely dependent on trade preferences from the US and in Europe. These markets are likely to become even more intensely competitive in the medium to long term, when the preferences that gave Lesotho-based suppliers an advantage will disappear. The country's textile and garment producers, which are entirely foreign owned, could relocate from Lesotho once privileged access to the US market disappears. The country therefore needs to diversify its industrial activity if it is to survive. Since Lesotho is the leading supplier of textile and garments in sub-Saharan Africa, diversification will chiefly be pursued in this sector. Lesotho's strategy is to shift its production towards higher-value items, in particular woven and knitwear. These are relatively low volumes with very short delivery periods, which puts East and South Asian competitors at a disadvantage. In addition, the authorities are keen to revive Lesotho as a significant supplier for regional markets, particularly South Africa. Canada is also a potential market for Lesotho's textiles, but retailers require smaller quantities than Lesotho's factories are set up to produce. This presents opportunities for small- and medium-sized enterprises (SMEs) to link with large exporters through sub-contracting, and the larger exporters are also considering some adjustments to their production lines to meet these requirements. In addition, the possibility of producing high-quality fabrics needed for specialised garment manufacturing is also being explored.

LIBERIA

Natural resources have played a critical role in the Liberian economy, both before and after the conflict. In 1980, GDP per capita reached USD 1 765, nearing middle income status, with growth led by commodity exports from concessions, largely ore and rubber, and contributions from timber and palm oil. However, little of this led to development benefits for the general population. Since the end of hostilities in 2003, the retail and services sectors have boomed, largely due to a sizeable donor presence, and the concessions sector is also gradually resuming its activity. Otherwise, much of the rest of the economy, including manufacturing, has seen little growth. The Liberian economy has moved partially towards its pre-war state, with the economy of Monrovia tied very closely to government activities, and the rest of the economy dominated by enclave, largely capital-intensive industries and low-productivity agriculture.

Liberia has significant mineral wealth, with iron ore reserves estimated between 2 to 5 billion metric tonnes. The first post-war iron ore production was exported in late 2011. Three more mines are expected to come online by 2015, at which point, the sector should contribute up to 20% of GDP and employ about 10 000 people. Rubber was still the largest export earner in 2012, led by a Firestone Rubber plantation that has been in operation for almost 90 years. Moreover, Liberia has the largest rainforest in West Africa, which supports significant logging. The government has also leased several offshore oil blocks, and a number of exploratory wells have found deposits that could be commercially viable. Smaller-scale operations in diamonds and gold could employ 30 000 to 45 000 workers. Agriculture includes food crops such as rice and cassava, as well as cash crops such as cocoa and coffee. Palm-oil investments with high employment potential will also gradually come online.

Several constraints limit Liberia's ability to take full advantage of its natural resources to enable structural change. Foremost amongst these is a substantial infrastructure deficit. Severely deficient roads, ports, and rails deprive Liberia of the ability to fully exploit its resources. While iron ore concessions have built or rehabilitated rail lines to facilitate their exports, less capital-intensive industries with higher employment potential, such as smallholder agriculture, timber, and rubber, need appropriate infrastructure. Feeder and primary roads are essential for smallholders to access markets, trade across borders, and for value chains to develop. Drying, storage and processing infrastructure is also necessary. Timber exports will benefit from the Greenville port once it is fully operational. Finally, the high price of power, which costs over USD 54 cents per kWh — more than three times the African average — does not allow for product processing or the development of a manufacturing sector.

Some key institutional frameworks are already in place. They include a Minerals Management Law (2000) and a Public Procurement and Concessions Act (2006) that regulates the bidding process for concessions. Led by the National Investment Commission (NIC), concession contract negotiations have improved over time and now include stronger provisions for infrastructure development and local employment. Tax regimes, however, still need to be harmonised and made more progressive. Institutional and audit capacity also needs to be strengthened to ensure compliance with regulatory and fiscal regimes.

The Liberia Extractive Industry Transparency Initiative (LEITI) was established in May 2008 to promote proper use of revenues from mining and forestry. LEITI published its third report in December 2011 and contracts are available online. The newly established National Bureau of Concessions is intended to monitor concessionaires' compliance with their fiscal and non-fiscal obligations and to encourage the development of linkages with the local economy. Part of this measure will focus on improving social development funds (SDFs), which are managed by local communities to fund development projects in affected areas but have suffered from mismanagement.

Several high-profile incidents in the past year have highlighted persistent institutional weaknesses. Planting by major international palm oil concessionaires has been delayed by local disputes over access to the land they were granted. Investigations revealed that local communities were often unaware of the concession agreements until that had already been signed with the government. In the forestry sector, widespread abuse of Private Use Permits (PUPs) came to light in late 2012: some 25% of Liberia's land has been contracted for logging, often with falsified deeds, without the knowledge of local communities, and sidestepping environmental regulations that were intended to ensure sustainable management. A moratorium was placed on the use of PUPs, and the head and Board of the Forestry Development Authority were suspended. In the oil sector, a watchdog has claimed that the National Oil Corporation of Liberia is corrupt and needs reform, particularly as it holds conflicting roles as a policy developer, regulator, and commercial operator. New concession agreements are on hold pending a new oil policy.

The government has launched its *Agenda for Transformation* (AfT), which plans to address road, port, and energy constraints, as well as improve youth employment and education. It has aligned its FY 2012/13 budget with AfT priorities, but will face substantial funding gaps to finance its desired infrastructure investments. Concessionaire investment plans will have to be fully leveraged to close the infrastructure gap. Mining companies are investing some USD 8 billion in Liberia, USD 5 billion of which are for power and transport infrastructure. Concession agreements promote third-party access for surplus power, roads, port, and rail facilities. Improved co-ordination will be critical to better leverage these resources.

LIBYA

Member of the Organization of Petroleum Exporting Countries (OPEC), the country has the largest proven oil reserves in Africa with 47.1 billion barrels of oil and 1.49 trillion cubic metres of natural gas, amongst the ten largest globally. Only 25% of the territory has been explored to date for hydrocarbons. Libya is already Europe's single largest oil supplier, the second largest oil producer in Africa and the continent's fourth largest natural-gas supplier, and it already dominates the Southern Mediterranean's petroleum sector. According to the Libyan National Oil Corporation, more than 50 international oil companies operate in the Libyan market.

The economy depends primarily upon revenues from the oil sector, which contributes on average to about 95% of export earnings, 48.9% of GDP, and 75% of government revenues. Oil revenues made up almost the entire funding source for the 2012 budget of USD 55.3 billion. The Oil and Gas Ministry is of extreme importance, with revenues from hydrocarbons being used to fund the budgets of nearly every other department. Prior to the outbreak of the recent conflict, Libya was exporting about 1.3-1.4 million BPD out of its estimated 1.79 million BPD of production. Libyan oil and natural-gas production and exports suffered nearly total disruption in the months of intense fighting leading to and following the removal of Gaddafi from power. The minimal and sporadic oil production that did occur during this period was mostly consumed domestically. Libyan oil production began to recover in September 2011, faster than predicted by analysts, and by the last quarter of 2012, Libya's oil production nearly reached its pre-conflict levels of 1.6 million BPD.

Libya's rank as a producer and reserve holder is less significant for natural gas than it is for oil. Most of its natural-gas production is exported, almost entirely to Italy via pipeline. According to the *Oil & Gas Journal* estimate, the proven natural-gas reserves were 1.49 trillion cubic metres as of 1 January 2012, a decline of almost 56 million cubic metres compared to the previous year. Prior to the transformative events of 2011, new discoveries and investments in natural-gas exploration had been expected to raise the proven reserves in the short term. Natural-gas production has grown significantly in the last few years. According to the Energy Information Administration, Libya produced 30.27 billion cubic metres of gross natural gas in 2010, 23.36 billion cubic metres of which were marketed, and 16.82 billion cubic metres of that was dry natural gas (the fourth largest output of any African state). Approximately half of the remainder (3.40 billion cubic metres) was re-injected to enhance oil recovery and a roughly equal amount was vented or flared. As with oil, natural-gas production was almost entirely shut down for sustained periods in 2011, but has since recovered quickly.

Given the significance of petroleum production and exports to the economy, careful management of the financial resources generated from it will be of pivotal significance when addressing the country's structural challenges. The new post-revolutionary environment creates the opportunity for the country to embark on a path of structural transformation and inclusive development through an approach that includes: economic diversification in order to lessen dependence on the volatility of the mining sector; de-linking expenditure from revenues; and investing the surplus revenues for use by future generations.

A successful diversification strategy requires the identification of constraints to diversification, formulation of a key strategy to overcome those constraints, and identification of projects to reinforce that strategy. A complementary strategy of de-linking government expenditure from natural-resource revenues and adoption of a non-oil deficit target will further reinforce the pressure to diversify the economy. Creation of a sustainable fiscal policy that channels mineral revenues for saving and productive investment rather than consumption and sets formal and informal fiscal rules to prevent excessive spending are

important policies in this regard. Related to the latter is channelling the revenues towards investment and funds for future generations who could benefit from the oil wealth even after its depletion. SWFs can be used as a stabilisation fund that takes previous years' fiscal surpluses and deposits them in a special government account to be used for designated economic and social development.

Strong institutions and good governance are a prerequisite for an effective fund-management and economic-diversification strategy. Improvements in the WGI "voice and accountability" indicator are required to ensure transparency via a system of checks and balances to avoid the previous rent-seeking culture, while improvements of the state institutions can enhance the regulation and use of oil revenues. Furthermore, it is vital to ensure that the management of Libya's existing SWFs are in line with the new government's broader development objectives. Given the previous claims of misappropriation and misuse of Libya's SWFs, the country could also benefit greatly from funding, withdrawal and spending rules. By applying such measures, Libya will be better able to guarantee the sustainable management of its natural-resource wealth.

Despite its rapid recovery, the outlook for the country's oil production remains unpredictable due to the continued uncertainty surrounding security conditions, state cohesion, the management of domestic oil operations, co-ordination of the fast-growing inflow of FDI to the petroleum sector, and the political and regional tensions over distribution of oil revenues. Furthermore, the on-going conflict in Mali, its potential spillovers to the affiliated armed groups within Libya, and the Libyan authorities' involvement in re-establishing security in the region will also have important implications for the country's security and territorial integrity, as well as its pace of economic recovery.

MADAGASCAR

The past 20 years in Madagascar have witnessed recurrent political crises that made it impossible to implement major economic structural changes. A few sectors (or branches) can, however, be seen as having driven the economy: construction, mining, textiles, information and communication technology (ICT), and tourism. The engines of future growth will be food products, mining, renewable energies, textiles, construction and tourism.

A report published by the IMF in October 2012, *Regional Economic Outlook: Sub-Saharan Africa*, indicates that the GDP shares of agriculture, mining and manufacturing have remained practically unchanged for 20 years. They were 28.6%, 0.5% and 10.6%, respectively, in 1990: and in 2010 28.4%, 0.6% and 11.1%. The construction sector grew the most, from a 1.3% to a 4.7% share of GDP between 1990 and 2010, but it only generated 1.2% of the jobs created in 2010. The GDP share of the tertiary sector, which remains the main driver of growth, fell from 57.8% in 1990 to 53.9% in 2010, or a 3.9% fall.

Agriculture is distinguished by low productivity. It remains the largest provider of jobs having generated 80% of both male and female jobs, a share that has remained constant for several years according to the 2010 EPM. The mining sector has recently emerged as a growth engine. In the 1990s, its exploitation was mostly informal and small scale and was dominated by small mines with little added value. The mining landscape altered in the late 2000s as a result of mining reforms and the arrival of big mining investors in two large projects, QMM and Ambatovy. Growth of the mining industries, which was 9% in 2008, rose to 25.6% in 2012 and is projected at 42.4% in 2013 in the 2013 budget. The sector does not, however, generate many jobs. The largest mining project, Ambatovy, provided only 18 000 jobs during its construction phase and will have 6 000 for operations.

The development of free-trade zones since 1989 was intended to strengthen the Madagascan industrial fabric, but the manufacturing sector has not evolved significantly since then. It only provided 3.4% of jobs in 2010, the year Madagascar was suspended from AGOA, which it had entered in 2000, because of the political crisis. Several enterprises and companies had to shut down, causing a loss of nearly 20 000 jobs. The textile industry has suffered from this situation. After a 24.6% fall in 2010, its growth is nonetheless gradually picking up: it rose from -0.8% in 2011 to 1.9% in 2012 and could reach 2.6% in 2013 thanks to a diversification of its market outlets. It is, therefore, still of major importance, even though it accounted for only 1.1% of jobs in 2010.

In the tertiary sector, trade is the largest provider of jobs. In 2010 it accounted for almost 7% of jobs, of which 9% were for women and 5% for men. ICT and tourism have been dynamic sectors, with ICT showing sustained growth at more than 3% per year these past ten years, including in the crisis years, thanks to the liberalisation of the sector and to significant investments in infrastructure including the installation of optical fibre in the different regions. The turnover of mobile telephony grew 13-fold between 2005 and 2009, providing several direct and indirect jobs (call centres, computer programming, etc.) according to the ILO in its December 2011 report, *Madagascar : évaluation des impacts de la double crise sur l'emploi*. The tourism sector has also grown, especially in the 2000s, but its expansion has been hampered by the political crisis. The number of tourists fell from 375 010 in 2008 to 162 687 in 2009, then rose a little to 196 052 in 2010. Similarly, the occupancy rate of hotels dropped from 64% in 2008 to 39% in 2009 then rose back to 46% in 2010. Tourism, nevertheless, generated more than 31 000 direct jobs in 2011, compared to fewer than 20 000 in 2004, or a 57% increase. Tourism revenues have nearly tripled, rising from SDR 104 million in 2004 to SDR 303 million in 2008.

Madagascar has very significant and diversified natural resources. Their contribution to the national budget is still low but should grow rapidly with the recent implementation of major mining projects.

Traditionally, exports of mineral resources were mainly of chromium and graphite, but their share in total exports dropped from 4% in 1990 to 1.2% in 2011. The main reason for this is the coming on stream of gigantic industrial mines such as QMM and Ambatovy, which has transformed the Madagascan mining landscape. The production and export of titanium and zirconium by QMM since 2010 has increased the share in exports of hard commodities, which in 2011 was 8%. In terms of volume, ilmenite exports are expected rapidly to reach 750 000 tonnes per year, or 10% of world production, and zirsill exports to reach 60 000 tonnes per year. This volume was also expected to increase after Ambatovy began to export nickel and cobalt in November 2012. Ambatovy intends to move quickly to produce 5 600 tonnes per year of cobalt, or 10% of world production, and 60 000 tonnes per year of nickel, or nearly 5% of world production. This project is one of the largest customers for suppliers of goods and services in Madagascar. At the end of 2010, it had signed contracts with local suppliers for more than USD 1.2 billion. After training to improve the quality of their products, more than 500 micro-, small-, and medium-sized enterprises received orders from Ambatovy. More than 2 000 local businesses are entered into a database used by Ambatovy and its sub-contractors.

In 2011 petroleum-product exports were estimated at 61.5 tonnes and accounted for about 6.6% of exports in terms of value. According to the French treasury directorate general, a dozen companies of various nationalities are engaged in oil-exploration operations in Madagascar.

Exports of food products such as vanilla, coffee, cloves and pepper constituted 11% of exports in 2011, in particular thanks to the performance of cloves (+342%). Vanilla exports fell, however. Prawns and other fishery products accounted for 11.2% of exports from the free-trade zones in 2011, and their share in total exports was 4.5% in 2011.

The contribution of natural resources to the national budget is still low in terms of its potential, but should grow, thanks to the major mining projects. According to the 2010 EITI data reconciliation report, earnings from the mining sector paid to the national budget were estimated at around MGA 291 billion. The vast majority were royalties paid by Wisco (USD 100 million). Mining resources accounted for approximately 13% of total revenue and 1.6% of GDP.

According to the transition authorities and a number of civil-society organisations (including Les amis de la Terre-France in their November 2012 report, *Madagascar : nouvel eldorado des compagnies minières et pétrolières*), the Madagascan mining code, in particular the law on large investments, favours mining companies over the country. The authorities therefore suspended the issuance and the renewal of permits in many areas of the sector. Moreover, they went back on certain provisions of the law on large mining investments, requesting commitments from the Ambatovy project that were not initially provided for in the legislation. Revision of the mining code could be included amongst the priorities of the next post-election government. Modifying the allocation key for distributing mining revenues between the central government and local communities will certainly be one of the elements to be considered in greater depth as part of such a review.

The country does not have a stabilisation fund in which resources can be invested in long-term assets.

A number of conditions are in place to allow Madagascar to grow enough to be able to promote structural change, namely to reallocate the labour force from the least productive sectors to the most productive ones, but this change has been thwarted by several factors: recurrent political crises that have generated an unstable environment for private-sector activities; the weak competitiveness of local processing industries and suppliers (high costs of production factors other than labour); insufficient transport infrastructure; and the low quality of public services. In addition, good, sound management of natural resources remains a major challenge to Madagascar.

The first factor that might facilitate change was the establishment of free zones in 1989. These were intended to generate jobs, to acquire and master new technologies, and to bring in capital. The zones were to be a stepping stone towards the country's true industrialisation. Eighteen years later, in 2007, the number of employees was estimated at 120 000, or one-third of the labour force in the secondary sector. In 2008, the zones had 175 enterprises, of which 63% were in the textiles and apparel branch (further details are available in the ILO's September 2011 study, *Les zones franches à Madagascar)*. The 2002 crisis and that of 2009, which resulted in the suspension of AGOA agreements, led to the shut-down of several companies in the zone and the destruction of many jobs.

The second condition that can promote structural change lies in high-incentive oil and mining legislation. The 2002 law on major mining investments provides for very competitive tax benefits for large investment projects (greater than MGA 50 billion, or about USD 22.5 million), in particular for those that process their products on site. Corporate income taxes were thus reduced to 25% (compared to 35% for the general tax system) and to 10% when products were processed inside the country. In this case, the mining licence was set at 1%. These benefits help explain FDI inflow, in particular to extractive activities, which accounted for between 60% and 80% of the entire FDI inflow over the past years.

The third element favourable to a change in the economy is the existence of a 2007-12 industrial policy document through which the government of the time laid down its aim to "launch large-scale industrialisation with intensive use of surplus labour". It especially wished to encourage the introduction of new investment projects in sectors considered as high priorities for their ripple effect: tourism, agribusiness, light industry for export, mining, infrastructure and ICT.

Political normalisation will be essential for the country to be able to implement a genuine industrial policy taking these factors into account. It should make it possible to lift identified constraints and, in addition to the sectors already cited, give on-site processing of local products a place of choice, in particular in the agricultural sector.

Good management of natural resources remains one of Madagascar's major challenges. According to a December 2010 World Bank study, *Madagascar : revue de la gouvernance et de l'efficacité du développement*, the country is mired in a "natural-resource curse" with regard to its mining potential. In the forestry sector, illegal logging and export of precious woods are almost daily realities despite the legal regulations. In the mining sector, the tax revenues generated by mining will grow with the implementation of the two huge mining projects. They could "sharply change how revenues are distributed amongst the elites by rewarding highly those who control political power", according to the World Bank study. They could also "exacerbate social inequalities in the mining communities". In addition, the management of mineral rights remains a potential source of pay-outs if the desired transparency is not there.

Given the risks, implementing the EITI is an opportunity, provided that the current blockages are removed, as the country was suspended from the EITI in 2010 because of its political instability. The actions that are taken once institutional stability is recovered must: support the EITI and, above all, civil-society oversight of the use of public resources; strengthen the management skills of the mining communities for transparent use of the revenues generated by mining; and consolidate the oversight bodies for the illicit exploitation and export of precious woods, and apply penalties to all apprehended offenders.

MALAWI

Malawi is endowed with diverse natural resources, ranging from land, water, forests, livestock and minerals. Land is the most valuable resource for Malawi in view of its agro-based economy. Most of the land is used for food production, mainly maize and tobacco, which is Malawi's main export commodity. Out of a total land area of 9.43 million hectares, 36% is under forest cover, including forest reserves and plantations. Malawi has used its forestry resources to support agricultural and other economic activities, such as wood processing industries for local and regional markets and construction. Lake Malawi is another natural resource that can be harnessed. The lake supports fishing and tourism and has potential to provide water for irrigation. Among Malawi's mineral resources are uranium, rare earth minerals and coal. The first large-scale commercial mining operation, the Kayelekera uranium mine, commenced operations in 2009. Since then interest in Malawi's mining sector by foreign mining companies has grown, leading to expansion in mineral exploration. The government plans to establish more mines over the next decade. A niobium mine at Kanyika is expected to be operational by 2014. It has also awarded rights for oil prospecting in Lake Malawi. However, prospecting for oil has been put on hold pending resolution of the territorial dispute with Tanzania.

As an agro-based economy, Malawi has managed to earn high returns from its cash crops (primarily tobacco), particularly during periods of high commodity prices. However, over-reliance on agriculture, weak conservation practices and dependence on fossil fuels for energy in rural areas has resulted in natural resource degradation. The country's forest cover, for instance, has been diminishing at an alarming rate of 2.8% per annum, posing major challenges for environmental sustainability. Deforestation has resulted from many factors, including growing human settlements, expansion of land for farming and weakness in policing illegal exploitation of forests. For many years Malawi has also lacked an integrated approach to the management of its water resources to ensure optimal utilisation. For example, only 5.0% of the irrigable land is under irrigation despite the vast potential from Lake Malawi. According to a 2010 report by the UNDP-UNEP Poverty Environment Initiative (PEI), an estimated 5.3% of GDP (or USD 191 million) is lost annually through unsustainable natural resources management. The challenge facing Malawi is balancing growth and economic transformation with the sustainable management of its natural resources. Natural resources such as minerals, for example, offer significant growth opportunities.

The structural transformation of the Malawian economy over the past two decades has been limited in spite of the country's diverse natural resource base. Agriculture remains the mainstay of the economy, while the country's exports consist largely of primary commodities. Moreover, there has been little value addition to primary commodities, rendering the economy vulnerable to trade shocks. Manufacturing, which used to contribute 15% of GDP two decades ago, has seen its share decline to 10%. The slow pace of structural transformation is partly reflective of weak policies, distorted incentives and an absence of strong institutions to promote investment in new economic activities to respond to emerging global and regional market opportunities.

The government has established policy and institutional frameworks for natural resource management and conservation. Nevertheless, there are some critical bottlenecks, the primary one being the lack of institutional capacity and resources for natural resource management. Within the decentralised framework, local government bodies are unable to properly manage natural resources, including preventing the illegal export of resources such as forestry products to neighbouring countries. The government is aware of these challenges and has developed policies and strategies to improve natural resource management to ensure sustainability (part of the MGDS II). These include enforcing laws to prevent the exploitation

of natural resources and improving the co-ordination of environmental and natural resource programmes and projects that promote the conservation of biodiversity. In the past, the management of natural resources was highly centralised. To ensure a bottom-up approach, the government has decentralised natural resources management to local communities and villages.

The thrust of the government's MDGS II and the ERP is to foster economic diversification toward other natural resource-based economic activities and sectors to drive growth. Mining, forestry, and tourism offer the most significant opportunities. The focus on this diversification is particularly critical for the country to ensure more balanced and sustainable growth. While promoting other sectors, agriculture will continue to play a central role in driving Malawi's growth over the medium to long term.

Given the onset of uranium mining in 2009, the mining and quarrying sector is also likely to play an important role in Malawi's economic growth and exports. The mining sector has grown by an average of 30% over the last five years and further investments are expected in the future. While the returns in mining are potentially high, the sector poses major challenges, partly related to the isolated nature of mining activity. Foreign exchange earnings from uranium are projected to reach USD 200 million by 2014. Without sound governance and regulatory frameworks, the rent from mineral exploitation could turn out to be more a curse than a driver of growth. To address these challenges, the government has adopted a new National Minerals Policy and is developing a regulatory and legal framework to avert negative social and community impacts and ensure a fair redistribution of mineral revenues to the central government and to local communities. The government is also implementing a minerals governance programme with the assistance of its development partners, and it has shown interest in signing up to the Extractive Industry Transparency Initiative (EITI).

Illovo Sugar is an example of successful efforts to harness natural resources to foster economic transformation and contribute to exports and growth. This plan entails smallholder outgrowers employing a private company to provide professional management services in cane production and guarantee a market outlet for the crop. Illovo Sugar contributes to the government's policy of economic diversification away from tobacco as a means to enhance economic resilience. It employs 5 500 permanent workers and 4 600 seasonal workers. The other opportunities for expanding agro-processing outside sugar include tea, cotton and edible oils, where Malawi enjoys a comparative advantage.

MALI

Natural resources play a crucial role in the Malian economy, in particular gold and cotton. Mali has become Africa's third largest gold producer, after South Africa and Ghana. Production increased from 6 tonnes in 1993 to 49.7 tonnes in 2012. As previously stated, it represents a quarter of GDP and three-quarters of export earnings. Exports increased from XOF 17.4 billion in 1993 to XOF 1.07 trillion in 2012. It is estimated that the state earned XOF 233 billion through direct and indirect taxes and dividends in 2012, compared to 62.3 billion in 2002. The government is planning a new tax, indexed on changes in global gold prices. The mining sector employs 8 000 people, including research companies and subcontractors, but the value added by local beneficiation and the development of sales outlets are still lacking. There are no national operators and service providers at the different levels of the mining industry (exploitation, subcontracting, providers of services and material inputs, use and enhancement of local products). Generally speaking, the mining sector does not have enough links to the local economy. Moreover, as a result of a lack of geological data on other mineral deposits, it only produces gold. The absence of a reliable mining land survey and an independent and appropriate financing mechanism penalise the sector. There is also insufficient control, monitoring and evaluation of mining companies. Lastly, energy and communications infrastructure in mining areas are underdeveloped.

The government adopted a new mining code on 27 February 2012 to address these shortcomings and better integrate the mining sector into the national economy. Some of the measures it provides for are: the possibility for private Malian firms to acquire a 5% stake in mining companies; revising the amount and/or rate of taxes and rights related to mining activities; taking into consideration the development of communities near mines; implementing a model to finance research, training and capacity-building for the industry's workers; and preserving and restoring the environment through social and environmental impact studies (EIES). In addition, as a member of the Extractive Industries Transparency Initiative (EITI) since 2 August 2006, the country produces a yearly report on its mining activities.

The rural town of Sadiola is a good example of local development supported by mining activities. Two mining companies have operated the mines since 1996 in this town of 23 000, located 75km from Kayes in north-western Mali. They pay the town between XOF 400 and 600 million annually in levies, making Sadiola the richest rural community in Mali. The money has allowed it to invest in education, healthcare, agriculture and livestock farming. Before the mine opened the town had six schools; with the funds from the mining companies, it has built 27, and 23 of these benefit from supplies and equipment each year. It also built five new secondary health centres to complement the sole clinic that existed before the mine. Drinking water is free of charge thanks to the creation of two water supply points; the town has electricity and village associations are working towards reforestation. A local job commission has been set up to ensure 30% of all jobs are filled by local residents. Finally, the mining companies have also financed a XOF 600 million integrated development programme for Sadiola (Padi) to improve agriculture, livestock farming and microfinancing.

Mali's other major resource, cotton, accounted for around 1% of GDP and 15% of total export earnings in 2012. It was the country's main export up until 2000. A drop in crop yields and global cotton prices, subsidies to producers in certain developed countries, lower production because of the refusal of farmers to cultivate the cotton and bad governance have all created serious difficulties for the industry since 1997/98. This has led to the liberalisation of the sector and a plan to privatise the CMDT. However, since the 2008/09 crop year, production has increased on average 23% per year. This gain is due to the state subsidising input materials by XOF 20 billion on average per year, providing support and advice to producers

and guaranteeing prices. It also results from a refocusing of the CMDT's activities on cotton and improving the sector's governance, plus the relatively high global cotton prices. As a result, the government no longer seems interested in privatising the CMDT.

The availability of good-quality cotton should be a potential advantage for Mali. However, it has not led to the creation of a local cotton processing industry. The few companies that make use of cotton grains, such as oil mills (Huicoma) and the textile industry (Comatex, Fitina, Batexci), are struggling. Automation in most cotton-producing countries has eroded the comparative advantages of low-wage countries like Mali. This is why the government needs to foster investment in the textile industry, which represents a mere 2% of GDP. An increase in the local processing of cotton, which is part of an industrialisation strategy for Mali, will help protect the sector from global price fluctuations.

MAURITANIA

The Mauritanian economy depends heavily on the exploitation of natural resources, mining and fishing; which between them provide nearly 90% of tax revenue. Between 1961 and 2011, agriculture's share of GDP declined by 27%, while industry saw its share increase by nearly 18% and services' share grew by about 9%.

From 1976 to 1995, a period of slow growth in Mauritania, the primary sector grew in importance at the expense of the secondary sector. Then, in the mid-1990s, the secondary sector gave a boost to overall growth. Non-manufacturing activities gained a share of the country's economy between 1996 and 2012.

Growth since 2008 has relied on the secondary sector to the extent of 28.2% of GDP on average (including 15.5% from natural resources exploited by the mining industry compared with only 7.1% from manufacturing and 6.5% from construction). The tertiary sector contributed an average of 38.0% of GDP (including 10.2% from transportation and telecommunications, 7.6% from trade, restaurants and hotels, and 10.9% from other market services). The analysis of the most dynamic sectors, in terms of share of value added in gross output, reflects the rise in the relative importance of the service sector, with trading and other services being more dynamic than transportation and telecommunications.

The dynamism of mining was accompanied by growth in construction. In contrast, there was a relative decline in the contribution of manufacturing activities. In the primary sector, the slight contraction of fishing, aquaculture and fish farming was accompanied by a sharp decline in livestock, agriculture and other related services. Despite the good economic performance, there is low per capita income and high unemployment; a situation that can be partly explained by the size of the population living in rural areas. This underproductive population is unable to benefit from the growth; it is extremely vulnerable to recurrent natural hazards such as floods, drought, and locusts.

This observation justifies a closer look at the country's employment-generating activities. The most dynamic sectors are construction, fishing and trade, which all have high employment flexibility. Manufacturing industry was also effective, with employment creation achieved at the same rate as the increase in value. In contrast, the banking and insurance sectors, farming, transport and telecommunications have created relatively few jobs compared to their increase in value. Agriculture (a major employment provider) lost proportionately more jobs than the relative decline in its contribution to GDP.

Manufacturing industry has performed relatively well, losing fewer jobs than would be expected from the fall in its added value during the period.

Among its natural resources, Mauritania has huge fishery reserves, with more than 700 km of coastline on the Atlantic Ocean. Mining, including iron, has always been one of the engines of growth. Fishery products and iron ore have in recent decades represented more than 90% of the total value of Mauritania's exports. In the mid 1990s, fishery products accounted for 56% of total exports, and iron ore 39%. Ten years later, the balance had changed; the share of iron ore increased to 64% and that of fisheries products fell dramatically.

More recently, large deposits of gold, copper and phosphate have been discovered, leading to an unprecedented expansion of FDI. Projects have been set up by the Spanish Mauritanian Minerals Company, (10% owned by the Mauritanian government), to mine quartz in the Dhaklet and Inchiri regions. The Indian company Bofal is investing in phosphate in Gorgol and Brakna. And Kinross-Tasiast plans to invest USD 3.7 billion over the period 2012-14 in

the gold sector. Following the discovery of large reserves of natural gas in the Banda area, the country has created a company producing electricity from gas, which aims to export electricity to Senegal and Mali.

In view of the strong economic growth since the return to political and institutional stability, indications are that mining and fishing will remain the engines of growth, with a strong trickle-down effect for other sectors of the economy, including construction, tourism and hospitality, as well as banking and insurance.

Unfortunately, this growth is not accompanied by the significant job creation needed to reduce youth unemployment, the scourge of Mauritania. Indeed, by limiting itself to the export of raw materials instead of processed products, the country generates little added value to its immense riches. The country is failing to develop the small- and medium-sized industries related to the processing industry. Such a policy would strengthen the industrial sector nationally and create local employment opportunities.

However, the low skill level of the local workforce is a real concern for mining operators and public authorities. For Mauritania to get the maximum benefit from its natural resources, beyond its contribution to tax revenue, the country urgently needs to adopt an effective policy of technical and vocational training. This should include proactive measures to support businesses that unemployed young people are culturally reluctant to enter. The social anthropology of the different communities living in Mauritania is based on a stratification of social classes which determines the distribution of tasks, reserving the exercise of manual trades (masonry, carpentry and plumbing) to the disadvantaged and “slaves”. This popular perception discourages young Mauritanians, whether Moors or black Mauritanians from seeing training in a trade as their springboard to the future.

MAURITIUS

Over the past three decades, Mauritius has undergone noticeable structural transformation, which has helped the island nation move from a low-income country (LIC) status to an upper middle-income country (MIC). The transformation has been characterised by a development path from a single-crop economy completely dependent on sugar to diversification into the secondary (manufacturing) and tertiary (services) sectors. Tertiary sector expansion is attributed to booming tourism services coupled with the strong growth in transport and communication; financial services and the real estate sector. Consequently, the GDP share of the primary sector has declined from 12% in 1990 to 4% since 2010.

In the early stages of the transformation, much of Mauritius' growth was labour intensive. The transformation has been accompanied by shifts in labour across sectors. In 1990, almost half of the country's workers were employed in the agricultural or manufacturing sectors – mostly sugar and textiles. The textile firms, in particular, were fast growing due in part to support by policy reforms that aimed at reducing the cost of labour and supporting absorption of new workers. This facilitated growth while creating employment. However, the ratio of employment growth over GDP growth fell from 1.0 in 1985 to 0.2 in 2002 reflecting emerging limits of an incentivised labour-intensive export-oriented textile industry. The sugar and textile sectors were affected by the phase out of trade preferences by the euro area. For example, both industries shed labour between 2000 and 2008, while emerging sectors, such as tourism, ICT and retail, absorbed workers. Between March 2010 and March 2012, the economy created a net of 4 693 jobs with the largest contribution from wholesale, retail trade, real estate and financial intermediation businesses; whereas, overall employment reduced in both agriculture and manufacturing.

Against a background of consistent and strong reform performance, Mauritius continues to pursue innovative solutions for greater structural transformation. A 36% fall in the price of sugar between 2006 and 2010 led the authorities to support reforms to promote diversification in the sector. Energy potential of sugarcane was viewed as one of the solutions to the country's energy challenges through production of ethanol from molasses and electricity from bagasse leading to the establishment of independent power producers (IPP). The IPPs have been producing and exporting electricity to the national grid since 2008 and now contribute up to 60% of the requirement. They produce power from bagasse during the cropping season and from coal during the off-season. With about 70% of its turnover stemming from electricity sales, O millionicane Ltd (O MILLIONI), an integrated sugar-cum-energy producer, is the largest IPP in the country with over 50% of the IPP market share. Two major IPPs, O MILLIONI and Harel Frères (HFL), have invested in new generation technology that makes more efficient use of coal and bagasse to provide reliable and, to a large extent, clean sources of energy. The green energy produced from bagasse contributes about 17% of national electricity production and has the potential to increase to 25%. The utilisation of bagasse allows Mauritius to save on the import of an equivalent of 375 000 tonnes of coal, thus preventing the emission of 1 200 000 tonnes of carbon dioxide (CO_2).

In addition, the sugar industry has also diversified from being a sole producer of raw sugar into production of value-added products such as refined sugar and specialty sugars as a means to increase revenue. Mauritius is now the largest exporter of special sugars to the European market. Some 19 different types of special sugars are produced mainly by Belle-Vue, Beau Champ and FUEL milling companies. Terra Milling Ltd, a subsidiary of HFL, produces up to 75 000 tonnes of specialty sugars for the international market.

In terms of natural resources, Mauritius is totally devoid of what may be termed as "hard commodities" as well as "energy commodities". At an estimated 600 inhabitants per square kilometre, land is a major constraint, although the country boasts of a very impressive ocean exclusive economic zone estimated at 1 000 times the country's land size. Onshore, the main natural resource is its relatively fertile soil used mainly for agriculture. Land is under tremendous pressure due to increasing demand for development. With no known oil, natural gas or coal reserves, Mauritius depends on imported petroleum products to meet most of its energy requirements. As a net importer, the energy dependency index is high, estimated at 83% in 2011. A few "soft commodities" such as cane sugar and seafood comprise the main agro-based natural resources from which the government derives export revenues. Currently, sugar and seafood export revenues account for 13.2% and 16.4% of total export revenues respectively. In the 2013 budget, the authorities have announced plans to develop the ocean economy and establish strategic partnerships to embark on mineral resource exploratory activities on the Mascarene Plateau believed to have meaningful deposits.

Despite the island's obvious natural resource constraints, successive governments have been able, through targeted policy measures; to maximise the benefits from the available natural resources. Two different approaches have been used. On the one hand, there has been a substantial transformation from within as regards the sugar industry, and on the other, there has been the unearthing of a completely new avenue with the upsurge of real estate via the Integrated Resort Scheme (IRS)[1] and the Real Estate Scheme (RES)[2]. The real estate sector in Mauritius is particularly attractive due to the absence of any capital gains, estate or inheritance taxes. As a result, FDI in the real estate sector, as a proportion of total FDI, has increased from 23.5% in 2006 to 60.8% in 2012. In 2012, it contributed about 13.5% to the GDP compared to 10.2% in 2006.

1. The IRS allows foreigners to purchase freehold property at a minimum of USD 500 000 with added benefits of automatic residency for participants and their immediate families, no capital gains tax, 15% income and corporation and tax and minimal inheritance tax.
2. Under the RES, foreigners can purchase residential units at no minimum price.

MOROCCO

During the past 20 years the Moroccan economy has diversified, in terms of both sectors and geography, with the emergence in the 2000s of new and competitive sectors and of new regional centres of growth. This welcome structural change owes its momentum in part to several active and coherent policy measures aimed at promoting certain sectors of the economy, and in part to the positive role played by phosphates which have generated financial strength and growing knock-on effects on the rest of the economy. Even so, some sectors, such as textiles, need to reposition themselves very quickly in the face of international competition, to stop job losses.

Since the early 2000s the country has made the strategic choices to encourage industrial subcontracting for export and to attract the emerging opportunities arising from the relocation of services from abroad. Specific strategies have been progressively implemented in seven sectors where Morocco has competitive advantages. These advantages are based on its geographical position as a crossroads (between Europe, Africa and the Gulf), trade agreements, and the international growth of several sectors of the economy: the off-shoring of services, automobiles, aeronautics, electronics, textiles and leather, agri-food and seafood processing. Off-shoring, or delocalisation, of call centres, (which hardly existed in 2000), and back-office activities, case processing and maintenance services in information and communications technologies (ICT) have all taken off in a big way. Off-shoring had a turnover of MAD 6.8 billion in 2011 and provided 52 000 jobs. Morocco is now the principal destination of French-speaking call centres and is developing new niche activities such as human resources, accounting and financial services. The aim is to reach 100 000 jobs in 2015 and a turnover of MAD 20 billion. Similarly, logistics activities are booming thanks to investment in commercial infrastructure and related transport, such as Port Tanger Med. The greatest success in this respect has been the automobile sector. The value of exports rose six-fold between 2004 and 2011, reaching MAD 22.6 billion and the number of jobs practically doubled to 56 300. The sector reached a new level with the entry into service in 2012 of the Renault plant at Tanger, where low-cost models are produced. The project has already increased the sector's exports by more than 20% compared with 2011 and production capacity should double, reaching 400 000 units in 2015 and representing 6 000 direct jobs. In addition, the two free zones at Kenitra and "Tanger Automotive City" should attract groups of sub-contractors and eventually generate 30 000 new jobs.

The country's strategy aims to intensify this structural momentum. The state and the private sector have accordingly put in place a specific contract programme for the period 2009-15, the PNEI, which contains objectives and precise and budgeted measures for each of the seven sectors targeted. The PNEI plans for, among other things, investment of more than MAD 50 billion and the creation of 220 000 jobs requiring qualifications by 2015. The state has a role to play in four key areas: *i)* the supply of infrastructure and industrial parks in the form of integrated industrial platforms (known as P2I); *ii)* a supply of services to investors that conforms to international standards, as well as financial and administrative incentives; *iii)* a research and development (R&D) plan covering outlet opportunities, including a list of foreign businesses to be approached; and *iv)* assumption of responsibility for the training of qualified human resources for jobs as engineers, technicians and equipment operators. Furthermore the national agency for investment development, (*Agence marocaine pour le développement des investissements,* AMDI) has been given the task of conducting an active promotional campaign among the foreign investors and businesses targeted.

Beyond these sectors the exploitation of major phosphate resources plays a growing role in the country's vigorous structural change process, both by its financial impact and by its growing knock-on effect on the country's economic and social fabric. Morocco is the world's leading producer of phosphates with 18 million tonnes a year and the leading exporter with 36% of the world market for crude phosphates, 51% for phosphoric acid and 14% for fertilisers. The country possesses 70% of the world's known reserves. The national phosphates agency (*Office chérifien du phosphate*, OCP) directly employs more than 20 000 staff and represents about 10% of the government's fiscal receipts, as well as generating activities upstream and downstream of the sector thanks to a structured strategy. The process should be powered by the construction of a series of sun-power and wind-power parks capable of producing 4 000 MW by 2020 as part of a plan to develop alternative energies. A specialised institution is being planned to train the 5 300 engineers, 17 900 technicians and 23 900 workers needed for this development by 2020.

The financial contribution made by phosphates has significantly increased in recent years and they accounted for 28.3% of the country's exports in 2011, against 16.2% in 2000, and more than MAD 48.4 billion in foreign currency earnings. The commercial and industrial strategy pursued by the OCP since 2006 has been to strengthen the country's presence in the market in large emerging countries (India and Brazil's share of Morocco's fertiliser exports rose from 22% in 2000 to nearly 52% in 2011), and to win new markets in Africa where there is continuing expansion. In this area, partnerships have been established with Senegal, Gabon and Kenya. The OCP has also reinforced its positioning on the whole phosphate value chain, from extraction to industrial transformation activities. As a result the added value of the sector increased in 2011 by 41.3% compared with 2010. The group is seeking to improve productivity, lessen its dependence on artesian wells and reduce the costs of exploitation. To this end it is developing new extraction techniques, new methods of manufacturing fertilisers, a seawater desalination procedure and pipeline transport. The strategy is to double mining production and triple fertiliser production by 2020. With this in mind the OCP plans a large investment programme of around MAD 115 billion which will see three new mines and four new washing stations opened.

Although the potential for job creation in the mines remains very limited, the OCP, which became a limited company in 2008, plays a growing role in strengthening agricultural productivity and the chemical industry as well as in integrating Moroccan businesses into their upstream activities and in developing local skills. The OCP puts its major investment projects out to international tender while offering opportunities to local businessmen in contracts for construction, sub-contracting and industrial engineering. Between 2009 and 2015 MAD 10 billion is due to be reserved for SMEs and SMIs as part of the group's investment plan. Foreign enterprises which accommodate Moroccan businesses will also be given favourable treatment in the bidding process. At the same time, with the Plan Maroc Vert, the OCP is publicising soil fertility testing among farmers so that fertilisers can be used accurately and effectively. In 2010, the group also launched the OCP Innovation Fund for Agriculture, with a budget of MAD 200 million aimed at fostering innovation and local entrepreneurial activity in farming and agro-industry. It is also participating in the national strategic plan for the chemical and parachemical industries, the aim of which is to triple turnover and double the number of jobs in the sector by 2020. Since 2011 it has set up a programme to promote skills, known as "OCP skills", which will pay for the university training of 15 000 young people from mining areas and support local entrepreneurial projects.

In contrast the agri-food and textile sectors are suffering from a shortage of available raw materials and also from their international competitiveness. Medium-term prospects for the textile sector appear much more uncertain. In spite of the steps taken to develop new segments in the ready-to-wear trade with Europe and in new niche products (lingerie, home

textiles and shoes) the sector is losing jobs and export market share. The sector accounted for 13% of GDP and employed nearly half a million people in 2011, (40% of the industrial workforce), but is suffering for a number of reasons; one of them the highly competitive world market since the ending of the multi-fibre agreement in 2005. It is also suffering from weak diversification of destinations but above all from the unavailability of inputs on the domestic market which is eroding the country's competitive advantage in terms of costs and delivery times. Businesses are resorting to huge imports from Spain, France, Turkey and China. In respect of agro-industry, weaknesses in agricultural production, linked to problems with intermediation and distribution, prevent the exploitation of niche markets such as processing organic products or pre-cooked meals. The sector is failing to establish itself in the promising African markets for consumer goods. The building sector also has some unexploited advantages.

MOZAMBIQUE

Despite an impressive annual average GDP growth of 7.2% in the 2000s, there has been no structural transformation in Mozambique. A strong post-civil war economic recovery and significant improvements of social indicators characterised the decade of the 1990s. From 2000 onwards, improvements in poverty reduction significantly slowed down, social indicators stagnated and employment creation was insufficient to absorb the 300 000 yearly entrants to the labour market.

The diversification of the country's economic structure is limited by weak human capital, a high cost of credit, deficient infrastructure and burdensome regulations. Although the service sector provided over 50% of GDP in 2011, agriculture still provides a livelihood to over 80% of the workforce. It is also one of the largest contributors to GDP with 24.9%. Yet, agriculture largely remains subsistence based and productivity is low.

The economy in Mozambique is mainly an extractive economy, relying on raw-material exports, with minimal economic linkages to other economic sectors. This is the result of the highly capital-intensive nature of growth. Large FDI flows to a few megaprojects drove GDP growth. Mozambique's exports of goods increased tenfold from USD 360 million in 2000 to USD 2.78 billion in 2011. Yet, this is entirely due to the start of aluminium production by Mozal in 2000 and natural gas production by Sasol in 2004. As a result, the share of GDP from the manufacturing sector declined from 17% in 2004 to 11.9% in 2011. Gas and aluminium made up 75% of total manufacturing and 70% of total exports in 2008. The remaining manufactured products included sugar, beer, tobacco and cement. According to the 2009 African Peer Review Mechanism, productive capacity, excluding aluminium, remains as low as it was in 1971.

As the extractive sector only started in early 2000, the natural-resource reserves remain essentially unexploited. The tantalum, limestone, gold, uranium and iron ore endowments provide opportunities for further exploration and diversification. Heavy mineral sands are estimated at 100 million tons with the potential to provide 20% of global demand for titanium. In addition to the extractive sector, Mozambique possesses agricultural land with potential for biofuels, hydro-energy resources and forestry as well as fishery, aquaculture and tourism.

The biggest future impact is likely to emanate from the emerging gas sector through increased fiscal revenues and energy provision. Estimated offshore natural gas reserves were 150 tcf in early January 2013. Sector experts estimate there is an additional 100 tcf of gas to be discovered. These total amounts of gas equal the reserves of Western Australia, one of the leading natural gas providers in the world. Mozambique is likely to benefit from royalties and "profit gas" in kind, in addition to substantial revenues in the form of taxes and revenue from the sale of gas to megaprojects. Conservative estimates from the government of future gas revenues are set to reach 12% of GDP or the equivalent of 40% of the state budget, after which they are projected to decline from 2050 onwards. New exploration licenses for the remaining offshore blocks are expected to be granted through a competitive bidding process by 2014-15.

The government is preparing further reforms to the fiscal and institutional framework managing the natural resources. A 32% capital gains tax on local assets sales by foreign companies was implemented in 2012, while the mining and hydrocarbons fiscal regimes are being revised. These fiscal reforms aim to raise fiscal revenue from future, large natural resource projects and ensure fiscal sustainability.

Major future investments in the extractive industries are expected to transform the country's deficient infrastructure and potentially catalyse the development of new economic activities. Private investment in extractive industries totalled USD 7 billion since 2005; it was USD 2.7 billion in 2011 alone, while USD 15 billion is planned for investment in the coal sector in the coming years. Estimates for the development of the gas sector range between USD 200-400 billion over the next 40 years.

These FDI inflows contrast with the only 3 800 direct jobs created by the coal megaprojects. Even if the number of direct and indirect jobs are projected to reach several tens of thousands by the time of full coal exploitation in 2016, this would remain insignificant in light of the estimated yearly 300 000 entrants to the labour market.

The government's new "local content" bill aims to strengthen economic linkages with the local economy in order to promote employment creation and technology spillovers. The high cost of credit, weak human capital and unreliable energy, compounded by the high-skilled labour and quality input requirements from multinationals, severely hamper local SMEs from servicing the coal extraction industry. The SME development programme, jointly designed by the multinationals and the government, is likely to gradually increase the business share of Mozambican SMEs so that they become providers of services to the mines. In 2011, the government started a programme to train around 4 000 specialised national staff to take up work in the expanding extractive industries.

The natural gas project by the South African company Sasol provides examples of good practice in terms of maximising the positive impact on local communities. The project achieved 29% of local content with 200 contracts awarded to private Mozambican companies since its inception in 2004. The pipeline also contributed to socio-economic development through local employment creation, road infrastructure and local business development, such as accommodation and agriculture. About 70% of the 700 full-time employees at the gas facility in Temane are Mozambicans. The country's national long-term development strategy for 2015-35 reflects the government's initiatives to harness these new economic opportunities. They favour industrialisation and local transformation of natural resources to generate wealth and reduce poverty. Public investment focuses on improving infrastructure. This is likely to create an enabling environment for the private sector to provide the required large investments to develop the extractive industries, tourism, agriculture and manufacturing.

The success of the Mozambican development strategy depends on the improvement of the state's capacity to design, co-ordinate and implement the required public policies, including engaging with both the private sector and civil society. This challenge is compounded by weakened checks and balances due to the collusion of the business elite with party cadres and conflicts of interests arousing from the dominance of a single political party (FRELIMO) controlling the state apparatus. In addition, the weak civil society and widespread corruption erodes the enforcement of specific measures targeted at developing specific sectors, such as agriculture. As a result, Mozambique's past industrial policy has mainly been reactive to the interests of the large investors and the donor priorities, rather than proactive.

NAMIBIA

Namibia heavily relies on the extraction and utilisation of its abundant natural resources. These include some of the world's most unusual flora and fauna, as well as minerals. Diamonds and uranium account for the bulk of the country's total exports. Namibia is also rich in a variety of other minerals, with over 30 different commodities produced from about 40 formal mining operations. Aside from gold and silver, they include base metals such as copper, lead and zinc, as well as industrial minerals such as salt, graphite, marble, fluorspar and limestone. Other minerals found in the country include semi-precious stones, namely rose quartz, amethyst, agate and tourmaline, plus dimension stones such as granite and marble. Huge deposits of iron ore and uranium were recently discovered, and the development of a fourth uranium mine is currently under construction, with production expected to commence in 2015. Further investment in new large-scale uranium projects and the expansion of existing mines are also expected to be carried out in the medium term, subject to improvements in uranium prices. It is also suspected that Namibia has large deposits of oil, natural gas and coal. Offshore exploration for petroleum is therefore currently underway. Two wells have already been drilled, but they have not led to the discovery of economically viable deposits. Further drilling is planned to commence in the first quarter of 2013. Efforts are also being pursued for the mining of ore to commence by 2016.

The structure of Namibia's economy has changed over the past three decades. The mining sector has been the main engine of growth and job creation for a long time. The sector's contribution to GDP was more than 47% in 1978, but it shrunk to about 26% of GDP by the 1980s and 13% by 1991. Mining activities contracted severely due to the closure of numerous mines, reflecting the decline of mineral prices in the late 1970s and early 1980s. By 2011, the sector's contribution to GDP had fallen to 9.5%, generating NAD 8.7 billion (USD 1 billion) of value added. In spite of the decline, mining remains the most important primary industry in Namibia, accounting for nearly 57% of primary industry's 16.7% contribution to GDP in 2011. Manufacturing contributed 12.1% to GDP in 2011, up from 9.4% in 1991. Manufacturing activities are concentrated in the sub-sectors of food and beverages and the category of other manufacturing (which includes mineral beneficiation). These two activities accounted for 5.3% and 6.1% of GDP, respectively, in 2011. Mineral beneficiation mainly includes the smelting of copper and zinc ore, and the cutting and polishing of rough diamonds. Agriculture's and the forestry sector's contribution to GDP have been declining, from 9% in 1991 to nearly 4.2% in 2011. This is due to unpredictable climatic and soil conditions, which are less suitable for agricultural production. In spite of this, about 35%-40% of the population still depends on subsistence agriculture for its livelihood. The share of services in GDP rose significantly up to the period soon after independence in 1990, from an average of about 39% in the 1970s before stabilising at an average of about 56% in the 1990s. The increase can be attributed to the expansion of government services – particularly education and health – during the period leading up to and after independence. Government services account for about 50% of the share of services in GDP.

In spite of the decline in the mining sector's contribution to GDP, the sector has maintained its role as a major contributor to government revenue, mainly through royalties levied on the market value of minerals and the country's exports. In 2011, ores and minerals accounted for nearly 33% of the total exports of goods and services, compared to 52.5% in 1991. Diamonds are Namibia's most significant mineral resource, making up nearly 52% of total mineral exports in 2011, followed by uranium. Manufacturing products contributed 45.6% to Namibia's total exports in 2011 compared to 29.2% in 1991, while agricultural products such as live animals, animal products and crops dropped to 3.9% of total exports from 6.5% during the same period.

Mining's capital-intensive nature and weak linkages with other sectors, as well as its lack of beneficiation, has limited its impact on employment. According to the 2008 National Labor Force Survey, Namibia's labour force amounted to 678 680 persons in 2008, of which less than 3% is employed in the mining sector. Agriculture, however, employs about half of Namibia's labour force in spite of its small size relative to GDP. Furthermore, the Namibian economy still remains dependent upon commodity-driven growth due to its heavy reliance on the mining sector. As such, Namibia remains highly vulnerable to commodity price shocks. The country therefore needs to make further progress in developing stronger engines for growth in order to increase the resilience of its medium-term growth prospects.

Against this background, optimising mineral linkages needs to be a conscious policy in Namibia. The country has potential for large expansion – particularly in secondary industries – through further exploration of mineral beneficiation opportunities, including the identification and development of upstream activities. For instance, only 10% of diamonds mined in Namibia were kept for cutting and polishing by local industry in 2011. Moreover, currently very little value addition is carried out in Namibia with regard to both agricultural and fish products. The government is cognisant of the fact that manufacturing can contribute toward enhancing the Namibian economy's resilience to external shocks and promoting inclusive growth. It has identified specific agents of expansion in the manufacturing sector, including upstream mining products (inputs for mining activity), mineral beneficiation (potentially in copper, diamonds, gold, uranium, zinc and small-scale mining output) and agro- and fish-processing. The government is aware that reaching a high level of growth in manufacturing is possible only if such initiatives are supported and an investment climate is cultivated to enable them to thrive. The government also recognises that the beneficiation of diamonds is restricted by inadequate skills and infrastructure bottlenecks. Initiatives aimed at addressing issues of capacity are being pursued through the ESTIP. The government also recently launched the Human Resource Development Council to address the skills mismatch in the labour market.

Current initiatives to stimulate manufacturing activities include the launching of the Draft Industrial Policy Strategies, which is scheduled for the first half of 2013. The government also intends to undertake an extensive value chain analysis of the goods produced in Namibia. This includes examining the further beneficiation of copper, gold, uranium, zinc and small-scale mining products in order to determine areas where additional value addition can be viably undertaken. There are also plans to increase the supply of rough diamonds for local cutting and polishing factories to increase the current levels of mineral beneficiation. Through suitable support and incentives, the government feels that agro- and fish-processing could also serve as a strategic manufacturing industry for Namibia.

Namibia's mining industry is regulated by the Minerals Policy of Namibia. It is also governed by the Diamond Act (1999), the Minerals (Prospecting and Mining) Act (1992) and the Minerals Development Fund of Namibia Act (1996). The Minerals Act was enacted in order to encourage environmentally acceptable mining. However, Namibia is not a member of the Extractive Industries Transparency Initiative (EITI). Further efforts are therefore required for the country to put in place stronger policies and strategies for managing its available mineral resources and promoting the value addition of mining products in order to make growth more inclusive and increase the resilience of the country's medium-term growth prospects.

NIGER

Niger has an abundance of natural resources, particularly minerals, oil and gas. The main resources are uranium, gold, coal, iron, limestone and phosphates. Present in Niger for over half a century, the French group Areva is developing the country's uranium potential through the Niger-based companies Somair, Cominak and Imouranen SA. The opening of the new uranium mine in Imouraren, scheduled for 2014 or 2015, will represent a major turning point. By 2016 the mine's maximum annual capacity is expected to reach 5 000 tonnes of uranates. Niger is expected to become the second largest producer of uranium, behind Kazakhstan and ahead of Canada. Gold mining is expected to go through another phase of expansion in the coming years. Thanks to proven reserves of more than 80 million tonnes, Niger is also expected to benefit from high global demand for coal.[1] It has more than a billion tonnes of iron ore, too. The Termit Massif is of great interest and is currently being explored. The country also has large limestone and phosphate reserves.

In the oil and gas sector, the first explorations were carried out in 1970 by major oil companies such as Esso, Texaco, Sun Oil, Global Energy and Elf Aquitaine. A major turning point was the introduction of a major programme to interpret geological and geophysical data in 1990. Niger's oil and gas potential comes from two large sedimentary basins covering 90% of its territory: the west basin (Iullemeden basin and Tamesna sub-basin) and east basin (Chad basin). Oil maps show 34 separate blocks, and exploration or operating licences have only been granted for four of them: three by the China National Petroleum Corporation (CNPC) and one by the Algerian firm Sonatrach. The remaining 30 blocks are open to investors. The total potential remains to be established by prospecting, but partial knowledge of Niger's geology reveals an assemblage of promising features.[2] Currently, proven reserves amount to 744 million barrels of oil and more than 16 billion m^3 of gas. Since 2012, operations at the Zinder (Soraz) refinery by the CNPC and the government have made Niger a net exporter of oil.

The impact of the extractive industries on the economy as a whole has been mixed, even negligible. Their contribution to GDP is increasing, but remains very low (2.8% of GDP in 2010 and 6.0% in 2012); agriculture alone provides 40.0% of GDP. This partly reflects the unbalanced partnership that has lasted decades.[3] Apart from staff wages and royalties paid to the local and regional authorities of the areas mined, the capital-intensive mining sector seems disconnected from the rest of the economy. Production is exported without any local processing. The extractive industries provide only 10% of tax revenue. In the medium term, mining and oil should raise their contribution to GDP and to tax revenue. Given this scenario, compliance with the EITI[4] and its extension to include oil and gas is good news for the future, as are the articles in Niger's new Constitution that strengthen the framework of governance, exploitation and management of natural and subsoil resources, (articles 148 and 153). The extractive industries have had the most significant effect on growth, through FDI, and on the balance of payments through foreign exchange reserves.

The PDES 2012-15 in Niger highlighted the possibilities and prospects of rational and sustainable exploitation of mineral and oil and gas resources changing the structure of the country's economy. In accordance with Article 153 of the Constitution, the government has decided that the priority for income from mining and oil is reinvestment in economic diversification. It will thus finance structural investment in agriculture and livestock farming to support the 3 N initiative for food security. Agribusiness will be a major source of diversification thanks to its still underexploited potential and will become a lever for growth and job creation in the medium term. FDI and the future-generations fund envisaged in the Constitution will help transform the economy, growing the value chains of agriculture, forestry and livestock farming. In addition, the exploitation of natural resources could create the potential for the development of industrial mining and a regional oil and gas market.

The main challenges are macroeconomic and environmental. At the macroeconomic level, government involvement in the extractive industries has led to a deterioration of debt ratios. Inappropriate exploitation of natural resources could also be speeding up environmental degradation. In response to these risks, the government intends to bolster the environmental code by ensuring that an appropriate PDES is prepared for any activity affecting the environment. The government will limit its equity participation, and possibly end the guarantees it offers for certain investments in mining and oil. In addition, by reinvesting mining and oil income in diversifying the economy, the government will be able to mitigate the risk of Dutch disease.

1. This is due to the energy needs of China and India and is seen as an indirect result of the moratorium on nuclear energy declared by several Western countries following the Fukushima disaster.
2. Niger is surrounded by countries whose large reserves have already been updated and exploited: Algeria and Libya to the north and Chad to the east, as well as Nigeria and Cameroon along the coast to the south, where offshore operations have een in place for many years.
3. The increase in the contribution to GDP since 2010 is the result of contract renegotiations with the French group Areva in 2009-10, resulting in higher purchase prices for uranate and allowing Niger to sell part of its quota on the international market. The nascent oil industry also contributed.
4. Extractive Industries Transparency Initiative.

NIGERIA

Nigeria is well-endowed with human capital and natural resources. It is the most populous country in Africa, with about 167 million inhabitants. It has a vibrant entrepreneurial streak and a highly-educated labour force.

Nigeria has enormous natural resources. It has about 34 different minerals across the country (including gold, iron ore, coal, tin, uranium, phosphates, and limestone), 37.2 billion barrels of proven oil reserves[1] and 187 trillion cubic feet of proven natural gas. Also, there are opportunities for fertiliser and liquified gas production. With average production of about 2.3 million barrels of crude oil per day, Nigeria is the largest exporter of crude oil in Africa and tenth largest in the world. It has a vast land area of 923 768 km^2, of which about 70 million hectares are farmland.

The Nigerian economy is the largest in West Africa and the second largest in sub-Saharan Africa, predominantly oriented toward the production of agricultural products and crude oil. Agriculture accounts for about 30.9% of the GDP, 70.0% of employment but contributes only about 2.5% of export earnings. Crude oil and natural gas account for about 15.0% of GDP, 71.0% of export earnings and 79.0% of government revenue.

Since 2000, Nigeria has witnessed significant progress in macroeconomic performance, with an average economic growth of 7.0%, driven by the non-oil sector. Despite the robust economic growth, Nigeria continues to face rising unemployment, a high incidence of poverty and a high degree of social deprivation. The unemployment rate rose from 19.7% in 2009 to 21.1% in 2010 and 23.9% in 2011; income distribution continues to be skewed, with a Gini coefficient of 0.44 in 2011; 63% of Nigerians live below the poverty line of USD 1 per day; 42% do not have access to safe drinking water and 69% do not have access to basic sanitation. Social and economic indicators show huge regional disparities in the country. In a nutshell, the overall economic improvements have not translated into improvements in the welfare of the average Nigerian.

Despite the country's huge agricultural potential, less than 50% of the total farmland in Nigeria is cultivated, and agricultural productivity is low because of the lack of modernisation. Nigeria relies on the importation of food to meet its domestic demand, with the import bill for wheat, rice, sugar and fish estimated at NGN 1 trillion (USD 6.4 billion) per annum.

There is a lack of diversification of the Nigerian economy. The manufacturing base is low and has been dwindling. The share of the manufacturing sector in the GDP declined from 6% in 1985 to about 4% in 2011. The main drivers of economic growth do not require large amounts of labour and thus are not able to absorb the 1.8 million new entrants in the labour force every year.

Nigeria is among the leading exporters of crude oil in the world, but it imports about 85% of its refined petroleum product needs due to low capacity utilisation of its oil refineries (around 30%) and their frequent breakdowns.

The production of primary agricultural commodities and oil continue to dominate the Nigerian economy. Economic growth was not created through a structural change of the economy. Sources of economic growth need to be diversified to strengthen the economy.

The Nigerian economy therefore needs growth in order to reduce the financial burden of imports, create jobs to absorb the growing unemployment, grow incomes, reduce poverty and increase prosperity for all Nigerians.

Towards the Structural transformation of Nigeria

A. **Macroeconomic Management:** The Nigerian authorities have introduced macroeconomic reforms that have led to macroeconomic stability. These reforms need to be deepened, consolidated and sustained. Price and exchange rate stability, prudent public expenditure management, improved quality of public investment projects, enhanced budgeting, public financial management and procurement processes, prudent debt management practices and an enhanced domestic revenue base are all critical for macroeconomic stability.

B. ***Consolidating Democracy:*** The democratic dispensation that Nigeria has witnessed since 1999 needs to be consolidated, with leaders held to higher standards of accountability, a vibrant, proactive and critical press, social media and civil society and a well-organised and strong opposition. Good governance, anti-corruption measures and adherence to the rule of law are also vital.

C. ***Diversifying the Nigerian Economy:*** The Nigerian economy needs to be diversified to the non-oil sector. This will help expand the sources of growth and make it broad based, both socially and geographically. Micro-level reforms are needed to address binding constraints to sectoral growth, with a focus on improved technology, skills acquisition, high productivity and access to financing. The agricultural sector will continue to be important given its potential for reducing poverty and creating employment. It also offers the opportunity for linkages to support industrialisation, reduce food imports and enhance food security. Potential also exists in manufacturing, mining, tourism, and the entertainment and hospitality sectors.

D. ***Boosting Agricultural Production:*** This involves targeted interventions and reforms, including technological innovation, productivity improvement, infrastructure development in agricultural production zones, commercialisation and input supply and distribution systems. Specific interventions should include increasing the area of land under cultivation, increasing the use of improved seeds and fertilisers, enhanced cultural practices, mechanisation of agricultural production and the adoption of a value chain approach to boost agricultural production. These should be complemented with improvements in infrastructure, particularly road transport, energy, irrigation, storage and processing. Moreover, partnerships with private sector operators and farmers associations should be developed, and long-term financing should be provided at a reduced cost to small- and medium-sized enterprises in the agricultural sector. These measures are incorporated in the Agricultural Transformation Agenda of the current administration.

E. ***Fostering Industrial Development:*** Industrialisation is a key component of Nigeria's economic diversification and structural transformation. It should be based on the country's comparative advantage that it has with its human and physical capital and natural resources. The provision of industrial park clusters with selective and targeted incentives, is key in attaining this objective. A growth identification and facilitation study would help identify target sectors and the required steps for encouraging growth in them.

F. ***Addressing the Major Infrastructure Gap:*** The infrastructure deficit in Nigeria is a major bottleneck for the structural transformation of the Nigerian economy. This is particularly so in the electric power industry and road and rail transport. Increased public sector investment in infrastructure, improved project implementation and the leveraging of private investments to complement the efforts of the government through privatisation/ concessioning and Public-Private-Partnerships (PPPs) are critical. This is a major priority for the current administration, and improvements have been observed in critical infrastructure development in the country. However, progress in PPPs has been slow.

G. ***Supportive Financing:*** Establishing a sound, deep and efficient financial sector to support the structural transformation is vital. This includes the pooling of funds and allocating them to the most productive sectors, improving the access to long-term financing by SMEs, adopting innovative financing arrangements to broaden the base of investors (e.g. Diaspora bonds), attracting more foreign direct investment, particularly in the non-primary sectors, and attracting foreign portfolio investment. Various initiatives by the Central Bank of Nigeria aim to address these issues, but much still needs to be done.

H. ***Improving the Business and Investment Climate:*** Nigeria continues to be ranked very low in the World Bank report *Doing Business*. This is because of unfavourable physical, institutional and regulatory environments for doing business in the country. The time it takes and the cost of starting and operating a business, plus trade regulations, taxation, and the state of infrastructure, are often cited as constraints to doing business. They need to be addressed. Various initiatives by the government to tackle these problems have slightly improved the business and investment climate.

1. 2011 BP Statistical Energy Survey.

RWANDA

Notwithstanding the government's sustained efforts to diversify the economy, Rwanda is still heavily dependent on natural resources and commodities, which provide 77% of exports. Agriculture continues to be the largest source of employment, absorbing 73% of the workforce, but it accounts for only 36% of output. Coffee, tea, hides, skins and pyrethrum (a natural insecticide) provide most farming exports. Rwanda possesses very few agro-processing industries, except for tea and maize, although there are plans to process rice. The government is seeking to improve agricultural production and productivity through a number of measures, including the adoption of new crops and better land management. Around 7% of the government budget is spent on agriculture. This is significantly more than in neighbouring Uganda (4.5%) and Kenya (1.6%), but short of the African Union's 10% target.

Rwanda is generally not considered a resource-rich country. It has so far not experienced the kind of major discovery recently observed elsewhere in the region (e.g. oil deposits in Kenya and Uganda, natural gas in Tanzania). Minerals, however, constitute an important part of Rwanda's exports, although their contribution has been erratic.[1] Cassiterite, coltan and wolfram together accounted for 28.2% of total exports in 2012. The country has 450 mine sites, relying on about 25 000 artisanal diggers. Despite significant increases in investment in 2012, the government argues that the mining potential remains largely untapped.

Rwanda is widely credited for both attaching a clear priority to, and having articulated plans for, the structural transformation of its economy (Vision 2020). One of the main objectives of the country's economic strategy is to become a low middle-income country by 2020. To be able to do so, the Rwandan economy needs to expand by at least 11.5% a year over 2013-18.

Efforts to modernise Rwanda's economy have been partly successful. Both industry and services expanded much faster than agriculture over 2000-11. The service sector alone contributed 52% of total growth between 2000 and 2011. Tourism, which has also become a significant source of export earnings, is largely responsible for this performance, with the hotels and restaurants sub-sector growing by an annual average of 16.9% over this period. Financial services and information and communications technology (ICT), two priority areas for the government, are still at a rudimentary stage, however. Only 3% of Rwandans above the age of six are computer literate. Construction has led the expansion of industry, growing at an annual average of 12.4% whereas manufacturing has been more sluggish at 8.1%. Although agriculture's share of GDP has been retreating, the sector was still the second largest source of economic growth behind services, contributing 26% of total growth over the period 2000-11.

The transformation of the Rwandan economy, however, is still at an early stage and faces major challenges. First, agricultural productivity remains too low to support the development of employment in other sectors, reduce food prices and ensure that farming is profitable. The government has targeted the off-farm sector to provide around 60% of total employment by 2017. This requires the creation of 200 000 off-farm jobs a year, mostly in manufacturing, hospitality, construction and mining and transport and communication. A second challenge relates to environmental sustainability. Rwanda is the most densely populated country in East Africa with 416 people per square kilometre in 2012. This puts significant pressure on resources, and a third of rural households report being adversely affected by environmental problems, primarily soil erosion and poor soil fertility. Environmental degradation and climate change result in soil losses that are estimated to cost Rwanda the capacity to feed 40 000 people a year. The government recognises that faster economic growth will put additional pressure on natural resources. Finally, financial constraints also hamper efforts to diversify the Rwandan economy. Rwanda sustains a large current account deficit, and

without more exports, the government will struggle to reduce its dependence on foreign aid. Unless current tensions with donors are resolved and the global economy recovers, Rwanda's ambitious plans to diversify its economy may be delayed.

1. On 1 April 2011, the Dodd-Frank Act, a bill prohibiting the smuggling of minerals from conflict areas came into effect. The law requires traders to trace the origins of their material or riskseveral punitive measures including reputational loss, civil penalties and criminal prosecution. As a result, Rwanda exported USD 151 million in minerals in 2011, up from just USD 66 million just the year before, as traders tried to clear their stocks ahead of the 1 April deadline.

SÃO TOMÉ AND PRÍNCIPE

São Tomé and Príncipe has a narrow and undiversified economy that is highly dependent on one product and vulnerable to exogenous factors. Since the country's independence in 1975, the economy has been dominated by the export of a single commodity, cocoa, which used to account for about 80% of GDP. Nevertheless, there has been a significant change in the country's economy in recent years which has seen the service sector (wholesale and retail trade; hotels and restaurants; and transport, storage and communications) and the construction sector become its drivers, accounting for about 60% of GDP in 2012, and employing nearly 60% of the country's workforce, followed by the agriculture and industry sectors that each contributed 20% of GDP.

Economic transformation has continued with the announcement of the discovery of oil in the Joint Development Zone (JDZ) with Nigeria and in the Exclusive Economic Zone (EEZ), with production expected by 2016. In this context, in 2001 the government signed an oil exploration agreement with the government of Nigeria. The agreement makes provision for 60% of oil resources to be allocated to Nigeria and 40% to the government of São Tomé and Príncipe. So far, the country has only received an oil signature bonus as a result of exploitation contracts awarded from its different blocks. It was estimated that from 2005 to 2009 the country received USD 79 million. Furthermore, based on projections from the IMF country report No.12/34 of February 2012, the archipelago could receive about USD 106 million, which corresponds to 40% of the total revenue of USD 266 million from the JDZ shared with Nigeria. This translates into about 42% of the country's 2011 GDP, estimated at USD 254 million, or 265% of tax revenue (estimated at USD 40 million) or 160% of donor-funded capital investment.

The discovery of oil in a small island economy has a huge potential for inclusive growth. In the short term, however, some of the constraints to structural transformation – such as the lack of infrastructure, shortage of workers with appropriate skills in the labour market, uncertainty over property rights and poor land management, as well as undeveloped financial and private sectors – will need to be addressed.

Conscious of the need to manage efficiently its natural resources, the government has adopted legal frameworks to enhance transparency and accountability in the management of the revenues. These include the National Oil Law (law n°16/2009) and the Petroleum Revenue Management Law (n°8/2004), which clearly spell out the importance of using the oil resources for future generations and thus created a national wealth fund (the National Oil Account). The law on oil revenue also stipulates that only 20% of the oil resource will be transferred to the annual budget to finance the budget deficit. To further enhance transparency in the management of these resources, the government has reapplied to the Extractive Industry and Transparency Initiative (EITI) and became a candidate country in late October 2012.

The announcement of the discovery of oil has also led to a migration of people from rural areas to the capital, which may put additional pressure on the authorities to enforce the economic diversification plan and avoid the so-called Dutch Disease syndrome. To this end, and in the context of abundant flow of oil resources, the findings of the AfDB's study on *Maximising Oil Wealth for Equitable Growth and Sustainable Economic Development* in the country, approved in January 2012, indicate that "good governance and efficient management of the oil resources will provide unparalleled opportunity to structurally transform the economy." It is, therefore, imperative for the country to learn from the positive experience of other African countries (*e.g.* Botswana, considered as a successful example) that have efficiently managed their natural resources wealth. Similarly experience could be obtained from other non-African and Portuguese-speaking countries such as Brazil and Timor-Leste, which have managed their hydrocarbon resources well and therefore avoided unnecessary distortions and undesirable outcomes to achieve higher sustainable growth.

In recognising the importance and potential of the agriculture, tourism and fisheries sectors for overall economic development including job creation, development of SMEs and poverty reduction, the government has been actively involved in and supportive of these sectors. In 2012 the government signed a USD 500 000 credit line with commercial banks, supported by the Taiwanese government, to be used in the fishing, agro-industry and agro-tourism sectors. Similarly, in the second semester of 2012, another credit line of about EUR 200 000 was agreed between the government and a commercial bank, with a local non-governmental organisation (NGO) acting as intermediary, that aims to boost the fisheries sector.

São Tomé and Príncipe has great potential to make the transition to a middle-income country, based on its size and GDP per capita, if its resource wealth is efficiently and transparently managed, thus avoiding the resource curse. Building capable institutions through reinforcing the capacity of line ministries, including judicial institutions, to enforce transparency and accountability, and the fight against corruption are key to sustainable and inclusive growth. In respect of development partners, continuous support and promotion of dialogue at all levels are seen as necessary.

SENEGAL

Between 1991 and 2011, economic growth was volatile, peaking at 6.7% in 2003 as a result of the statistical catch up from the minimum 0.7% in 2002. Between 1995 and 2005 growth averaged 4.5% a year. Growth was helped by the devaluation of the CFA franc in January 1994, but also by reforms. The tertiary sector has been the main contributor to GDP for several decades as there have been no major new products in the diversification of exports and sources of growth. On the demand side, consumption remains the main component, driven by monetary income from groundnuts, public investment in external resources, and more recently, remittances from migrants.

During the 1960s and 1970s, a downward trend in the primary sector's share of GDP benefited the secondary and tertiary sectors.

Studies indicate that from 1980 to 2009, labour migration has been from the primary and secondary sectors to the urban informal sector. But the transformation remains slow, since 60% of the working population still depend on agriculture.

Mining and quarrying accounted for less than 1.5% of GDP for the period 2002-11. The main resources are phosphates, limestone (cement transformed) and groundnut products. The first gold bar was produced in Senegal in 2009. Gold capacities are estimated at four tonnes a year for seven years. The mining of heavy mineral sands is in the development stage. Production is expected to be 85 000 tonnes of zircon a year for 25 years.

No provisions have been made to ensure that future generations benefit from the income acquired through national resources. However the income is not high enough to justify creating a long-term sovereign wealth fund. Recent research has reached two major conclusions. Firstly, given the structure of Senegal's export basket, its growth potential for the period 2010-30 lies between 5.89% and 8.20%. For the past 30 years, Senegal's GDP per capita, and hence its productivity, has been below the African average.

As the country did not have a major resource such as oil, Senegal relied in the past primarily on groundnuts and phosphates as its main export products. Since the 1970s, fish, cotton and tourism have helped to diversify the economy. None of these products, however, has provided a sustainable platform for a thriving industry. The edible oils and fats sector is feeling the effects of fluctuating levels of rainfall and world prices. Phosphate derivatives (fertilisers and phosphoric acid) are faced with problems of quality and/or competitiveness. The tuna industry is not competitive. Tourism has also not achieved the desired success.

The lack of entrepreneurs and private investors was the reason for the government's role in the 1960s and 1970s to promote growth and development. The poor results reflect the failure to make the right strategic choices, to base planning on transformation of the economy and to implement reforms while maintaining necessary discipline. In response to the need to harmonise public and private initiatives to promote entrepreneurship, investment and innovation, the *Conseil présidentiel de l'investissement* (presidential investment council, CPI) was created in 2002 and an accelerated growth strategy (*Stratégie de croissance accélérée*, SCA) was created in 2005-07. These measures should enable infrastructure, finance, human resources, the legal and institutional framework and promising sectors to benefit from greater attention from public and private officials.

To place structural transformation on a sustainable foundation, guidelines are needed to steer the emergence and renewal of sectors that are diversifying exports and sources of growth. But such a portfolio does not yet exist.

The government growth strategy aims to use a collaborative, competitive partnership to set up a successful innovation system to bring together the strongest sectors and ensure that development accelerates. Such a system can provide appropriate solutions to the lack of public and private leadership, the lack of skills in the workforce, and the weak total factor productivity.

The government plans to create an investment fund with the characteristics of a sovereign wealth fund, that would apply specific budgetary rules to natural resource revenues. Money for the fund would come from revenues from resources like phosphate, gold and zircon, the sale of fishing licences and fisheries agreements, and revenue from the sale of capital assets or royalties shares. To be effective, the fund would have to invest in real development projects and follow international practices as the goal is to ensure long-term development for future generations.

SEYCHELLES

Seychelles is an archipelago in the Indian Ocean comprising 115 islands. Seychelles has limited natural resources, limited land space[1], limited arable land and limited fresh water resources. The country's geographical characteristics make it vulnerable to climatic variability and natural disasters. As a result, the government recognises the fragility of the islands and thus provides significant resources to protect their eco-systems. According to the MDG report, as of 2010, 50% of the land was protected. The country has ratified several international and regional conventions with regard to the protection of bio-diversity, fauna and flora, ozone layer and natural resources management. The country also has two sites listed with UNESCO; they are the Vallée de Mai of Praslin and the Aldabra Atoll. The country has met the MDG Goal 7 on ensuring environmental sustainability. Fisheries, the main natural resource sector, is the second most important sector in the country, accounting for about 5% of GDP, 11% of employment and 90% of export earnings in 2011. Recognising the importance of the main two sectors, the government's medium-term strategy, "Seychelles 2017", aims to double GDP through expanded programmes in tourism and fisheries.

The main natural resource that has been exploited in Seychelles is the fishing sector, given the country's wide expanse of ocean. The sector is the country's most important export sector and accounts for more than 90% of export revenues, although it only contributes approximately 11% of formal employment. The fisheries sector is composed of both commercial fishing and artisanal fishing. In terms of employment creation and industry contribution, the main player in the sector is the Indian Ocean Tuna Ltd (IOT), one of the largest tuna canning companies in the world.

In order to benefit from its large fishing area, the government has signed a number of fishing agreements with Taiwan, Sri Lanka, Mauritius Comoros, China and South Korea for the common management and benefit of the fishing resources in the Indian Ocean. The agreements provide approximately SCR 40 million (USD 3 million) in revenues to the government annually. The other main sources of revenue are the Fisheries Partnership Agreements (FPA) that the country signed with the European Union. Seychelles has a long-standing co-operation with the EU in the fisheries sector, since the signing of the first fisheries agreement in 1987. A new six-year FPA between the EU and Seychelles covering the period from 2005 to 2011 was signed in 2004, following the expiry of the Common Fisheries Programme and was the largest tuna-fisheries protocol signed by the EU with any third country. The agreement allows access of EU shipping vessels to fish tuna in the Seychelles' water up to 56 000 metric tonnes per year. Under the agreement the EU provides EUR 5.6 million per year as access fees for the EU vessels in the Seychelles' water and to support the development of the fisheries sector in the country (policy, capacity building, infrastructure development, etc.). A protocol to the agreement allowed for the extension of the agreement to 2014.

In order to diversify the industry further to other fish products and support the local fisheries development and value addition, the government has undertaken further land reclamation to allow for the development of quays and manufacturing plants. The government is also building another port on the main island Mahé to enable more fishing vessels access to the quays and expand on-land shipping activities. In the next 5 years the industry is expected to be more diversified, with the planned development of 2 cold-storage facilities, 2 factories for filleting and approximately 10 new local businesses related to tuna opened.

The country's geographical challenges coupled with a small population (approximately 90 000 in 2011) have made resource-based structural transformation difficult. Therefore, given its limited resource endowment, in addition to the fishing sector, the country has also exploited its limited (yet diverse) land and water resources to promote land-based tourism (such as hotels, resorts and private housing) and sea-based tourism (such as fishing, diving, and snorkeling). The two sectors have been and will continue to be the main drivers of growth in the Seychelles economy. While the tourism sector is the main employer in the country, providing approximately 60% of employment (2011) there has been limited diversification and insufficient product differentiation making the sector vulnerable to competition from other countries that are able to provide the same services. Furthermore, as Europe was in the past the main market, the 2008 global crisis led to a significant decline in tourism revenues in the last three years. However the country has experienced a significant increase in arrivals from non-traditional markets such as the UAE, Eastern Europe and Africa, which have somewhat compensated. In the future, the country aims to diversify the sector further by promoting eco-tourism.

Oil and gas exploration, which has been on-going for over 30 years, reached an advanced stage in the last two years, leading to the creation of Petro Seychelles in 2012, a state-owned company to oversee the promotion and supervision of exploration activities. It is expected that one of the two international companies that has exploration rights and identified sites with commercial viability will drill its first well later in 2013, with the other company following shortly after in 2014. If the oil deposits found are commercially viable, oil drilling would begin in the next 6 years. A significant number of potential investors have also shown an interest in obtaining exploration licenses in 2013. While the government is hopeful for revenues from this potential resource sector and has begun to prepare the legislative environment for the effective management of revenues, potential creation of a wealth fund, adherence to international transparency initiatives such as the Extractive Industries Transparency Initiative (EITI), and effective environmental management, the government has not factored such revenue flows into its public accounts estimated for the short term.

1. The government spends significant resources annually on land reclamation for development purposes.

SIERRA LEONE

Expansion of the extractive sector in Sierra Leone, especially following the recent discoveries of iron-ore mines, has spawned a process of structural transformation of the economy. The country is experiencing today a shift of productivity from the primary sector to the mining and extractive activities. As a result, the mining sector became the main driver of economic growth leading to an unprecedented high growth especially over the last two years. This should in principle be accompanied by structural transformation, defined as the transfer of workers from activities and sectors with low average labor productivity to those with high average labor productivity, thus contributing to an increase in average labor productivity for the overall economy and increasing diversification and sophistication of exports.

Empirical evidence suggests that rapid productivity growth is often accompanied by declining shares of agriculture in GDP and employment reflecting the migration of resources toward high productivity industries and services. For the case of Sierra Leone, natural resources have favoured a type of transformation in which the extractive industry plays a more dominant role than services or manufacturing. While agriculture remains the most important sector of the economy, its contribution to GDP (at constant prices, 2006) has increased from 45.8% in 2001 to 54.5% in 2009 to drop thereafter to 47.02% in 2012. In addition, agriculture's contribution to the economic growth has declined from 4.5% in 2003 to 2.8% in 2012 and its average productivity growth did not exceed 3% during the period 1995-2010 with an annual percent change in agricultural output share of 1.7%[1] during this period. The poor performance of the agriculture sector is mainly explained by poor irrigation, lack of fertilisers and other inputs, shrinking land use, infrastructure constraints and the fact that the government's "tractorisation" policy, which aims at expanding land under cultivation, has reached its limit. Some kind of backup policy seems needed to enhance productivity and the processing of produce. On the other hand, the contribution of the mining and quarrying sector to GDP (at constant prices, 2006) has risen sharply from 2.9% in 2001 to 13.4% in 2012 and its contribution to economic growth has increased from 2% in 2003 to 12.3% in 2012, making the sector a main driver of economic activity. The development of the extractive sector has led to a construction boom to upgrade infrastructure and build roads connecting the mines to port facilities. As a result, the share of the construction sector rose from 1.6% of GDP in 2001 to 2.2% in 2012 and its contribution to the economic growth, which had decreased from 0.3% in 2003 to 0.1% in 2009, accelerated starting in 2010 and reaching 0.4% in 2012 reflecting the indirect effects of the development in the mining sector on the one hand and the upgrade in infrastructure on the other. However, it is also important to note that the last decade was a post-conflict period in Sierra Leone and the development of the construction sector was a need and was not only driven by productivity issues. Manufacturing did not benefit from these changes and its share in GDP has rather regressed from 3.12% to 2.3% during the period 2001-2012. Likewise, services share has tumbled from 41.2% of GDP in 2001 to 31.1% in 2012 and the sector has been heavily concentrated in low value-added informal sectors such as retail trade. But there is still room for the sector to experience high productivity rates, especially for telecom, transport and financial services.

Despite a capital shift to the mining and construction sectors, labor transfer to these sectors has been low due to the fact that extractive activities and construction are capital intensive, as mentioned earlier. Moreover, the poor quality and coverage of education and training did not help to facilitate the shift of labor into high value-added industries. According to the 2012 Employment Survey, manufacturing accounts for the highest percentages (19.8%) of business establishments canvassed, followed by banking institutions (11.0%) and insurance and construction (9.9%). The mining industry employed around 1% of the total work force during the period 2007-10, but the contribution increased rapidly to 5.4% in 2011 and 6.9% in 2012.

Under its new strategy, the Agenda for Prosperity 2013-17, the government is making efforts to implement reforms to better manage its natural resources and enhance its revenue collection by strengthening the collection process rather than increasing taxes on extractive activities.

It aims at creating a dual economy, in which resource exploitation centres become enclaves with minimal integration with the rest of the economy, guaranteeing minimum returns from exploitation to the national economy and avoiding the effects of Dutch Disease that could eventually lead to social instability.

However, efforts to accelerate the development and structural transformation in Sierra Leone are hindered by substantial obstacles, particularly those related to infrastructure (electricity and roads), governance, human development, finance and trade.

1. Regional Economic Outlook: Sub-Saharan Africa. IMF, October 2012.

SOUTH AFRICA

The economy of post-apartheid South Africa began undergoing structural change in the mid-1990s. This followed years of economic sanctions and international isolation that finally began to take their toll in the 1980s, worsening in the early 1990s. As investment dried up and the country suffered balance of payments crises, economic growth slowed to 2.2% by the 1980s from an annual rate of 3.5% in the 1970s.

Between 1990 when Nelson Mandela was freed after 27 years in prison, and 1993, the year before the first democratic elections that brought majority rule to the country, the economy contracted by 3.1%. In 1994, the new Mandela government began a series of reforms that would have a profound impact on the structure of the economy and labour markets. These included trade, industrial and financial sector reforms, all of which were aimed at making the country competitive as it re-integrated into the global economy.

For the first time in years, South African financial and non-financial corporations, including mining companies, could invest abroad under fewer regulations. The 1996 report of the Labour Market Commission laid the groundwork for a series of reforms, including the New Labour Relations Act, Basic Conditions of Employment Act and a Green Paper on Skills Development. The overall effect was a decline in employment and a simultaneous rise in labour productivity as fewer workers continued to produce economic output. According to the South African Reserve Bank, the average level of employment in the formal non-agricultural sector fell by 6.9% between 1989 and 1996, whilst growth in labour productivity, measured by output per worker, increased from 0.3% in 1991 to 3.0% in 1996.

Depressed global commodity prices in the 1990s led to an overall slowdown in the production of minerals, including gold, iron ore, manganese and platinum. Investment in the sector stagnated as companies rolled back both exploration and production. Existing infrastructure was generally neglected. For the gold sub-subsector, declining ore deposits (both in quantity and quality) and the associated rise in production costs, aggravated the situation. This led eventually to mine closures or consolidations and job losses.

The sharp rise in commodity prices in the 2000s, driven by demand from China and India, rekindled interest and investment in the sector. However, inadequate infrastructure, notably in rail transport and energy, prevented the country from taking full advantage of higher prices. Instead, the industry declined by 1.0% annually for a decade leading to a loss of the global market share. Meanwhile, the proportion of net gold exports in total merchandise exports fell from 21.8% in 1997 to 7.4% in 2008, before edging up to 11.2% in 2011. Similarly, employment in the mining sector declined from 593 000 in 2005 to 357 000 in 2012.

Concerned by the challenges of the minerals sector and their negative effect on jobs, the government embarked on a number of initiatives. Specifically, it proposed a three-pronged strategy of forward, backward and horizontal linkages within the broader mining sector and across other sectors of the economy. The National Development Plan needs to be implemented to address structural bottlenecks to job creation.

Backward linkages will entail the promotion of local industries to expand production of mining sector goods, such as equipment, as well as technical and professional services. These will be aimed at both domestic and international markets where South African mining companies are currently operating, especially within Africa.

Policy around forward linkage is aimed primarily at value addition rather than the exportation of raw minerals. Given the energy-intensive nature of minerals beneficiation, however, and the need to promote employment through an aggressive development of small- and medium-sized enterprises, government will have to be selective in its efforts to ensure adequate energy for the overall economy. Beneficiation will also have to consider issues of cost to ensure that it is not done at the expense of the country's international competitiveness.

Policy and interventions related to horizontal linkages will focus on human resource development, research and development, and infrastructure development. All three will be designed to support both forward and backward linkages. The biggest challenge will be to develop adequate human resources to support any interventions, either by the public or the private sector.

South Africa currently suffers from severe skills shortages and whilst 2011 data shows an increase in the proportion of South Africans with post-secondary education (from 7.1% in 1996 to 11.8% in 2011), disparities across groups remain. Whilst the share of blacks with higher education more than doubled from 3.6% in 1996 to 8.3% in 2011, it was considerably lower than the 36.5% and 21.6% for whites and Indians, respectively. Accelerating progress and ensuring equity in human resource development will thus have to be a key ingredient in the government's overall strategy for transforming the minerals sector for national development.

SOUTH SUDAN

South Sudan is a large (619 745 square kilometres) country that is very rich in natural resources, many of which remain to be discovered. The available natural resources are water, hydropower, fertile agricultural land (about 90% of which is arable land), gold, diamonds, petroleum (with proven reserves of 7 million barrels), hardwoods, limestone, iron ore, copper, chromium ore, zinc, tungsten, mica and silver. In addition, South Sudan's protected area of Bandingilo National Park hosts the second-largest wildlife migration in the world.

Yet South Sudan has not managed to maximise "returns" from its abundant natural resources. Consequently, it has one of the worst social indicators in the world, poor infrastructure and high youth unemployment. Unequal access to the country's natural resources wealth has frequently been central to internal conflicts.

Due to the country's recent independence and years of political instability, laws and policies (from the Constitution to national laws governing resources to municipal ordinances) are in deep flux. In the course of developing the legal framework, there has been little clarity on the jurisdictions of different governmental agencies. For example, the Transitional Constitution gives joint authority over natural resources and forestry to the national and state governments, but does not provide further guidance. This ambiguity in the roles of different government levels has created challenges to implementation and enforcement and generated opportunities for corruption and bribery.

The structure and type of governance is yet to be clearly defined or agreed upon, despite its significant implications for natural resource management. The selection of a federal or a decentralised unitary system could have profound long-term effects on decision-making with regard to natural resources, the effectiveness of environmental governance and the potential for conflict. The current severe shortage of trained personnel at the national and state levels is a significant barrier to implementing an efficiently decentralised system.[1]

One important challenge facing South Sudan's forestry sector is a lack of awareness and common understanding of the status and future direction of forest management. An estimated 45% of forest cover and a large proportion of biodiversity have been lost since the outbreak of the war in 1983. If properly managed, forestry resources (including teak and mahogany) could help diversify South Sudan's oil-dependent economy, promote food security and alleviate poverty in rural communities. Instead, weak and inadequate co-ordination mechanisms between national and state government bodies with regard to programme implementation, resource allocation, enforcement and accountability lead to extensive illegal logging and forest conversion. While the draft forest policy contains provisions to protect the country's diverse forest reserves, limited information is available on the forest resource base. The lack of accessible information, coupled with a modest budget for staff hiring and training and the government's limited ability to enforce forestry laws, results in a mismanagement of forest resources.

South Sudan is also struggling to determine whether customary law, statutory law, or some combination thereof should apply to land use at the local and community levels. The 2009 Land Act granting communities the right to own land and be a part of the consultation process is yet to be implemented. As of late 2012, not a single parcel of community land had been formally recognised (although a project supported by USAID was underway to help communities and the government carry out the process of designating community lands). The lack of formal designation of community lands held under traditional tenure has led to frequent and extensive land-grabs.[2]

The Abyei conflict has damaged the area's water and land resources. As a country that lies almost entirely in the Nile Basin, South Sudan is demanding a large share of Nile waters to develop agricultural projects. However, it faces the challenge of sharing Nile water resources with other riparian states in the Basin. Since the Comprehensive Peace Agreement did not adequately address the distribution of Nile waters, six upper riparian states – South Sudan, Ethiopia, Kenya, Rwanda, Uganda, and Burundi – signed the Cooperative Framework Agreement (CFA)[3] in 2010.[4] The ratification of the CFA led to the creation of the Nile Basin Initiative to which South Sudan was admitted as a full member in July 2012, bringing membership to ten states.[5] Since the CFA excludes Egypt and Sudan, it is unlikely to resolve Nile water distribution issues.

Corruption represents a considerable challenge, particularly in the natural resources sector. An estimated USD 4 billion was "lost to corruption" or "stolen" by South Sudanese government officials in 2012 and there have been several reported cases of illegal petroleum extraction.[6] In establishing its legal and policy frameworks governing the extraction and management of natural resources and their revenues (including concession arrangements), South Sudan is making conscious efforts to include provisions for transparency, public engagement, accountability and revenue management standards drawing from international best practice.[7] In 2012 South Sudan passed the Petroleum Act aiming to reduce the country's dependence on oil and use these revenues to support development in other sectors. The act contains provisions to promote transparency in oil management, improve governmental accountability and prevent corruption and bribery.[8]

The Petroleum Act calls for increased public reporting and requires the Ministry of Petroleum and Mining to publish revenue and production data annually.[9] It requires adherence to EITI, the international standard promoting transparency in private-sector payments to the government in the oil, gas, and mineral sectors. It also requires companies to disclose all oil-related payments to the government.[10] The South Sudan Legislative Assembly has not yet approved the Petroleum Revenue Management Law, which will ultimately govern management of oil revenues. While the law ensures that state governments receive a proportion of the oil revenue, it does not contain adequate safeguards to protect citizens' traditional and customary land rights.

Notwithstanding the government's efforts, the conditions for success in managing natural resources and their effective linkage with the country's structural transformation are only partially met. Three fundamental weaknesses impede structural transformation and sustainable management of available natural resources: the lack of socio-economic development; weak governance and institutional capacity; and a climate of insecurity and instability. Furthermore, some of the natural resources pose a challenge in their own right, including the lack of absorptive capacity for oil revenues; the lack of financial safeguards to cushion the economy against volatility in oil prices; the delay in implementing mechanisms for saving a portion of oil revenue for future generations; the lack of regulation to protect the population and land from pollution; heavy reliance on Sudan's infrastructure to process and export oil; tensions resulting from competition for water; and the weak judicial system to settle land disputes. As a result of these weaknesses, natural resources have not been effective sources of social and structural transformation.

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SUDAN

Over the last 15 years Sudan has undergone a significant structural change thanks to the commercial exploitation of oil discovered in the mid-1970s. The oil sub-sector benefited from the development of export infrastructures (pipelines and export port) in 1999, the surge in global oil prices from the early 1990s to the mid-2000s, the sealing of the Comprehensive Peace Agreement (CPA) in 2005 and the inflow of FDI. During the period 1999-2011 real GDP grew on average by 6.6% compared with 2.0% average growth for the decade before. While the contribution of oil to value added is modest, averaging 11% over 1999-2011, it resulted in a significant structural change in the public finances and the balance of payments, where oil income contributed on average 48% to total government revenues and 82.7% to exports, respectively. The share of agriculture in the GDP dropped on average by about 9 percentage points for 1999-2011, down from an average of 42.5% during 1989-1998. This was largely due to the combined complications of the Dutch Disease, or resource curse, the global recession and the continued USA sanctions. Although the contribution of manufacturing to value added increased by a meagre 0.1% on average for the period 1999-2011, up from 8.2% average in 1989-98, the sub-sector underwent significant structural change reflected in the decline of textiles and the rise of petrochemical industries. Spinning and textile factories (32) continue to operate at 43.6% of installed capacity because of the decline of cotton production, which dropped from 1.3 million bales in 1970-71 to 80 000 bales in 2011, and the strong competition from cheap imported textile products. However, the Khartoum Petrochemical Plant, the Petrochemical Trading Company, as well as the Khartoum, El Obied and Port Sudan refineries, emerged as an important downstream oil industry businesses with an estimated USD 1.8 billion in investment, which partially offset the decline of textile industry.

Agriculture remains the main driver of broad-based growth employing about 42% of the labour force (CBS, 2009) and contributing an estimated 34.8% to GDP in 2012. The emphasis of the EPSSG 2012-14 on enhancing import substitution of key products (wheat, sugar and edible oil) as well as on export expansion of cotton, livestock and gum arabic is expected to revive agriculture. However, addressing exchange overvaluation is critical to improving the performance of the sector, particularly given that in spite of the favourable international price of cotton since 2004 the quantity exported underwent an historic decline largely reflecting exchange rate overvaluation.

The EPSSG 2012-14 targeted the expansion of gold and oil to compensate for the fall in foreign earnings. The Sudan gold refinery was inaugurated in 2012 to promote domestic processing with an annual capacity of 270 tonnes. Since 2011 the Bank of Sudan has continued to intervene in the gold market as buyer and exporter in order to discourage smuggling; also to that end, the authorities charge gold companies modest royalties (7%) and BPT (15%). In 2012, the government signed oil exploration and production-sharing contracts with Australian, Brazilian, Canadian, Chinese, French and Nigerian companies. Proven reserves are estimated at 762 million barrels. Notwithstanding that Sudan has benefited from natural resources in terms of developing downstream oil business in refining with a capacity of 90 000 bpd as well as a plastic processing plant producing 20 million woven sacks a year, agribusiness remains crucial for developing the small- and medium-sized enterprises (SMEs), which are the bedrock of the country's private sector. Food processing has the highest total factor productivity and co-variance compared with other manufacturing categories, implying that shifting market share into this activity would raise productivity by a higher margin.

Natural resources are Sudan's main source of wealth, but remain a focal point for competition and conflict. Between 1999 and 2011 the management of petroleum resources was one of the most serious challenges faced by the government of national unity (GNU). Failure to disclose the agreements between the federal government and oil companies and

the lack of independent verification of published oil figures were main source of continued disagreements between the NCP and Sudan People's Liberation Movement, the two partners of the GNU at the end of July 2011.

After the secession of South Sudan the management of natural resources, water and land including precious minerals, continues to be one of the contentious issues. Sudan has yet to commit to the Extractive Industries Transparency Initiative (EITI) to enhance the openness and transparency of natural resources management. A long-term national strategy for managing natural resources in the context of EITI would provide a framework for synthesising existing policy guidelines preserved by the SFYP, 2012-16, the Environmental Framework Act (2001) and the National Land Commission Act, established according to the 2005 CPA. A simple rule for equating long-term national saving from precious resources to the rate of depleting them would enhance macroeconomic management, promote natural resources governance and alleviate conflicts. Also the mitigation of losses of natural resources becomes critical in redressing deforestation, which is estimated to rise by 1.5% to 2.2% because of the sharp drop in the forest cover from 29.6% to 11.6% after secession. Agriculture and livestock would benefit most from this effort where competition for resources is already high among farmers, herders and other users, including extractors of precious minerals, leading to violent conflicts.

Efficient budgeting of oil and the insulation of the economy from the oil-cycle were set as top priority by the Comprehensive Peace Agreement (CPA) in 2005. Three special fiscal mechanisms were created to assist in the management of the oil revenue: the oil revenue stabilisation account, fiscal responsibility legislation, and the benchmarking of oil prices for the budget envelope. However, these institutions were weakened by high demand for spending arising from commitment to various peace agreements (CPA, Eastern Peace and Darfur peace agreements) and the resulting growth in size of the government. Accordingly, the fiscal response over the last ten years was largely pro-cyclical and the tax effort has declined by about 2 percentage points compared to the decade before, while the tax burden on total factor productivity growth has increased. These developments led to expenditure overhang, further complicating macroeconomic management after secession. The encouragement of gold processing to compensate for the shortfall in foreign reserves could increase the threat of the Dutch Disease because of the shift of labour from agriculture and livestock into gold and other related cottage industries together with the continued depletion of surface reserves.

Because of the high capital intensity of oil production all the equipment and related services were outsourced. Also gold prospecting and detection equipment, as well as chemicals for rock dissolution, are largely imported. Despite the weak backward linkages with local suppliers, Sudan's petroleum sector has developed promising forward linkages in terms of refining and plastic processing industries. Additionally, the recently inaugurated gold refinery would help in boosting forward linkages with jewellers to purchase gold locally. Deepening backward and forward linkages in the precious minerals sector requires building the capacity of local entrepreneurs to enter the value chain as well as enhancing the positive role of the fiscal linkages through high public saving from natural resources and increased investment in productive capacity, while addressing the downside risks.

SWAZILAND

Swaziland is endowed with many minerals such as asbestos, coal, iron, soapstone, green chert, gold, tin, copper, nickel and chromium, as well as forest resources. However, only a few of these minerals are of commercial value. Coal deposits are estimated at over two million tons, most of which are in the Mhlume, Mpaka and Maloma areas. Mhlume is not operational after Gencor ceased operations in 1992 but was recently acquired by Midwinter Resources which is involved in exploratory activities. Investors have also expressed interest in green chert, diamonds, and gold mining. Whereas the exploitation of dumps at the Ngwenya Iron Mine resumed in 2011, Bulembu Asbestos Mine has remained closed since 2001 and diamond mining stopped in 1997. Currently, Swaziland mines coal, quarried stone and iron ore.

The contribution of natural resources to GDP is likely to remain small, given the limited investments in mining and the closure of Sappi Usutu Pulp Company in 2010. Mining contributes just over 2% to both GDP and exports, while planted forests of pine and eucalyptus used to support value-adding activities, including the production of sawn timber and unbleached wood pulp. Wood pulp production used to absorb half of the forest supply. Before its closure, Sappi Usutu generated exports worth about SZL 40 million a year. Swaziland's forests cover 563 000 hectares. Planted forests, which are among the largest in the world, cover 161 000 hectares, which is about 9% of the country's land area. The forests are a source of round wood, mainly for the South African mining industry.

Prospects for the mining and quarry sector are mixed. The outlook for the quarrying sector is negatively impacted by the minimal infrastructural investments in the sector and subdued construction sector. In an effort to boost the economic recovery, the government is also considering reviving the country's diamond industry, as estimates indicate that up to 80 000 carats of diamonds could be mined each year. In anticipation of the resumption of diamond mining, Swaziland took steps to satisfy the requirements of the Kimberley Process membership, which it did in May 2011. Still, given the overall limited extraction activities, the outlook for the mining sector is not expected to change much over the medium term.

Attracting investment into the mining sector faces three major challenges: *i)* private investors are restricted to 50% shareholding; *ii)* lack of transparency on royalties and shorter periods for prospecting rights; and *iii)* requirement for two free equity stakes of 25% each to the King and government. The 2011 Mines and Minerals Act and the Diamond Act have not addressed these challenges, in spite of the efforts to attract foreign investment into mining.

Swaziland was more attractive to foreign direct investments compared to Namibia and Botswana during the 198093 period. Structural rigidities and a non-conducive investment environment have reversed the trends, negatively impacting growth. Industrial growth, in particular, has slowed down and has also been worsened by the recent fiscal challenges. Over the last two decades, agriculture and industrial outputs have been trending downwards. Their shares in GDP fell from 12% and 34% in 1990 to 8.7% and 27.5% in 2012, respectively. In contrast, the share of private services in GDP has increased its share from 20% to 30% over the same period. Construction and public services have been observed to maintain their share, with little variation.

The revised Investor Road Map of 2012 and the Economic Recovery Strategy of 2011 identified the main challenges to attracting investment, including lack of transparency and accountability in concluding and implementing contracts guiding foreign investors. The civil society has also noted limited national capacity to negotiate mining contracts, and this should be strengthened. A more open process, with a multi-stakeholder participation would also improve the collection and allocation of revenues generated from the sector. In particular,

the widespread and *ad hoc* application of tax incentives granted to foreign investors entering the sector should be abolished.

The potential for value-added activities in the extractive sector is limited. Nevertheless, efforts should be made to ensure that communities benefit from mining activities. There is need to ensure decent wages and skill development for employees, strategic procurement, infrastructure development, environmentally friendly operations and tax compliance. A comprehensive policy addressing environmental and health protection also needs to be developed.

TANZANIA

Tanzania has abundant natural resources. Mineral extraction grew an average of 10.8% annually after 2000, but has dropped to below 3% since 2008. Mineral resources (particularly gold) have been a major source of industrial production over the years. Gold exports increased from USD 620 million in 2001 to USD 1.8 billion in 2011 due to price increases in the global markets. Recent gas findings and new mineral discoveries are expected to boost extractive industry growth.

Loopholes in mining contracts undermined the fiscal gains Tanzania should have reaped from recent mining operations. The enactment of the Mining Act 2010, which increased the royalty on minerals (such as gold) from 3% to 4% and introduced a provision for the government to own a stake in future projects, is expected to correct this problem. However, strengthening institutional and audit capacity will be crucial to ensure that such gains are realised. The majority of the population also did not experience positive spillover effects (in terms of employment generation, increased income and human development) from natural resource extraction endowments.

After initial discoveries of 6 tcf of natural gas in 1974, Tanzania commenced commercial production for the first time in 2004. The country made major new discoveries in 2012 and explorations are ongoing. As of June 2012, confirmed new discoveries of both onshore and offshore natural gas stood at 33 tcf and 26 production-sharing agreements had been signed with 18 gas exploration companies. Although some degree of uncertainty surrounds the level of expected revenue, the proven natural gas reserves could earn up to an estimated USD 2.5 billion a year – 46% of Tanzania's estimated total fiscal revenue for 2012/13 – with revenue from newly found gas reserves flowing in over 2020-40. Thanks to these new natural gas discoveries, Tanzania is expected to move to 34th place in the global ranking (and 5th in the continent) of countries with significant gas reserves.

Tanzania has seen major structural changes in its economy over the last two decades. Agriculture's share in GDP dropped 22.5%, from 30.6% in 2001 to 23.7% in 2011. During the same period, the share of manufacturing in GDP increased 10.7%, from 8.4% to 9.3%, although the sector still accounts only for one-tenth of total output. The services sector expanded from 41.7% to 48%. The new growth frontiers, such as communications, construction and electricity and mineral extraction (including gas), will likely further enhance this transformation.

While the structure of the economy has changed, the expected broad-based wealth creation and poverty reduction have been mild. The agriculture sector – which remains the largest employment sector, absorbing 74% of the labour force – still significantly affects growth. The manufacturing sector remains small, while the new growth sectors (such as mining) act as enclave economies with little employment generation. As a result, rural households (the majority of which depend on agriculture for a living) constitute 80% of the poor. In other words, Tanzania remains predominantly an agrarian economy; other developments are essentially a transformation in the making.

Plans to exploit natural resources for socio-economic transformation are articulated in Tanzania's national development strategies, such as the Five Year Development Plan and the Long Term Perspective Plan, in achieving middle income status as envisaged by Tanzania Development Vision 2025. These plans have been further strengthened by the recent findings of natural gas. In 2012, Tanzania drafted a Natural Gas Policy to guide the development of the gas industry and ensure that benefits are maximised and contribute to economic transformation. This depends on several factors, such as the efficiency and cost-effectiveness of natural gas supply; its contribution to national coffers; effective utilisation of

resources generated by the industry in transforming agricultural and industrial sectors; and effective management of the industry to minimise its adverse effects on the environment and communities. The above requires extensively upgrading the country's legal and institutional frameworks, strengthening transparency and accountability and establishing open mechanisms for contract scrutiny.

Jobless growth is another major risk. Addressing human resource gaps (especially in technical skills required by industry), infrastructure, revenue management skills and health and safety are important. Establishing links with other domestic sectors to facilitate spillover gains will also be crucial.

The implications of gas and other mineral discoveries on ongoing reforms are a major concern as they could derail core reforms and induce fiscal indiscipline. Gains from recent reforms and the benefits derived from natural resources could be short-lived if core reforms are stalled. Environmental issues are also a major concern, as proper measures are not yet in place to safeguard from the adverse effects of heavy resource extraction. Legislation related to environmental impact assessments and their public scrutiny should be strengthened to minimise environmental damages from extractive industries. Similarly, technical skills and domestic institutional capacity should be shored up to address environmental ramifications.

Proper resettlement and compensatory mechanisms are also needed to safeguard communities displaced by the extractive industry. Despite existing laws, Tanzania demonstrates weak enforcement of compensatory and resentment mechanisms; effectively safeguarding land acquisitions through legal arrangements is vital to this issue. The domestic availability of technological know-how, capital and management skills would make public-private partnerships beneficial in implementing some industry-related activities. Nevertheless, a risk-sharing mechanism for public-private partnerships needs to be in place, since such arrangements commonly carry risks.

TOGO

Togo is one of the largest phosphate producers in Africa. It also has significant iron ore reserves and large deposits of marble and calcareous rock. Mining in Togo began in 1961 with the industrial exploitation of phosphate, which was the country's main natural resource at the time. In 1989, production reached 3.3 million tones, fully justifying the central economic role played by the Togolese Phosphate Office (OTP). The OTP did not, however, use the resulting profits or significant bank aid received to renew the equipment necessary for operation. In the end, suspected criminal activity and the absence of efficient production methods pushed the company into near bankruptcy, with production falling to 750 000 tonnes in 2007.

In 2001, as part of the structural adjustment reforms, the International Fertilizer Group (IFG-Togo), equally owned by the Togolese government and the group BRIFCO Limited, took over management of the OTP. However, this public private partnership was not successful: following a conflict between the government and the Franco-Tunisian Holding BRIFCO, the IFG and the OTP were dissolved in 2007. That same year, the government created a new state-run company, the SNPT. It also simultaneously carried out a strategic audit and drew up a business plan, linked to a new recovery strategy for the sector. Reforms have begun to bear fruit, with production up to 865 616 tonnes in 2011 and 1.1 million tonnes in 2012.

Togo also mines limestone (with its clinker factory producing 1 200 550 tonnes in 2011), marble (although production has not yet really begun) and iron (about 100 000 tonnes in 2012). In 1996 the clinker and cement sector was privatised. Along with benefits from the free zone created in 1989, this has boosted production, and annual growth is over 5%.

In October 2010, ENI Togo was granted a licence to search for offshore oil, and has now begun prospecting. The government has also granted seven licences to search for gold, diamonds, manganese, nickel, zinc, bauxite and platinum.

In addition to its mineral resources, Togo produces cotton (79 000 tonnes in 2011), maize and rice. Like in the phosphate sector, the cotton sector suffered from poor governance and outdated infrastructure and production equipment, leading to a fall in production from 187 000 tonnes in 1999 to 28 000 tonnes in 2009. The dissolution of the state-run SOTOCO and the creation of a joint venture company, the NSCT (40% of which is owned by the Federation of Cotton Producers), along with the implementation of a transparent and concerted system for setting cottonseed prices and for strengthening producer groups, has led to a jump in production, which reached 118 055 tonnes in 2012.

Coffee and cacao production declined significantly over the last 20 years, affected by a fall in international prices, lack of adequate inputs, and the absence of a working framework for producers. Maize and rice production, on the other hand, increased from 1980 to 2011 thanks to a strong subsidy policy for inputs, going from 139 000 tonnes to 651 000 tonnes for maize and from 15 000 tonnes to 112 000 tonnes for rice.

The country's productive landscape has changed significantly over the past 20 years, both in terms of goods produced and in terms of export destinations. Phosphates, the basis of Togo's economy since the 1970s and responsible for more than half of all export revenue in 1989, were overtaken by cotton for the first time in 1995. Cotton remained the main export until 2001, but from 2002 onward was displaced by clinker and cement (27%), while phosphates and cotton fell respectively to 15% and 14%. Clinker production rose to 1.18 million tonnes in 1999 following the privatisation and modernisation of the West Africa Cement Company (CIMAO).

In recent years the government has taken encouraging steps to ensure greater sustainability in natural resource management. For example, a law passed on 5 May 2011 requires all mineral resource operators to contribute to local development. Togo has also committed to transparency, and became a candidate country to the Extractive Industries Transparency Initiative (EITI) on 20 October 2010. The deadline for compliance is set for May 2013, which means the authorities must implement their detailed action plan swiftly.

The legal framework governing the environment has also improved considerably since 2006, in particular thanks to the adoption of texts that stipulate that all mining operations, whether industrial or semi-industrial, must be systematically preceded by an environmental and social impact assessment and approved by the issuance of an environmental compliance certificate. The existing regulatory framework (the mining code) remains ill-adapted, however, preventing real profits from being made from extractive activities (fees per km^2, for example, are 150 XOF for prospecting and 2 250 XOF for exploration).

With SCAPE, the government committed to actively promoting the mining sector, in particular by developing its potential through the use of private capital and by undertaking in-depth, institutional and structural reforms in the extractive industries. The revision of the mining code and of the existing legislation is already underway, with a view to attracting major investments. A mining policy is also being drawn up. Last but not least, the government intends to produce updated geological relief maps and make geophysical data available, and to introduce new fiscal rules for the mining sector.

TUNISIA

Since the 1960s, the industrial and service sectors have increased their share of GDP and the number of jobs they provide at the expense of the agricultural sector. Governments have recognised the importance of exports for development since the 1970s, especially the government of Zine El Abidine Ben Ali (1987-2011). Tunisia has adopted a growth strategy aimed at stimulating exports through policies to promote investment among domestic firms. Measures have also been taken to attract FDI and investment in infrastructure.

These policies along with Tunisia's trade agreements have had a relatively positive effect, boosting growth in textiles, machinery and electricity, and agribusiness. Though Tunisia's mineral resources are not comparable with those of the countries in the region, it has developed its mineral exports to the extent that they represent a higher proportion of GDP than those of Morocco or Egypt. In the five years from 1995-99 they accounted for 57.5% of GDP; in 2005-09 that figure rose to 57.5%.

Tunisia is not rich in natural resources, except in phosphate. In 2011 the mining sector (led by phosphate) contributed 7.5% of GDP and 10% of exports. Founded in 1896, the *Compagnie de phosphates de Gafsa* (CPG) has an annual production capacity of 8 million tonnes across its various sites. Annual phosphate production fluctuated between 7 and 8 million tonnes from 2007 to 2010, with annual investments of between TND 50 and 100 million and annual turnovers ranging from TND 400 million to TND 1.5 billion. The revolution reversed the downward trend in the number of employees, which has risen from 4 898 in 2010 to 5 573 in 2011 and 8 050 at the end of 2012.

Tunisia has been developing its phosphate-processing industry for a number of years, producing phosphoric acid and fertilisers. Formed in 1947, the GCT has an annual production capacity of 6.5 million tonnes through its four production centres (Gabès, Sfax, Skhira et M'dhilla). The group's production capacity of phosphoric acid and fertilisers are 1.3 million tonnes of malondialdehyde (MDA), 1.3 million tonnes of diammonium phosphate (DAP), 0.9 million tonnes of trisodium phosphate (TSP), 0.3 million tonnes of ammonium nitrate (AN) and 0.1 million tonnes of dicalcium phosphate (DCP).

Tunisia is the second largest producer and the largest exporter of TSP, with 21.7% of global production and a 31.2% market share; the fourth largest producer and second largest exporter of DAP, with 5.2% of global production and a 9.6% market share; and the fifth largest producer and third largest exporter of phosphoric acid, with 5.3% of global production and a 12.5% market share. To further expand these export markets, the GCT is developing its international cooperation with Indian and Chinese phosphoric acid consumers.

The raw materials that the group needs are phosphate, ammonia and sulphide. The GCT provides 80% of the phosphate needs for local manufacture. Ammonia is imported from Russia, the Black Sea and the Middle East, while sulphide is imported from Russia, the United Arab Emirates (UAE), Kuwait and Kazakhstan.

Tunisia has failed to export goods with a high value added, which would enable the country to take better advantage of its export-based growth strategy. However, following the Multi Fibre Arrangement's expiry in 2005 and faced with global competition in the textile sector, Tunisia began to diversify the goods it supplies, moving towards products with a higher value added. For many years, textiles provided almost half the country's exports, but by 2012 their contribution had dwindled to 22.3%. Textile exports as a share of total exports had been stagnant since 2005 before falling, going from 47% in 1993 to 26% in 2010. Meanwhile, the contribution made by machinery and electricity increased from 12% in 1993

to 34% in 2010. However, traditional industries like mining and energy still accounted for 24% of exports in 2010, a figure that has remained stable over time. Agriculture and agribusiness together provided 8% of exports in 2010, down from 12% in 1993.

The industrial sector is still very labour intensive, especially the textile industry, and is concentrated on assembly operations. The shift towards sectors with a higher value added could help make export revenue less volatile and raise productivity. The measures the Tunisian government can take over the coming years to make the economy more competitive include diversifying its trading partners, ensuring a better match between supply and demand in the labour market, providing better governance in terms of political responsibility, developing a culture of entrepreneurship, and providing financial support for export companies through the generational investment vehicle called the Ajyal Fund.

Agribusiness has expanded since 2003 thanks to relatively steady growth in exports, which doubled in size between 2005 and 2008, but remain well below their potential. Tunisia's main exports are olive oil, fishery products, dates, and fruit and vegetables. Although the government has taken measures to help upgrade the sector, such as creating the Bizerte technopole in 2010, agribusiness is still affected by distortions that do not help the development of an export-oriented industry. Support policies have created a bias that favours import markets at the expense of exports. There is also strong protection of agricultural goods at the border (beef, lamb/mutton and wheat), domestic price controls for agricultural goods (cereals, milk, sugar beets and tobacco) and subsidies on agricultural inputs (chemical fertilisers, pesticides and water). While these measures protect producers against fluctuations in world prices, they do not provide the necessary incentives to be competitive.

In terms of sustainability, phosphates are Tunisia's most polluting industry, generating liquid and solid waste and greenhouse emissions. The GCT has begun investing in pollution-control equipment to analyse to what extent the industry complies with international standards and regulations. The investment needed to make production and waste management less polluting is huge, which is why the current business structure has been maintained.

UGANDA

The Ugandan economy has witnessed dramatic growth in the past two decades, with GDP rising at an average annual rate of 7.0% from 1992 to 2011. It was the third highest rate in sub-Saharan Africa for the period, only surpassed by Equatorial Guinea (20.0%) and Liberia (10.0%). This has been driven by growth in the industry and services, with value added for these sectors growing at an average of 10.0% and 8.0% between 1992 and 2011. It has been underpinned by strong investment and export growth. Gross fixed capital formation grew on average by 8.6% per year during the period and exports of goods and services by 17.0%. This growth benefited from relative macroeconomic and political stability, especially since the end of the armed conflict in northern Uganda in the mid 2000s. Growth has also been bolstered by large inflows of ODA, averaging 15.0% of gross national income from 1991 to 2010, as well as by a general policy of openness to foreign investment and international trade.

This period has also seen important changes in the structure of the Ugandan economy. Agriculture, which in 1990 accounted for 57.0% of GDP, contributed only 23.0% in 2011. In contrast, industry and services have seen their weight increase from 32.0% and 11.0% respectively in 1990 to 51.0% and 25.0% in 2011. However, these developments have not made any significant change to the employment pattern. The latest estimates for 2009/10 showed that agriculture accounted for 65.0% of jobs, manufacturing 6.0% and retail and wholesale 10.0%. These shares have only changed marginally from the 65.0%, 6.0% and 12.0%, respectively, in 2002/03. Even within agriculture, the move to commercial farming and away from subsistence agricultural activities has also been small. The non-monetised agricultural sector, including subsistence farming, still accounted for 39.0% of agricultural value added in 2011, against 41.6% in 2001.

The natural resources sector has continued to play a prominent role, especially primary commodities such as cocoa, coffee, cotton, flowers, fish, tea and tobacco as well as cement. These eight product categories accounted for 40% of total exports in 2011, although this share has fallen sharply from 84% in 1994. The growing diversification of Uganda's export base towards non-traditional exports has also taken place within the resource sector, with the emergence of activities that barely existed 20 years ago, such as cement, flowers or fish-products. However, the scope for more natural resource-based transformation appears limited. Thus, while Uganda has been able to diversify production and export base of primary commodities and enter new higher value-added activities, such as fish products, flowers or cement, there is no reason to expect an acceleration in production trends in these sectors. Moreover, the contribution of these products to tax revenues –and their contribution to government revenues – while difficult to establish, is likely to remain small.

The role of natural resources in Uganda, however, is likely to change significantly in the next decade, with the recent discovery of oil in the Albertine Graben, in western Uganda. The first discoveries of commercially viable oil reserves were made in 2006. Up to 20 major discoveries of oil and gas reserves have been made since then, amounting to 3.5 billion barrels of oil equivalent as of 2012. In current conditions, it is thought that production in Uganda could reach a peak of 200 000 barrels per day by 2020. Industry experts estimate that this rate could be maintained for about 10 years, with oil production expected to remain commercially viable for 25 to 50 years in total, depending on technological developments in the oil industry and whether additional reserves are found.

While government wants to develop refining capacities in the country as a first step towards developing a national oil sector, the experience of other developing countries suggests there is limited scope in this sector. In fact, oil production could actually dampen

prospects for soft commodity sectors, if it eventually leads to an appreciation of Uganda's real exchange rate and causes Dutch Disease – a decline in manufacturing.

Oil revenue could lay the basis for structural transformation, by providing a unique opportunity to push ahead infrastructure investment in transport, energy, agriculture or human development. Existing estimates of government revenue from oil range around USD 2 billion to USD 3 billion per year during peak production. But given the volatility of international markets and uncertainty over the exact volume of Uganda's oil reserves, these remain estimates. To give an idea, at current prices, USD 2 billion is three times the government's proposed budget for education in 2013/14, and six times the health budget. With current unit costs for road construction in Uganda ranging between USD 750 000 and USD 1 million per kilometre, it could also serve to double Uganda's existing paved road network of 3 264 km every year. Realising these oil-dividends, however, will depend on the government's ability to address capacity constraints and bottlenecks that cause long delays in the completion of infrastructure projects and high infrastructure development costs in Uganda.

In any case, it will be several years before these investments are finalised and start feeding into economy-wide productivity gains. It is important to note that oil production is only expected to start in 2017 and to reach a commercial scale will require investment to establish key oil production and distribution infrastructure in Uganda and the East Africa region. This will include refinery capacity, pipelines, road and rail transport and basic oil development. Industry experts say this could require between USD 7 billion and USD 11 billion. Any delays in completing these projects will likely push back the start date for commercial oil production and of the benefits it might generate in government revenue and transforming Uganda's economy.

ZAMBIA

Zambia is richly endowed with copper, the country's major source of foreign exchange, accounting for about 80% of total exports. Zambia is Africa's top copper producer and the world's seventh-largest, making up about 6% of global output. Zambia also has sizable proven deposits of other mineral resources, including cobalt, nickel, manganese, gold, nickel, gemstones, non-metal resources (*e.g.* coal, uranium) and soft natural resource commodities (forests, fertile land). Furthermore, it is believed that Zambia accounts for about 60% of water resources in southern Africa. These diverse natural resources present numerous opportunities for economic transformation.

Whilst previous attempts to diversify Zambia's exports and foster structural transformation have proved futile, current economic conditions and political dispensation offer favourable incentives for a new economic model. If properly harnessed, these natural resources could be exploited for the benefit of the Zambian people. However, identifying economic sectors that offer the best competitive advantage is the most critical issue.

The potential of agriculture to contribute towards structural transformation is immense. Zambia has abundant arable land and climatic conditions suitable for production of a variety of crops. Currently, agriculture contributes about 7% to GDP growth and employs an estimated 85% of the workforce, mostly in the subsistence sub-sector. However, productivity is very low. Output per worker in constant US dollars is only USD 221 against USD 900 for sub-Saharan Africa. Furthermore, agriculture contributes no more than 5% of total merchandise exports and the linkages with manufacturing are generally weak.

The major hindrance to improved agriculture and livestock productivity is investment in infrastructure and lack of extension services, particularly to small-scale farmers who face higher per unit costs. Mainstreaming the agriculture sector requires the commitment of substantial public resources, especially in productivity improving technologies and a retrenchment from inefficient input subsidies. Investment in research and development, extension services and rural infrastructure is essential to making Zambia's agriculture sector more competitive.

Zambia is currently enjoying its longest commodity boom ever, driven in part by high international copper prices. Apart from providing fiscal benefits, copper mining can lead the way to Zambia's greater industrialisation. Evidence of satellite SMEs supporting the mining industry is already in place. These include Scaw Limited, a large foundry for the supply of grinding media for ore milling operations, and African Explosives Limited, which manufactures rock blasting explosives. Strategic outsourcing is another form of generating value from mining to spur development of local entrepreneurship and job creation. Examples include outsourcing of subsidiary professional services such as the haulage of ore, and labour sourcing, both of which offer opportunities for employment creation.

Other minerals, such as gemstones and coal, also offer opportunities for government revenue, employment creation and poverty reduction. However, the gemstone industry is largely characterised by artisanal miners, and exports often escape formal capture. Less than 20% of gemstone exports pass through the official channel. Although the sector has potential to generate USD 600 million in foreign exchange per annum, only USD 40 million is captured. Opportunities for structural transformation from the gemstone sector include processing and polishing to add value to raw gemstones. Currently, the government is experimenting with this model through its support of the Lapidary and Gemstone Processing Training Centre, which develops skills for emerald processing.

Zambia's rich coal deposits could be used to generate thermal power, thereby alleviating the country's energy shortfall. Maamba Collieries, jointly run by the state owned ZCCM-IH (35%) and Nava Bharat of Singapore (65%), is currently exploring the potential for a thermal power plant that would generate 300 MW in the first phase of investment.

Constraints to Zambia's structural transformation and rapid industrialisation are well documented. Growth diagnostic studies undertaken in the country demonstrate that Zambian firms are hugely penalised by an underdeveloped infrastructure, a burdensome regulatory and tax regime, limited access to finance, low level of skills, and the general high cost of doing business. Zambia's current expenditure on infrastructure is about 10% of GDP, lower than the estimated 20% the country needs to address the infrastructural deficit. Even with proceeds from the Eurobond, the infrastructure financing gap remains huge.

The current shortage of skills puts a premium on production costs and undermines productivity. Large infrastructure and construction works by foreign firms rely on imported labour, mainly from South Africa or East Asia. Narrowing the education-skills mismatch would require reforming the technical and vocational curriculum, investing resources in research and development, and providing targeted incentives to firms that exhibit strong commitment to improving human capital development.

There are indications of government commitment in pursuing the diversification process with policies focused on overcoming these constraints. In the strategic plan for 2011-2015, the government has set benchmarks for promoting and enhancing value addition on local products. This is envisaged through the establishment of industrial clusters through the country, based on the regions' comparative advantage. Local entrepreneurs facing financing constraints could access funds through the revamped Citizens' Economic Empowerment Commission (CEEC). The CEEC, and other initiatives, including the Private Sector Development Reform Programme (PSDRP), the Triangle of Hope Initiative and the Millennium Challenge Corporation, seek to alleviate binding constraints to Zambia's long-term development.

Zambia could enter a new phase towards distributive and inclusive growth, with the mining industry ramping up production to about 1.5 million tons by 2015, the multi-facility economic zones coming on stream, and the provision of infrastructure and equipment to Nansanga and two other farming blocs. But this will require effective leadership and strong partnership between the state and non-state actors. The government must inculcate a spirit of ownership and strengthen the role of the private sector by nurturing industrial enterprises, allowing them to venture into niche products within complex value-added chains.

ZIMBABWE

Zimbabwe is endowed with abundant natural resources that include rich mineral deposits, wildlife, arable lands, forests and surface and groundwater resources. Major mineral resources include gold, diamond, copper, coal, nickel and platinum. The contribution of mining to the revival of the economy, while discernible, is limited by the low level of beneficiation and value addition to mineral resources.

As a natural resources endowed economy, Zimbabwe is vulnerable to environmental degradation through deforestation, loss of biodiversity, excessive soil erosion, contamination and pollution of water resources and excessive exploitation of groundwater. This has been exacerbated by global climatic changes, which have led to changes in rainfall patterns, frequent droughts, floods and rising temperatures.

Zimbabwe has not created the necessary policies to ensure environmental sustainability. It needs policies that focus on ensuring more robust approaches to manage all aspects of natural resources. These should include: leveraging environmental financing; undertaking fiscal and institutional reforms to accelerate the uptake of renewable and clean energy technologies; adopting public-private partnerships in water, energy and housing provisioning; establishing strong government leadership to safeguard the water and sanitation sector; and clearly and transparently allocating the roles and responsibilities of sub-sectors on the basis of efficiency and effectiveness.

Structural change has been slow and ineffective. For example, Zimbabwe has not been able to exploit fully the benefits of linkages between sectors. For example, the manufacturing sector should be better linked to the mining sector, but because of low investment in the mining sector, this has not occurred. In addition, Zimbabwe's manufacturing sector is still battling to recover its pre-Inclusive Government potential, even in areas where there were linkages with the mining sector. The economy has grown more reliant on imported products and inputs that were once sourced locally. Although Zimbabwe still has one of the largest and most diversified manufacturing sectors (as share of GDP) in Africa, the levels of capacity utilisation have declined significantly.

There are attempts to close loopholes that have led to insignificant revenue inflows from diamond trade. The government has introduced a diamond policy that focuses on ensuring 100% government ownership of diamond mines and the involvement of the Zimbabwe Revenue Authority in the entire value chain of diamonds. While the government has also embraced the World Bank's Extractive Industries Transparency Initiative (EITI) principle in order to strengthen accountability, good governance and transparency in the mining sector, it has yet to launch an EITI programme.

The World Bank is providing assistance to the government for the Zimbabwe Mining Revenue Transparency (ZMRT) Initiative through:

- multi-stakeholder discussions of the ZMRT;
- finalisation of the ZMRT charter and working procedures by the Zimbabwe Oversight Group;
- definition of the scope of the ZMRT process; and
- assistance with contracting an independent reconciliation firm to help with the first ZMRT report.

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